Possibilities and constraints of the lithium extraction and industrialization in Bolivia: A case study of local impacts

ISELIN VALDERSNES MARØY

SUPERVISOR
Vito Laterza

University of Agder, 2019
Faculty of Social Sciences
Department of Global Development and Planning

Master

For all the Bolivians who so generously shared a little piece of their lives with me.

Abstract

With the pressing issue of an inevitable energy-transition, lithium batteries present itself as part of the solution. Lithium batteries have the ability to harness and store great amount of energy and are thus key for the renewable energies. While lithium can be applied in green technologies, and thus be part of the solution in mitigating emissions, this thesis aims at analyzing local impacts of lithium extraction. Beneath the salt crusts of the world's largest salt flats, Salar de Uyuni in Bolivia, vast reserves of lithium are found in brine (high-concentrated salt water). This could potentially represent major economic profits for Bolivia, if they are able to industrialize and turn it into value-added products.

A case study was chosen for the research design, as the thesis aim at exploring local perceptions of the project. Communities surrounding Salar de Uyuni was chosen as research sites, and qualitative interviews were conducted with both residents living there, as well as with decisionmakers and experts in La Paz.

In the past, Bolivia has been subject to unfair policies leaving multinationals with the profit of natural resources while the people have not benefitted much from the extraction. Through nationalizing key natural resources industries, esp. in the oil & gas sector, Evo Morales and the Movimiento al Socialismo (MAS) administration have turned the tide, after years of economic control by multinational companies. The lithium sector however has still not been fully developed, hence questions arise about whether the sector development in the future will produce substantial benefits for local communities and the national society, and how these might, or might not be outweighed by negative environmental and social effects. The main objective of this thesis is therefore to explore the possibilities and constraints of the lithium project, as well as analyzing the rationales driving it.

The findings suggest there are several challenges for building a successful lithium industry. The environmental impacts of the project are not fully understood, and it remains unclear how it might affect local communities. Lack of transparency makes it challenging to gain information about the project, and the findings depict a lack of cooperation between the central government and local actors. The lithium project has great potential, but issues regarding distribution of revenues have created tensions in the areas surrounding Salar de Uyuni.

Acknowledgements

I want to express my deepest gratitude to all the helpful, welcoming people I met in Bolivia. This thesis would not have been possible without their hospitality and eagerness to help. I especially want to thank Fatima and Tania at CESU, Universidad Mayor San Simón in Cochabamba for welcoming me and providing support throughout my stay in Bolivia. I also want to thank Franc and Hildegunn for helping me with Spanish lessons and getting started in La Paz.

I am particularly grateful for the guidance by my supervisor, Vito Laterza. His abilities to provide broader perspectives on topics discussed, as well as continuous positive encouragement and feedback, has been invaluable.

I appreciate the many learning moments this master's programme has provided, and for the time spent with fellow students. A special thanks go out to Ane and Linn, as well as Inger Lise, whom have been great supporters through the final stages of writing the thesis. Sharing the ups and downs of the writing process has been incredibly helpful and motivating.

Stian, for all the love, support and patience throughout this whole process, I am forever grateful. Your firm belief in me has motivated me to achieve more. For my friends, family, and in-laws, I am thankful for the interest you have shown in my work and for always cheering me on (despite not knowing what I am talking about most of the time).

Table of content

List of abbreviations

ACISA	ACI Systems Alemania
CIDOB	Confederación Indígena del Oriente Boliviano/Indigenous Federation of Eastern Bolivia
COMIBOL	Corporación Minera de Bolivia
COMCIPO	Comité Cívico de Potosi
CSUTCB	Confederación Sindical Única de Trabajadores Campesinos de Bolivia/United Confederation of Peasant Workers of Bolivia
ECLAC	The Economic Commission for Latin America and the Caribbean
ESDP	Economic and Social Development Plan 2016-2020
EVs	Electrical vehicles
FRUCTAS	Unique Regional Federation of Peasant Workers of the Southern Altiplano
IFI	International Financial Institutions
IPE	International Political Economy
IMF	International Monetary Fund
MAS	Movimiento al Socialismo/Movement towards Socialism
MNR	Revolutionary Nationalist Movement
MPD	Ministerio de Planificacíon del Desarollo/Ministry of Development Planning
NEP	New Economic Policy
SAP	Structural Adjustment Programs
TIPNIS	Isiboro Secure Indigenous Territory and National Park
USGS	United States Geological Survey
YLB	Yaciminetos de Litio Bolivianos

List of figures

List of pictures

List of tables

1. Introduction

Climate change is a global crisis leading to destruction of livelihoods, economies and lives (UN, 2018). The Sustainable Development Goals adopted in 2015 by all UN Member States, emphasize the need for combating climate change and ensuring sustainable energy for all. Climate change and its impacts concern citizens across the world, evident in the 2019 report by the World Meteorological Organization (WMO) which states that climate change is accelerating and "extreme weather had an impact on lives and sustainable development on every continent" (WMO, 2019, p. 2). The Paris Agreement of 2015 aims to "strengthen the global response to the threat of climate change by keeping a global temperature rise this century well below 2 degrees Celsius above pre-industrial levels". It has been ratified by 187 countries, giving it substantial credibility (UNFCCC, 2019). Energy and climate are inextricably linked as the majority of carbon emissions are related to energy use, and thus a transition to renewable energy is necessary to reduce emissions (Van de Graaf et.al, 2016, p. 18, UNDP, n.p). In order to replace fossil energy with electrical energy, efficient methods of storing energy at large scale must be developed (Ávila, 2018, p. 2).

It is evident that there is a consensus that we need to decarbonize the economy if we are going to prevent further global warming and climate change. The current energy transition reflects this need and is thus a purposive transition, in that it is driven by the goal of mitigating emissions, rather than a market driven transition (Kern and Markard, 2016, p. 292). It is primarily policies that has fueled this energy transition, due to the acknowledgement that we need to change the current energy system in order to reduce emissions. Pugliellie (2019) claims that the energy transition is too slow, and that "[d]ecarbonization efforts need to accelerate in all sectors, from electricity generation to transport, building and industry" if we shall have any chance of reaching the goals of the Paris Agreement. The World Economic Forum states that "electrification is critical for decarbonization", and that electrical energy will contribute in reducing emissions as well as providing more stable, affordable prices (Pugliellie, 2019).

Electrical energy requires methods of storing energy, and this is where lithium becomes a key component. Being the lightest metal known and with great abilities to harness energy, lithium has become a vital resource in the green shift towards renewable energies (Hancock et.al, 2018, p. 552). Lithium-ion batteries are becoming increasingly popular, and Hancock et.al (2018, p. 554) attribute this to its "energy and power density, decreased cost and deep discharge cycle

life". These qualities make lithium suitable for electric car production, as well as for storing solar, wind and wave energy (Hancock, 2018, p. 552; Flexer et.al, 2018, p. 1189). Thus, lithium is of great importance in the global low carbon transition and demands for the metal is expected to increase in the coming years (Flexer et.al, 2018, p. 1189; Postero, 2017, p. 105).

1.1 Problem statement

Bolivia is situated in what has commonly been named the "lithium triangle" in South America; an area covering parts of Bolivia, Argentina and Chile which is estimated to hold up to 80% of the known world lithium resources in brines (Flexer et.al, 2018, p. 1190). Researchers agree that Bolivia holds the vast majority of global lithium brine resources, most of it found in Salar de Uyuni, although estimates differ from 4,5 million tons (Postero, 2017, p. 105) to as much as 9 million tons (Mills, 2018). There is great optimism concerning the future of lithium production and it was a key point in the social and economic development strategy of Evo Morales's government, the *Movimiento al Socialismo* (MAS). MAS committed to nationalize natural resources and they promised the industrialization of lithium would be a national, Bolivian-owned project (Revette, 2017, p. 150).

With its vast lithium resources, Bolivia could become a major supplier for the global lithium market. The energy transition is slowly picking up, and in several industrialized countries, electrical vehicles are an important aspect of this transition, evident in the increasing sales of these vehicles in countries such as Norway, China and the US. While the transition has been praised for reducing emissions, little attention has been given to how the extraction of materials crucial to this transition is affecting the areas of origin. When receiving the Nobel Peace Prize in 2018, dr. Denis Mukwege Mukengere highlighted some of the issues related to extraction of energy critical minerals such as cobalt in the Congo, stating that the energy transition has a human cost as well (Cossom-Eide, 2018). Whereas lithium is not as rare as cobalt and the method of extraction is very different, it is however, necessary to study the impacts this project will have for Bolivia and its people. Although many expect a bright economic future for Bolivia, scholars also fear the socio-environmental consequences of lithium extraction (Postero, 2017, p. 105). Freshwater resources are scarce in the Salar de Uyuni area, leading to concerns about how the lithium extraction will affect these resources.

This study aims to contribute academic knowledge on the potential benefits and negative impacts of lithium extraction and industrialization for local communities and Bolivian national society, focusing on environmental and social effects. The thesis adopts a qualitative research

design, in order to explore local perceptions of the project, as well as national policies about lithium extraction and industrialization.

At the time of writing, Bolivia is facing grave political turmoil. Evo Morales and its socialist government resigned on November 10th, after allegations of election fraud and street demonstrations following the October 20th election (BBC, 2019). Conservative senator Jeanine Áñez was named interim president, in what observers deem an undemocratic manner. Progressive news media call the resignation of Morales a coup, after the police mutinied against the MAS administration and the military asked Morales to step down (Aleem, 2019*b*). Reports of violence against MAS representatives have soared in the media, and observers fear racism against indigenous people will rise as Áñez promotes a conservative, Catholic rhetoric opposed to indigenous worldviews (Aleem, 2019*b*; Davis et.al, 2019). This thesis has been written in the context of Morales' progressive policies on natural resources management, and the fieldwork data collection and documentary analysis were conducted before the ongoing political crisis occurred. At this moment it is uncertain how the change of government will affect plans for further development of lithium extraction and industrialization, and whether the sector will continue to be under majority state control, or if neoliberal policies reversing Morales' resource nationalism will be adopted. The high level of conflicts and violence occurring in Bolivia at the moment will likely have impacts for the lithium sector and future patterns of foreign investment. There is a pressing need for future research to address these issues.

1.2 Main objectives and research questions

The main objective of this thesis is to examine the possibilities and constraints of lithium industrialization in Bolivia, in the context of a global energy transition to low-carbon energy. First, I will explore the framing of the lithium industrialization in Bolivia. Second, I will discuss the socio-economic impacts. To do so, the following set of research questions have been developed:

1. What rationales underpins Bolivia's strategy for developing a lithium industry?
2. What are the challenges for creating a sustainable lithium industry in Bolivia?
3. How are lithium resources utilized to ensure economic development?
4. How can lithium extraction benefit or harm communities in close proximity to extraction sites?
5. How are tensions between resource extraction and environmental protection handled?

1.3 Study areas

Bolivia, located in central South America is a landlocked country bordering Brazil, Chile, Peru, Paraguay and Argentina. Bolivia can be roughly divided into two different geographic zones: the highlands and the lowlands, varying greatly in both climate and population. The highlands, also called the Altiplano, are situated on a mountain plateau in the Andes Mountains and this is where the administrative capital of La Paz is located (Arnade and McFarren, 2019). The lowlands in the east have a tropical climate, in which Santa Cruz is the largest city.

Figure 1: "Bolivia". Encyclopædia Britannica, Inc.
(https://www.britannica.com/place/Bolivia)

The study has been conducted at several sites across Bolivia and aims at exploring different perspectives on the industrialization of lithium. Bolivia is divided into 9 departments, each with its own governor. The geographical locations of this study are found within 3 of the departments; department of La Paz, department of Cochabamba and the department of Potosi. The main fieldwork was conducted within the department of Potosi, in which I visited the towns

of Potosi, Uyuni, Colcha K and Rio Grande. With the exception of Potosi, these are all towns located in close proximity to the lithium extraction sites and thus the areas where direct local impacts can be explored.

Situated at the Altiplano, at 3656 meters above sea level and covering roughly 10.000 sq.km, Salar de Uyuni is truly a spectacular place (Encyclopaedia Britannica, 2019). The vastness of salt flats and the otherworldly feeling it creates, attracts thousands of tourists every year. Uyuni is the natural starting point for exploring the salt flats, thus tourism is a major source of income for the city. Talking with a tour guide in Uyuni, she says there are over 250 tour companies just in the small town of Uyuni with approximately 30.000 inhabitants (Personal communication, 13.04.19). However, beneath the salt crust, lithium rich brine is found, thus making Salar de Uyuni the epicenter for lithium extraction in Bolivia.

The city of Potosi was once one of the most prosperous cities in the world due to its vast silver resources, and thus became a logical place to dig deeper into Bolivia's extractive history. In the city of La Paz (La Paz department), interviews with the national lithium company, *Yacimientos de Litio Bolivia* (YLB), and several NGOs were conducted, while Cochabamba became a natural base for me, as the University of Agder is collaborating with the Universidad Mayor de San Simon (UMSS) located in Cochabamba.

The towns of Rio Grande and Colcha K are located at the edge of Salar de Uyuni, solitary onlooking the vastness of Salar de Uyuni. Both of these towns are experiencing various impacts of the lithium industrialization and there were strong notions about how lithium should benefit them. When entering Colcha K, the first thing you see is a painted mural, saying "Welcome to Colcha K – Capital of Bolivian lithium. Because we are the protagonists of our own development". Lithium is clearly a major concern of this town, however, they have yet to benefit economically from the lithium project. Rio Grande has a long tradition of extracting borax, a mineral that can be processed and used in e.g. detergents (Interview with community member, Rio Grande, May 2019). However, with the development of the lithium industry, the town has served as a service provider of transportation for the lithium plants. There are almost as many trucks as there are people in the town; 500 trucks and approximately 650 inhabitants (Videmšek, 2018).

Picture 1: Overlooking the town of Colcha K, with the salt flats in the distance. (Private photo)

1.3.1 Socio-economic characteristics

Bolivia is, as many Latin American countries, rich in natural resources. However, they have also been subjected to unfair extraction policies, in which multinationals have profited while Bolivia has not been able to capitalize on its resources. In 2006, after indigenous leader Evo Morales and *Movimiento al Socialismo* came to power, this changed. Breaking with the neoliberal politics, the new socialist government nationalized several of the natural resources, such as the oil and gas sector (Postero, 2017, p. 97). In 2008 the government started the project of industrializing lithium, with the Supreme Decree no. 29496 declaring the exploitation of evaporite[1] resources in the Salar de Uyuni a national priority. With the socialist reform, the project was intended to contribute to the social and economic development of the Potosi department (Minesterio de Minería y Metalurgia, 2018).

Bolivia has experienced a steady economic growth and a decrease in poverty during the past 15 years (International Monetary Fund, 2018). The social reforms of Morales have reduced inequality rates by 19% since taking office in 2006, scoring 45.80 on the Gini index in 2015 (Smith, 2019). The rate of economic growth has been unlike any other country in Latin America and living standards have improved drastically especially for the indigenous population

[1] Sedimentary rocks that have formed in salt-water areas (brines) which have been subject to higher evaporation rates than influxes of rainfall (Sedimentary Rocks, n.d).

(Aleem, 2019*a*). The social redistribution schemes have clearly benefitted the overall population in Bolivia. However, there is still a long way to go.

Despite the extraordinary growth, Bolivia remains one of the poorest countries in South America, with the department of Potosi having one of the highest poverty rates within the country (Gudynas, 2015, p. 60). While the lithium project is seen as a chance for economic and social development within the region, the NGO CEDLA claim that so far it has not had much structural impact on the region (Ávila, 2018, p. 16). The communities surrounding Salar de Uyuni have poor access to several basic services, with approximately 53% of the population having access to basic drinking water, 29% of the population having electricity and 33% of the population have access to domestic cooking gas (Ávila, 2018, p. 16). Revette (2017, p. 153) further claim the region lacks sufficient healthcare infrastructure and a proper educational system.

Livelihood in this region is generally made up of agricultural production, salt production, camelid farming and mining. Quinoa represents the main source of revenue, accounting for 59% of revenues in the region (Ávila, 2018, p. 16). Scholars and local groups have expressed concerns of the impacts lithium extraction might have on quinoa production, due to excessive water usage and increased salination of the soil (Postero, 2017, p. 106). However, lithium could potentially benefit the local communities as well. There are high expectations to how the lithium project may impact the economy of the region, with estimates stating that it would increase the regions revenues by 60%, thus accounting for the largest share of revenues (Ávila, 2018, p. 16).

1.3.2 Demography

Bolivia has a very diverse population, with the largest portion of indigenous peoples in Latin America. Approximately 48% of the population of 11 million people, identify as indigenous (IWGIA, 2019). There are 36 different publicly recognized indigenous peoples, of which Aymara and Quechua are the largest groups (IWGIA, 2019). While indigenous peoples are often referred to in a homogenous way, it is important to note the variety between each nation. The largest groups in the Altiplano are Aymara and Quechua, while the lowlands are populated by among others, the Chiguitano, Guaraní and Moxeño (IWGIA, 2019). Since the adoption of the new constitution of 2009, defining Bolivia as a Plurinational state, indigenous peoples have been granted more social and economic rights, including some territories of self-autonomy.

1.4 Yacimientos de Litio Bolivianos (YLB)

The evaporite resources in Salar de Uyuni has several times been subject of interest for multinational companies. Due to protests of the people of Potosi, the resources have remained under sovereign control and in 2007 the Unique Regional Federation of Peasant Workers of the Southern Altiplano (FRUCTAS) suggested a state-run company should be in charge of the resources (Ávila, 2018, p. 13). The Supreme Decree no. 29496, discussed in section 1.3.1, was created the following year in 2008.

The lithium industrialization project has been organized under a variety of departments and institutions. First, it was part of *Corporación Minera de Bolivia* (COMIBOL), the public mining corporation of Bolivia. In 2009, the *Gerencia Nacional de Recursos Evaporíticos* was created, which functioned as an "executive arm of COMIBOL in charge of the exploration, exploitation and industrialization process" (Ávila, 2018, p. 13). In 2017, the Ministry of Energy was created focusing on electricity and renewable energy. Under this new ministry, *Yacimientos de Litio Bolivianos* (YLB) was created as the main state-run company in charge of developing the lithium resources (YLB, n.d). YLB is now in charge of the entire production chain, from prospecting to industrialization.

Partnerships with foreign companies are, however, necessary due to technological advances. While cooperating with several foreign partners, including China, Canada and Russia, in 2018 the main deal was made with Germany company ACI Systems (ACISA) to develop the resources found in Salar de Uyuni. A joint venture ensuring 51% of the shares to YLB and 49% shares to ACISA was created under the Supreme Decrete no. 3738 (Fundación Solón, 2019). This joint venture was supposed to ensure the creation of 4 plants producing respectively lithium hydroxide, magnesium hydroxide, cathodic materials and lithium batteries – with ACISA investing 1.3 billion dollars in the project (Fundación Solón, 2019). However, the situation is changing rapidly as this thesis approaches its deadline. On November 4th Bolivia suddenly announced they are wrecking the deal with ACISA (Ramos et.al, 2019). With the current political turmoil after Morales was forced to resign on November 10th, it is unknown how these two events might affect the lithium industrialization project.

1.5 Organization of thesis

Following the Development Management thesis guidelines, the content of this thesis is organized in 5 chapters. Following the (current) introductory Chapter 1, I have chosen to

address methodology in Chapter 2. This has been done to create a better flow in the text, as Chapter 3 on literature, theoretical framework and context analysis leads to the fieldwork data analysis in Chapter 4. In Chapter 4 I have chosen to merge findings and analysis due to the in-depth, open-ended qualitative method applied. The last chapter in the thesis will provide concluding remarks as well as recommendations for further research.

This first chapter, Chapter 1, introduces the topic of the study and places it in a global context. It discusses how the increasing demand for lithium must be seen in light of climate change and global commitments aimed at reducing carbon emissions. Lithium is presented as a key component in the efforts to mitigate emissions, as it is applied in batteries with high storage capacities. The research questions and problem statement were presented, along with a brief overview of the socio-economic situation in Bolivia.

Chapter 2 is concerned with the methodology applied in this study. It discusses the main features of the qualitative research strategy applied and how the fieldwork was conducted. Qualitative interviews were conducted during a 3-months fieldwork in Bolivia lasting from March through June 2019. The chapter explores ontological and epistemological considerations, and discusses why an in-depth, open-ended methodology was adopted for this study. Further, is discusses the method for data collection and analysis, thoughts on ethical considerations, as well as challenges faced during fieldwork.

Chapter 3 provides an overview and review of existing literature and theoretical frameworks relevant to the problem statement. It discusses various theoretical perspectives and central concepts, including the discourse that has been promoted by the MAS government. Further, it provides a historical context of extraction in Bolivia and explains why this lithium project holds such a fond place in the Bolivian imaginaries. The chapter outlines the rationales behind the development strategy of Bolivia and discusses the MAS administrations' perspectives on natural resources management as well as relevant insights from political ecology and the international political economy of energy. The chapter further begins the context analysis, which leads to the fieldwork data analysis.

In Chapter 4 the findings and analysis are merged as this was a better approach for this thesis given its qualitative nature. The first part of the analysis is concerned about the rationales behind the lithium industrialization project, while the second part focuses on the various impacts the project will have on local communities and on the national economy.

Chapter 5 summarizes the main findings and discuss policy recommendation and areas for further research. As the lithium project is ongoing, and not fully industrialized yet, there are many areas for further research.

2. Methodology

This thesis aims at analyzing the possibilities and constraints of the lithium extraction and industrialization taking place in Bolivia, in a qualitative manner. It seeks to understand perceptions of the project as well as the rationales behind it. This chapter will account for the methods applied for this study. Atkinson & Hammersley (2007, p. 209) describe the purpose of research in the following way:

> The only value which is intrinsic to the activity of research is truth: the aim should be to produce true accounts of social phenomena; though these should also be relevant to human concerns and have some news value.

According to this, the purpose of research is to "produce true accounts of social phenomena". In order to do so a proper methodology must be applied, one which will give the reader accurate information about how data is collected and analyzed. This chapter discuss the ontological and epistemological foundations, as well as the chosen research strategy. It further reflects on the qualitative approach chosen for this specific study.

2.1 Ontological and epistemological foundations

In any research it is necessary to discuss different approaches and methods to how knowledge is created and understood. According to Bryman (2016, p. 28), "questions of social ontology are concerned with the nature of social entities", discussing how these social entities are perceived; whether they are objective or socially constructed. Epistemology refers to "what is regarded as acceptable knowledge" and whether social science and natural science should be studied using the same "principles, procedures and ethos" (Bryman, 2017, p. 24).

There are two main epistemological orientations in scientific research: positivism and interpretivism. Positivism is concerned with natural sciences methods, in which the testing of theories using a deductive approach are central aspects (Bryman, 2017, p. 24). Interpretivism on the other hand, is concerned with studying the social world, and academics thus argue it "requires a different logic of research procedure" that reflects the diverse nature of humans (Bryman, 2017, p. 26). Generally, analysis of qualitative research tends to be more flexible and open-ended than quantitative research. In my case I wanted to explore how respondents view possibilities and constraints of the lithium project, thus an interpretivist orientation was chosen.

Within ontological considerations, objectivism and constructionism are the two main positions. Whereas objectivism assert that social phenomena are external and without influence from social actors, constructivism asserts that social phenomena are "produced through social interaction" and continuously revised by social actors (Bryman, 2017, p. 29).

Linking these considerations with research strategies, Bryman writes there are some fundamental differences based on whether one conducts quantitative or qualitative research. Generally, division is made along the lines of a positivist, objectivist orientation for quantitative research, and an interpretivist, constructivist orientation for qualitative research (Bryman, 2017, p. 32). These divisions are however not clear cut, and Bryman (2017, p. 34) says that it is possible to combine the different research strategies as well as using elements from one another. According to Blaikie (2010, p. 10), there are three types of research questions: 'what', 'why' and 'how.' questions. Which type of questions are used, depends on the purpose of the study and whether it aims at explaining or understanding, intervening or describing social phenomena (Blaikie, 2010, p. 10). Blaikie (2010, p. 10) presents four strategies for answering the different research questions, namely: inductive, deductive, retroductive and abductive strategy. According to Blaikie (2010, p. 18) the inductive strategy "starts with the collection of data and then proceeds to derive generalizations" and is best suited for answering 'what' questions. The deductive strategy can only be used for answering 'why' questions, while the retroductive strategy aims at explaining structures responsible for an observed regularity (Blaikie, 2010, p. 19). For the abductive strategy, Blaikie (2010, p. 19) writes that the researcher must engage in the world of the social actors being researched, to discover and describe "the motives and meanings that accompany social activities".

The aim of this thesis is to analyze in what ways the development agenda of the government affects local communities in the case of the extraction and industrialization of lithium. To get a holistic picture of how the government projects is perceived by the public and especially within directly impacted local communities, a qualitative approach was chosen for this study. This way, people could freely elaborate on their own experiences related to the lithium project and I could observe actual impacts in the communities visited. The study uses a mix of deductive and inductive strategies. Interview questions derived from the literature review and theoretical framework, but throughout open-ended research I allowed other themes to emerge from the data.

When doing qualitative research, "the stress is on the understanding of the social world through an examination of the interpretation of that world by its participants" (Bryman, 2016, p. 375).

The researcher thus has a great responsibility in the way s/he interpret the data. Hence, reflexivity regarding one own's cultural, political and social context is of paramount importance.

2.2 Research design: Case study

To answer the problem statement, I chose to do a case study in Bolivia focusing on people working in the lithium sector as well as residents in towns within close proximity to the extractive site. Whereas case studies most commonly are used to research a single community or organization, the location can also be the object of interest (Bryman, 2017, p. 61). For this study the location was important, as lithium is extracted from specific sites within Bolivia. Lithium is found within the Salar de Uyuni, the world's largest salt flat which is located in the southwest of Bolivia. While it is also found in the smaller Salar de Coipasa, located north of Salar de Uyuni, this study focuses primarily on Salar de Uyuni and the surrounding communities due to time constraints. The study does not just analyze one specific geographic location, but includes interviews with experts, analysists, NGOs and business managers in other parts of Bolivia as well.

By choosing to research several communities, this study breaks the boundaries of more conventional case-studies. This study could be seen as multiple case-studies related to one specific topic. However, I draw on practices from multisited ethnography described by Falzon (2015, p. 103) as following "people, connections, associations, and relationships across space, because they are substantially continuous but spatially noncontiguous". Focusing on the issue of lithium industrialization, this study follows the connection from the decision makers in La Paz to the affected communities surrounding Salar de Uyuni, as well as connecting it to global structures of trade and policies of decarbonizing the energy sector. As issues related to the industrialization of lithium are not confined to one specific location, I chose a multisited approach with both deductive and inductive elements to best answer the problem statement.

2.2.1 Quality criteria

Bryman (2017, p. 41) mention reliability, replication and validity as three main criteria for evaluating social research. These criteria can be difficult to ensure within qualitative research due to specific time and context conditions including the relationship between researcher and researched. Critics claim qualitative research is "too subjective" due to its reliance on interpretation done by the researcher him/herself (Bryman, 2017, p. 398). The nature of

qualitative research is based on the researcher being the "main instrument of data collection", thereby being vulnerable to subjective preferences by the researcher and making it near impossible to replicate the findings (Bryman, 2017, p. 399).

Some scholars argue that several of the criteria needs to be adapted in order to suit qualitative research, while others suggest a new, alternative set of criteria (Bryman, 2017, p. 383). The validity criterion, for example, is concerned with measurements, making it more suitable for evaluating quantitative research rather than qualitative. Various attempts have been made to alter the meanings of the criteria. External validity is concerned about whether the "findings can be generalized across social settings", which normally is not the case for qualitative research due to small samples (Bryman, 2017, p. 384). Internal validity on the other hand, might be stronger within qualitative research due to the researcher spending a prolonged time with the researched group, allowing him/her to discover correspondence between concepts and observations (Bryman, 2017, p. 384). External reliability, which refers to how likely it is for a study to be replicated, is clearly difficult to ensure in qualitative research. However, scholars suggest that internal reliability, in where several people are involved with observing and agree about what has been observed, can be a method of achieving external reliability (Bryman, 2017, p. 384).

Drawing on works of Lincoln and Guba, Bryman (2017, p. 384) presents two alternative criteria for evaluating qualitative research, namely trustworthiness and authenticity (Bryman, 2017, p. 384). Within trustworthiness, there are four criteria: credibility, transferability, dependability and confirmability. Together these four criteria aim at ensuring validity, reliability and objectivity (Bryman, 2017, p. 384). Authenticity is concerned with the "wider impact of research", including ways in which members of the social group perceives the research itself (Bryman, 2017, p. 384). Other possible criteria include sensitivity to context and theoretical issues, having necessary skills to conduct thorough research, transparency with regards to research methods, reflexivity and the importance of the study for theory and practitioners (Bryman, 2017, p. 388).

Through recording interviews, engaging in various literature including subaltern studies and thoroughly describing and reflecting upon research methods, the study aims at achieving the requirement of sensitivity and transparency. Throughout the fieldwork, a reflexive stance has been taken. This entails acknowledgement of, and sensitivity to "the researcher's cultural, political and social context" as well as the researcher's part in creating knowledge (Bryman, 2017, p. 388). My own background as a white, Western and privileged person in the sense that

I have access to education and high levels of social mobility, are factors that possibly influenced how I was perceived by the interviewees. In this study snowball sampling was used, hence building trust was key. In order to build trust, the way in which the researcher is perceived becomes important. I mentioned to one of my Bolivian acquaintances my surprise of how easy it was to get help from locals, and he replied it was because I was a foreigner and the fact that I was asking locals for help brought them a sense of pride (Private conversation). This portrays the need for reflexivity and an understanding of how and why locals perceive the researcher in a certain way. The issue of reflexivity will be further explored in another section.

This study's sample is too small to generalize the findings; however, it is a contribution to similar research on how development/extractive projects affect local communities. It does say something about the specific case of lithium industrialization in Bolivia and how this project is perceived both at the national and local level.

2.3 Data collection

Blaikie (2010, p. 160) describes primary data as data which is "generated by a researcher or researchers who is responsible for the design of the study, and the collection, analysis and reporting of the data", while tertiary data are data which have already been analysed by another researcher. This study is based on both primary data which were collected through fieldwork in Bolivia over a span of three and a half months from March throughout June 2019, and on secondary data which will be presented in the next chapters on the literature review, theoretical framework and context analysis.

The aim of the study is to gain a holistic picture of how and to what degree the industrialization of lithium are affecting local communities, and the rationales behind the project. A wide range of interviewees were targeted, including professionals, analysts, public officials and local people. The chosen method for collecting data were semi-structured and unstructured interviews.

2.3.1 Semi-structured interviews

In accordance with the qualitative research method applied, semi-structured interviews were the main tool used for collecting fieldwork data. Bryman (2016, p. 466) describes qualitative interviews as "open-ended [with] an emphasis on interviewees' own perspectives". This approach gives room for the interviewee to elaborate on matters s/he finds important, while the researcher can ask follow-up questions in response. Each interview is thus unique and flexible,

in contrast to the quantitative interview were answers should be concise and to the point. Although semi-structured interviews allow for subjective elaborations, all the original questions and the same wording were used in each interview (Bryman, 2016, p. 468).

During my two first weeks in Bolivia, I had private Spanish lessons and the teacher assisted in formulating questions to make sure the Spanish interview guide was comprehendible. In this way, I got to test the questions before the actual interviews. Due to the background and knowledge of the interviewees, two different interview guides were created for the study; one for officials and professionals, and one for members of local communities. Although most of the questions overlap, some could only be answered by one of the categories. For instance, questions about production was not something members of local communities could answer, and to better explore the local perceptions of the project, members of local communities had to be interviewed. Interview guides were prepared both in Spanish and English, and interviews were conducted in the language respondents felt most comfortable with.

With two exceptions, all the interviews were recorded and then transcribed. Two interviewees did not consent to be recorded, although they received information that they would be anonymized, and no personal data would be stored or shared. Their reluctance to be recorded could be due to several circumstances, in which I concluded it was most likely due to not fully understanding what the study was about and difficulties with the language. Bryman (2016, p. 480) suggest one should go ahead with the interview even if it cannot be recorded, and I did go through with the interviews. However, without a translator present, my Spanish was not sufficient to clear up any misunderstandings, and I have therefore chosen not to include these interviews in my analysis. The rest of the interviews were transcribed either by me, or a hired translator who translated the interviews conducted in Spanish. Transcription helps to conduct a thorough examination of what has been said, as well as adding transparency to the study (Bryman, 2016, p. 479). In this study, it was especially important due to challenges with language which will be further discussed in the section on challenges.

2.3.2 Informal conversations

During informal conversations with a variety of people including taxi drivers, museum guides and people waiting on the bus, I would explain my purpose in Bolivia and whether I could ask them some questions about the topic. This bear resemblance to the unstructured interview, which differ from semi-structured interviews in the way that it is more informal and focusing on topics rather than specific questions (Bryman, 2017, p. 201). During these informal

conversations, I asked general questions regarding lithium and the extractive sector in Bolivia, and though these conversations are not part of the main analysis they form part of the context.

2.3.3 Document analysis

In social science research it is normal to distinguish between personal documents and official documents (Bryman, 2016, p. 546). To examine the underlying rationales for the extractive strategy taking place in Bolivia, this study has used official documents found on governmental webpages, reports from several NGO's and newspaper articles.

Official documents from state agencies, such as the development strategy plan, have been used to contextualize the decisions regarding industrialization of lithium. While these documents can be seen as authentic, one must be aware that they can be biased and reflect interests of the state rather than objective facts (Bryman, 2016, p. 553).

2.3.4 Sampling

When collecting data, it is necessary to define the target population (Blaikie, 2010, p. 172). The target population, or sample, can be selected using a variety of methods. As this study aims to explore how a specific geographical area is affected by the lithium industrialization as well as the politics which influences the development policies, I decided to use two different sampling techniques, namely purposive sampling and snowball sampling.

According to Bryman, in purposive sampling participants or sites are selected because of their relevance to the research questions (2016, p. 408). As this study specifically focus on lithium, it was necessary to find participants with knowledge in this field. The main geographical context for sampling was communities in the surrounding areas of Salar de Uyuni, Bolivia. Three towns/villages with relations to the lithium industry were sampled: Rio Grande, Colcha K and Uyuni. In addition, the company responsible for the development of the lithium industry, *Yacimientos de Litio Bolivianos*, is located in La Paz, making that another significant location. Many major NGOs are also located in La Paz, therefore quite some time was spent there. The respondents found through purposive sampling included employees with the YLB, civil society organizations and municipality officials.

Further, the snowball sampling method was used. According to Blaikie this method is mostly used to gain access to a specific kind of network or in "difficult to identify populations" (Blaikie, 2010, p. 179). This study had two primary populations; the professionals on one side

and the local community members on the other. Due to an informal face-to-face culture in professional settings (which is similar to my home country Norway), it was challenging to arrange any meetings before actually arriving in Bolivia and thus I deemed the snowball sampling method suitable. The first interviewee provided me with contact information for the next one, and so on. The cultural context in Bolivia made it easier to gain access to interviewees if I was referred to them by someone they knew. However, it proved challenging to interview random inhabitants of local communities. Rather, through the snowballing method I got in touch with people working in the tourism industry or professionals working in the NGO sector. In Colcha K and Rio Grande it was mostly public officials who were willing to talk. This could be due to my lack of proficiency in Spanish, which made local people less willing to talk with me.

There are ongoing debates on what the acceptable sample size should be, ranging from a minimum of 12 interviews to no less than 60 interviews (Bryman, 2016, p. 416). Due to the amount of time spent in field and the time needed to transcribe and analyze the interviews, this study landed on a sample size of 20 interviewees. This was sufficient to get a broad perspective on the research questions, with interviews ranging from 20 minutes to two hours, for a total of approximately 13 hours. This makes for a rich data set for analysis. Out of the 20 interviewees, only 3 are female thus creating a large gender imbalance. This could be attributed to social factors such as access to education and work. According to the World Bank (n.d*a*), more males than females are employed in industry and salaried work while higher rates of females are represented in the informal economy.

Table 1:"Table of respondents"

Gender	Age [2] (10 year range)	Occupation/background
M	40-50	Academic. Previously worked with COMIBOL.
F	20-30	Working with YLB.
M	50-60	Representative from an NGO in La Paz.
M	40-50	Working with YLB.
M	40-50	Working with YLB.
M	30-40	Representative from an NGO in La Paz.
F	30-40	Academic. Currently doing research on lithium.
M	40-50	Municipality official in Colcha K
F	30-40	Municipality official in Colcha K
M	50-60	Municipality official in Colcha K
M	50-60	Economic analysist and researcher on lithium.
M	60-70	Previous leader of an indigenous organization near Cochabamba
M	50-60	Resident of Potosi. Working as a lawyer.
M	60-70	Resident of Potosi. Engineer, has previously worked as a consultant on lithium exploitation.
M	20-30	Resident of Rio Grande. University degree from Europe.
M	40-50	Municipality official in Rio Grande.
M	40-50	Resident of Uyuni. Hostel owner.
M	40-50	Resident of Uyuni. Biologist.
M	40-50	Resident of Uyuni. Tour guide.
M	30-40	Representative from an NGO in La Paz.

[2] This is based on my perception at the time of meeting the interviewee.

2. 4 Method for analyzing data

While quantitative data has set rules for how to interpret the data and measure validity, analysis of qualitative data tends to be more flexible and open-ended. Approaches for analyzing qualitative data includes but are not limited to analytic induction, grounded theory, thematic analysis and narrative analysis (Bryman, 2016, p. 570). Bryman (2016, p. 570) emphasizes that these approaches are simply guidelines due to the nature of qualitative data.

For this study, I have used a variety of approaches for analyzing data. Bryman (2016, p. 581) notes that coding is applied in most of the approaches used for analyzing qualitative data, whether it be thematic analysis or grounded theory. Coding can help identify categories and topics within the data collected, and be helpful in finding relevant theory, as well as finding patterns (Bryman, 2016, p. 581). Data has been analyzed and reviewed continuously through an iterative process.

For the interviews conducted in English, coding started immediately through the process of transcribing. By going through recordings, field notes and transcriptions, specific themes started to emerge. These were organized into larger main categories, which are the basis for the analysis in chapter 5. The interviews in Spanish were not immediately translated and transcribed by an interpreter, thus the codes had to be revised once all the interviews were transcribed and could be further analyzed. While coding is helpful for analyzing what has been said, critics argue that the context might get lost (Bryman, 2016, p. 583).

A thematic analysis approach was undertaken, an approach quite similar to the concept of coding. By its' criteria, a theme is a "category defined by the analyst through his/her data" which is related with the research questions and based on the codes identified (Bryman, 2016, p. 584). Further, it enables the researcher to connect the data with theory (Bryman, 2016, p. 584). As discussed above, coding laid the foundation for generating larger categories within this study, all of which were related to the research topic. Categorizing data allowed me to further explore literature on the themes, and thus build on the theoretical framework for the study. Themes were detected through recurrent topics, both within an interview as well as across interviews.

2.5 Ethical considerations

When conducting social research, Atkinson and Hammersley (2007 p. 209) suggest 5 key issues to consider regarding ethics; informed consent, privacy, harm, exploitation and consequences

for future research. Several steps have been taken to ensure these criteria. In order to conduct research for this study, the research proposal had to be approved by the Norwegian Centre for Research Data (NSD). NSD provide consultancy regarding processing of personal data and data protection, and work with all the Norwegian universities. A detailed description of data collection methods and storage had to be provided, along with the proposed letter of consent/information for participants. These documents were reviewed and approved by the NSD before the fieldwork took place.

To ensure data protection, all documents have been password-protected. Interviews with persons that hold influential positions in their community have been anonymized in a way so that individuals are not recognizable. Due to GDPR regulations on anonymization of personal data in published outputs as interpreted by the NSD (Norwegian Centre For Research Data), I could not use pseudonyms in this thesis. For example, I could not cross-reference what a specific interviewee said in one section of the analysis, with other extracts from the same interview in other parts of the thesis. However, the names of the towns visited have not been altered, as the locations are important for answering the research questions. Previous research and literature references to some of these places, hence in order to build on existing literature I have used the real names of the towns.

The criterion of informed consent has been carefully thought through. While a written letter of information was necessary according to NSD regulations, it was made clear that oral consent rather than written consent would be most appropriate. This is due to both concerns about anonymity, with signatures the persons full name would have to be stored, and also with concerns regarding reading proficiency. As much of the research took place in rural areas, I could not be sure of the level of literacy, thus verbal consent was deemed better. While the information letter originally was written in English, a Spanish version was adapted in field. Most of the time the document was read to participants, but those who wished were given the opportunity to read it themselves. I made a point of emphasizing the issues of anonymity and their right to withdraw from the interview at any time without consequences. Informed consent is necessary to ensure that participants know what they are agreeing to. All interviews should be voluntary, and consent minimize the chance of exploiting participants.

2.6 Challenges and risks

When conducting fieldwork there are several challenges to consider. A different cultural context, language, infrastructure and access are common challenges. For me I knew language

would be a major challenge. With only basic proficiency in Spanish, I enrolled in a Spanish course at the Norwegian Community College, Folkeuniversitetet, for a semester. This enabled me to become more confident both writing and speaking Spanish. However, it was not enough to become fluent and upon arrival in Bolivia I arranged two weeks of private Spanish lessons. While in La Paz, my Spanish tutor accompanied me during the first interviews in Spanish. The tutor himself did not speak any English, so although he did not function as an interpreter, he was able to speak on a level that was comprehensible for me. This helped gain access in the first few weeks and was important in establishing contact with two NGO's located in La Paz.

Arriving in Cochabamba, after two weeks in La Paz, I had hoped that the Universidad Mayor de San Simon could assist me in finding an interpreter. I had received an Erasmus (+) scholarship for the fieldwork in Bolivia, due to the cooperation between University of Agder and the Universidad Mayor de San Simon. However, it was not possible to find a student that could assist with interpreting. Thus, language became a major challenge in field. When meeting interviewees, I explained the situation and most of them were very understanding and spoke slowly. Although I had the interview questions translated, the language barrier prohibited me in asking as many follow-up questions as I would have liked. In interviews conducted in Spanish, most of the time I would strictly follow the interview guide, thus possibly missing out on important nuances and elaborations. The interviewees were asked at the end whether they wanted to add anything, thus giving them a chance to elaborate on anything missing. Recording the interviews became all the more important, as I depended on having them translated at a later stage.

When arriving in Uyuni, the main town for accessing Salar de Uyuni I searched for an interpreter among the many tour companies. However, this was quite uncommon, and the cost was high, with prices at the same levels as for a full-day tour package in Salar de Uyuni. When first travelling to Colcha K, a town which proclaimed to be the "Bolivian capital of lithium", a tour guide with basic proficiency in English accompanied me. He was important in negotiating access and in composing a letter to the local municipality office describing my purpose there. He thus functioned as a gate-opener into the community by properly introducing me and allowing the community to get an idea of what I was doing. The interpreter left at the end of the day, while I stayed on in the town for a few more days. After the interpreter helped negotiate access, it was easier for me to arrange interviews by myself in the following days.

Infrastructure proved to be another challenge. The distances in Bolivia are vast, and the geography with steep valleys and high mountains make the roads both dangerous and

unpredictable. This made planning challenging, and interviews could not be scheduled on the day of arrival.

The fact that winter was approaching also posed constraints in conducting fieldwork. I normally stayed at basic shelters when visiting rural towns, and Rio Grande was no exception. Basic lodging included a bed and a shared shower without hot water. At nights the temperature dropped below zero degrees Celsius, and with no heating in the room I could not stay there for long. The shelter did not have a shared kitchen, and although there were a few local restaurants in town, access to food also became an issue. Unfortunately, due to these circumstances I only spent three days in the town.

2.7 Reflexivity

Although I as a researcher strive to produce true accounts of social phenomena as stated in the very beginning of the chapter, I am nonetheless influenced by my cultural background and experiences in the way I am interpreting data. As a student coming from the global North, it is important to acknowledge that I am influenced by a Western epistemology. All humans have some preconceptions, based on values and background, thus the researcher is never value-free (Bryman, 2017, p. 34). Awareness of these biases and preconceptions is required when conducting research, and as a researcher I can not claim to be fully objective. While being aware of this, it is necessary to interpret what interviewees say in order to relate it with theory. Bryman (2016, p. 584) writes of this: “your work can acquire significance only when you theorize in relation to it”.

Being female also has implications for the research. When traveling alone in Bolivia, I was often met by questions about what my family thought of me being there alone, if I had permission to be traveling alone and whether I felt safe. As discussed previously, most of the interviewees were males. Their perception of me is as much influenced by their background, as mine is of them. Qualitative research is thus highly volatile in relation with context. The replies I got, might not be reproduced if the interviewer were male, more experienced or fluent in Spanish.

3. Literature review, theoretical framework and context analysis

This chapter will provide an overview of the background and context of the lithium project, as well as a presentation of relevant theoretical frameworks. The first part of the chapter will discuss central theoretical frameworks through which the policies on natural resources management in Bolivia can be understood. First, the section will address political ecology, with specific focus on the concept of *Vivir Bien* which has been actively used in legitimizing the politics of MAS. It represents an alternative to Western thinking and capitalism and has been of major symbolic significance for Evo Morales and the MAS administration. It becomes central in the discussion on how the strategy on natural resources management is framed by the MAS administration, especially during times of increased resource extractivism. Closely related to *Vivir Bien*, is the framework of Rights of Mother Earth. Focusing on changing the relation between humans and nature, this idea also challenges capitalism and traditional Western perspectives on development.

The *Movimiento al Socialismo* was in many ways built on a wave of resistance against Western thinking, and neoliberalism has played a key role in forming this resistance. The structural adjustment programs (SAP) implemented in Bolivia during the 1980's and 1990's will therefore be outlined, along with key concepts of neoliberalism. Economic models do not come to existence without context and in Bolivia, and elsewhere in the Global South, the ways in which they try to find alternative development models are linked with ideas of coloniality and modernity. These ideas are not only concerned about economic models, but also broader power-structures that can be traced back to the colonial times. Decolonization has been a key aspect of Morales's politics, and it forms an important framework for analyzing the extractive development strategy in a historical and global perspective.

As lithium industrialization is part of a larger, global context, frameworks from international political economy of energy are relevant. It is especially interesting for countries rich in natural resources to explore how this influence international relations, and how foreign partners go about in securing access to vital metals and minerals. In the time ahead, it will be extremely important to pay attention to how the political turmoil in Bolivia will influence its relationship with foreign partners regarding deals on natural resources.

The second part of the chapter is concerned with the extractive history of Bolivia and the policies and politics of the MAS administration, which has been in power since 2006 until recently. As mentioned in the introduction, on November 10th, 2019, Bolivia's president Evo

Morales was forced to resign, and the country is now facing grave political turmoil. How this might affect the lithium project remains to be explored.

The extractive history of Bolivia has become important in the way Bolivians perceive themselves and why there are strong feelings about natural resources extraction. Popular demonstrations are a powerful tool in Bolivian society and have often opposed privatization of natural resources. The first part of the chapter will discuss the links between the extractive history in Bolivia, popular resistance and how this has led to the rise of MAS. The concept of "imaginaries" is used to link the extractive history of Bolivia with current perspectives on natural resources.

Bolivia has had its resources exploited for more than 500 years, and the lithium project led by the MAS administration marks a clear break with this cycle as Morales' government intended for it to be a Bolivian owned project. While in the past the resources have mainly contributed to creating wealth for colonial powers and multinationals, natural resources sectors such as oil and gas have been nationalized under the MAS administration and thus contributed to several welfare programs – an important aspect for analyzing the rationales behind lithium industrialization. It is also necessary to give some context about indigeneity and identity – as these issues are deeply intertwined with politics and decisions regarding use of land and special territories.

Further, the chapter will explore the global lithium market and its main producers and consumers, as this is important for understanding the geopolitics in play. On the global market lithium represents an important metal for the production of electronic devices batteries, and with the sales of electrical vehicles (EVs) steadily increasing it is a crucial metal for car production as well.

3.1 Theoretical framework

3.1.1 Neoliberalism in Bolivia

Neoliberalism refers to a certain economic discourse in which the free market is central. Geddes (2014, p. 3148) writes that more than just an economic system, it must be seen as a political project. It encompasses several structures of society and aims at securing capital accumulation through economic liberalization, while reducing the role of the state in the economy and downsizing state services such as public health and education (Gedddes et.al, 2014, p. 3148; Escobar, 2010, p. 8). In a historical global context, Escobar (2010, p. 7) traces the hegemony

of neoliberal policies to Thatcherism in England and to the Regan administration in the USA. He suggests the discourse represent "capitalist globalization", noting that the World Trade Organization and the North American Free Trade Agreement were created during this period, indicating a strong focus on free-market ideology (Escobar, 2010, p. 7). The Global South, especially Africa and Latin America became the epicenter for trying out neoliberal reforms, and Escobar (2010, p. 2) claims the Washington Consensus is based on the experiences of Latin America.

Neoliberal policies have often been used as a mean to generate economic growth, and major organizations like the World Bank and the International Monetary Fund (IMF) have promoted this approach in development countries such as Bolivia. According to Kohl (2002, p. 450), the World Bank and the IMF mistakenly assumed "that free markets and democratic institutions are mutually reinforcing and that when combined lead to higher rates of growth and more stable political structures".

Following the economic crisis in the late 1970's, Bolivia introduced the New Economic Policy (NEP) in 1985. The NEP was largely constructed by economist Jeffrey Sachs and minister and businessman Gonzalo Sánchez de Lozada which introduced drastic measures to cope with hyperinflation (Jenkins, 1997, p. 313). Structural adjustment programs were implemented across the region, and Jenkins (1997, p. 313) outlines three main pillars of the SAPs: "a shift to a more outward- oriented economy; liberalisation of domestic markets; and a reduction in the role of the state". The policies implemented included both economic and political restructuring with the aim of privatizing extractive industries, and allegedly strengthening local governance through popular participation (Geddes, 2014, p. 3151). Two laws were introduced during this period: The Law of Capitalization and the Law of Popular Participation (Kohl, 2002, p. 450). These laws gave way for economic liberalization by partially privatizing major state-owned industries, as well as increasing municipal autonomy (Kohl, 2002, p. 450). The failure to create regulatory structures that would ensure tax revenues from the privatized companies, led to severe losses for the government and multinationals could capitalize on natural resources previously controlled by the Bolivian state (Khol, 2006, p. 314).

While neoliberal policies aim at increasing economic growth through privatization and decentralization, Kohl (2002, p. 449) argue that neoliberal reforms in Bolivia "led to a decline in government revenues and a continuing economic crisis". He further claims that the decentralization aspect of the neoliberal reform sought to ensure social stability by creating spaces for local democratic participation, whereas instead of increased democracy it can lead

to increased political power to local elites (Kohl, 2002, p. 449). Kohl (2002, p. 456) writes that the neoliberal strategies did not lead to social or economic improvements for Bolivians. While the NEP and SAPs did halt the hyperinflation and temporarily restored the economy, Kohl (2006, p. 306) claims that the overall living standards decreased following neoliberal restructuring.

The social consequences of the neoliberal restructuring are clearly evident in the loss of jobs and decreasing industry. According to Kohl (2006, p. 311), about 20.000 miners lost their jobs in just one year, and 35.000 manufacturing sector jobs disappeared following the liberalization of domestic markets. Around 70% of urban workers found more precarious and worse paid jobs in the informal sector, and thousands of the laid-off miners started working in the coca sector, ultimately fueling the international cocaine business (Kohl, 2006, p. 311). Regressive tax policies curbed the revenues for the government, leading to poor investment in national development and increased dependency on loans from international financial institutions (IFI) (Kohl, 2006, p. 312). At the same time there was an increase in prices for basic social services, cooking fuel, energy, water, gasoline, diesel and transportation, creating civil unrest and protests throughout the country in 1997 (Kohl, 2002, p. 460). Protesters demanded an end of the neoliberal policies, and protests culminated in the so-called water- and gas wars of the early 2000's leading to the resignation of the president in 2003 (this is explored further in section 3.2.4.1).

While the MAS government adopted a strong anti-neoliberal stance, literature on neoliberalism in Latin America suggest there is a gap between "anti-neoliberal rhetoric and the sober realities of government policies" (Geddes, 2014, p. 3149). Haarstad and Andersson (2009, p. 21) writes that it is necessary for Bolivia to maintain a good relationship with the IMF in order to attract foreign investment, and that neoliberal policies continue to make up a great deal of the context in which Bolivia is negotiating.

3.1.2 Political ecology

Political ecology addresses questions of how global forces and politics shape the natural environment, and how economy, politics and nature are linked together (Robbins, 2012, p. 13). In the 1960's ideas about environmentalism emerged discussing the relationship between nature and culture. Economic growth and new technology had major impacts on the natural environment, and Porto-Gonçalves & Leff (2015, p. 66) writes that concepts of modernity and

development based on anthropocentric ideas of human domination of nature thus was challenged and calls for greater discussion regarding environment gained force.

Escobar (2007, p. 197) also writes of political ecology as the intersection between modernity and development on one side, and an "ethics and culture of sustainability" on the other. He describes this thinking as part of developing an own Latin American political ecology framework, in which a new environmental rationality is needed (Escobar, 2007, p. 197). The framework Escobar discusses, has many similarities with the concept of *Vivir Bien*, discussed in the next section. Breaking with Euro-centric ontologies, this framework builds on subaltern knowledges focusing on environmentally sustainable ways of life (Escobar, 2007, p. 198).

At the same time as these ideas are discussed, extractive expansion is increasing across the Latin American region. Nature and economy are inevitably linked, and the environmental impact deriving from the extractive development strategy comes with a high cost (Bebbington, 2009a, p. 14).

3.1.2.1 Vivir Bien

The concept of *Vivir Bien* roughly translates to living well or good living and is commonly described as an ideology deriving from indigenous ontologies (Hope, 2017, p. 78). It emerged in the 1990's in Ecuador, Bolivia and Peru as a response to the neoliberal discourse which long had dominated the Latin American region (Gudynas, 2018). *Vivir Bien* can be seen as a systemic alternative to capitalism, building on ideas of sustainability, living in harmony with nature and respect for symmetric power relations (Bold, 2017, p. 116; Postero, 2017, p. 95). Exploring alternative paths to development while claiming to be rooted in indigenous practices, it has become a significant discourse in Bolivia. The concept has been integrated in the Bolivian constitution as well as in the National Development Plan where it is defined as "access to and enjoyment of material goods and of subjective intellectual and spiritual fulfillment, in harmony with nature and in community with human beings" (Bold, 2017, p. 114).

Addressing world leaders in 2009 before the Climate Change Conference in Copenhagen, Morales stated that "defending Mother Earth had become more important than defending human rights" and that it is impossible for capitalism and Mother Earth to exist together (Postero, 2017, p. 92). Using the discourse of *Vivir Bien*, he demanded that world leaders of developed countries take more action against climate change.

Although the idea of *Vivir Bien* is closely knit to notions about harmoniously co-existence between people and nature, Gudynas (2018) argues that what is understood by this varies greatly. The concept developed differently in Bolivia and Ecuador according to the context, and different actors have given the concept various meanings to fit their own agenda (Gudynas, 2018). Despite claiming to reflect traditional indigenous values, Bold (2017, p. 113) argues that *Vivir Bien* is a concept developed by intellectuals residing in La Paz and rather than reflecting indigenous ways of living, it amplifies idealized imaginaries about how indigenous people "should live". *Vivir Bien* thus becomes an ideology associated with perceived ideas of indigeneity, which do not necessarily conform with practice.

3.1.2.2 Rights of Mother Earth

Related to the concept of *Vivir Bien* is the framework on the Rights of Mother Earth, which is mentioned in the National Development Plan as an integral part of Bolivia's development strategy. Pablo Solón (2018, p. 107) describes this framework as building on the idea that humans and nature are of the same entity – namely Mother Earth - meaning that humans are not superior to non-human life but rather depend on existence in harmony with nature. Solón (2018, p.109) argues that although the framework reflects indigenous peoples' worldviews, in the holistic approach to the meaning of Mother Earth, the idea of constitutional "rights" derives from Eurocentric philosophical thinking. This framework is acknowledged both in Bolivia and Ecuador, which recognize the legal rights of Mother Earth in their constitution.

3.1.3 Coloniality/Modernity

Escobar (2010, p. 2) writes that Latin America has become a hub for alternative thinking on modernity, with various cultural and political projects taking place across the continent. The coloniality/modernity discourse is based on the belief that the colonialization of the Americas not only imposed capitalism, but a broad power structure enforcing a stratified hierarchy of "races" and "cultures" still evident today (Grosfougel, 2011, p. 7). Scholars argue that an epistemic and ecological hierarchy was imposed, and Grosfougel claims that non-European people are still living under crude European/Euro-American exploitation (2011, p. 13). He further claims that knowledge continues to be produced from a Western point of view, creating an epistemic hierarchy in which Western knowledge is privileged over non-Western knowledge (Grosfougel, 2011, p. 7). Aníbal Quijano (2007, p. 169) goes as far as stating "[t]he imaginary in the non-European cultures could hardly exist today and, above all, reproduce itself outside of these relations".

While there are different traditions within the coloniality/modernity discourse, such as expressed by Nancy Postero (2017, p. 12) who view the discourse of decolonization in terms of transitional justice – as a move towards peaceful, equitable societies, the European impact on Latin American societies and cultures is undisputable. The conquest of the Americas led to not only massive extermination of its people but also the repression of their once considered high cultures (Quijano, 2007, p. 170). Other colonized parts of the world experienced this too, but to a lesser degree according to Quijano (2007, p. 170). He firmly argues that Latin America suffered the worst repression, stating that "patterns of expressions" were completely destroyed. Hence, there is a need for "epistemic decolonization" (Escobar, 2015, p. 458) and consequently, the decolonial discourse is key in nation-building in Latin America. In 2009, the MAS administration created the Vice Ministry of Decolonization aiming at rebuilding the state based on Bolivian identities and traditions (Farthing and Kohl, 2014, p. 59). However, the concept of decolonization is also a contested one within Bolivia, with various understandings and approaches to the concept.

3.1.4 International political economy (of energy)

Energy policies are vital to combat climate change, yet little research has been done on global energy politics, according to Van de Graaf et.al (2016, p. 4). He claims there is an "under-theorization of the politics of energy in the social sciences", and that it is imperative that social scientists along with political economists engage in wider research on this topic (Van de Graaf, 2016, p. 8). Further, Van de Graaf et.al (2016, p. 4) discusses how international political economy (IPE) is suitable for analyzing energy policies and provides a simplified definition which state "IPE studies the relationship between politics and economics, between states and markets, at the international level".

IPE aims at analyzing not only the political relations between sovereign states as traditionally had been done, and in which military power was key, but also how economic factors influence the relationships between states and non-state actors (Van de Graaf et.al, 2016, p. 10). Nafeez Ahmed (2017, p. 1-2), places the end of the fossil fuel era as the main source of geopolitical instability across the world, stating that what he sees as the inevitable energy transitions the world is facing will "force a paradigm shift in the organization of civilization". Energy thus becomes a central aspect of IPE. He further suggests that biophysical processes need to be recognized as an integral part of geopolitics, claiming that the two cannot be separated as the

biophysical processes, such as climate change, are increasingly driving geopolitical instability (Ahmed, 2017, p. 2)

Pike et.al (2017, p. 11) also discusses the links between climate change and natural resource consumption, writing that: "[t]he competition for natural resources is a major source of geo-political conflict and shortages of key resources, such as rare earth metals central to manufactured products in the digital economy, have the potential to be disruptive". As previously discussed, lithium resources are abundant but concentrated in a few areas, making it strategically important to invest in these areas. Access to specific metals, including lithium, is of key importance for the energy and technological transition needed to mitigate climate change. The management of such resources, however, have impacts on local and regional development (Pike et.al, 2017, p. 11).

Within the field of IPE there are many different traditions, but they all agree that IPE is "the study of the interplay of economics and politics in the world arena" (Van de Graaf et.al, 2016, p. 11). Domestic and international politics thus becomes inextricably linked and influence one another. IPE, as a framework, gives ways to analyze who the winners and losers of various strategies are and identify who are the ones truly benefitting from specific policies, including politics of energy (Van de Graaf et.al, 2016, p. 11).

Mitchell (2009, p. 400) claims that carbon energy is inextricably intertwined with the economic and political life of industrialized countries. The link between human development and energy consumption is evident in the reorganization of societies after fossil fuels were discovered (Mitchell, 2009, p. 401). Andrew McNeish (2018, p. 5) emphasizes that, in order to understand the political economy of energy and its extraction, the synergies between energy and society, energy politics and class formation, and economic value and violence must be recognized.

3.1.5 Imaginaries in Bolivia

The hopes and optimism linked to lithium extraction in Bolivia must not only be seen in terms of economic prosperity and increased living standards, but also in the context of a colonial history infamous for its extractivism. The Spanish colonial rule exploited the silver mines of Potosi and became the richest empire of its time, while indigenous people were forced into slave labor in the mines. Some estimates claim 8 million lives have been lost in the silver mines since they were opened during the Spanish colonial period (Hancock et.al, 2018, p. 552). Once considered one of the world's richest cities, Potosi is today impoverished, and mineworkers still struggle under poor working conditions.

This infamous extractive history is still vivid in the minds of Bolivians and plays a central role in their imaginaries. Barandiarán (2019, p. 384) writes of the term "imaginaries" that is can be defined as "collective constructions of how individuals understand their place in a culturally and historically-specific world". He further elaborates: "imaginaries both reflect and constitute new identities and the relationships between different groups, such as citizens, indigenous communities, workers or the state" (Barandiarán, 2019, p. 384). Imaginaries thus provides insight into why individuals have certain perceptions and beliefs, and how this is linked to issues of identity and worldviews.

Resource nationalization is part of Morales' attempt to decolonize the economic structures of Bolivia, and Revette (2017, p. 156) explains that natural resources are perceived as a "source of national dignity". By gaining national control over the resources, national sovereignty is restored. Thus, resources, sovereignty and economic growth are inextricably linked in the Bolivian imaginary. Kohl and Farthing (2012, p. 226) explains that "in the Bolivian imaginary, resources appear to be imbued with almost magical properties and have long been seen as possessing the potential to solve the country's economic problems".

Revette (2017, p. 156) also finds this imaginary present in her fieldwork on the Bolivian lithium project, which found that many Bolivians believe that under the MAS government the natural resources would benefit them rather than foreign powers. However, Kohl and Farthing (2012, p. 226, 232) warns that this imaginary creates unrealistic expectations and that the Bolivian lithium industry might not turn out to be economically beneficial due to high costs of extracting lithium in Bolivia. They also claim that the global lithium demands is currently satisfied by existing operations in countries such as Argentina, Chile, China and Australia (Kohl and Farthing, 2012, p. 232).

3.2 Background and context analysis

3.2.1 Identity and class discourses

Although what exactly is meant by "indigenous" is debated, Postero (2017, p. 27) describes how the category has been central in organizing social and political movements throughout Bolivia's history. In a country where nearly 48% of the population identify as indigenous it is necessary to look into the relation between identity and politics. However, there are several other important identity-categories to explore such as *campesinos* which are the indigenous peasant farmers of the highlands, *cocaleros* whom are coca-farmers of the lowlands and

mestizos. Cultural identity has been highly politicized in Bolivia and this section will give a brief overview of the relation between identity and social movements.

Historically, the Bolivian economy has depended on two main sources for income and production: mining and peasant agriculture (Postero, 2017, p. 27). These two sectors have been of paramount importance in shaping society and the ways in which people started to organize social movements. With 48% of the population identifying as indigenous, Postero (2017, p. 27) discusses how indigeneity and class are two key categories for understanding Bolivian history and imaginaries. Miners allied with other labor organizations and established the *sinidcato*, or the union, in which they organized to fight political and economic resistance, (Postero, 2017, p. 27). The unions became a powerful tool, not only for labor rights, but also in the fight for human rights and democracy (Postero, 2017, p. 27). *Campesinos*, also within the labor movement, is the other significant group championing resistance in Bolivia (Postero, 2017, p. 28). Organized through the *Confederación Sindical Única de Trabajadores Campesinos de Bolivia* (CSUTCB), the confederation for peasant farmers, they have been central in the agrarian reform, in which collective lands were given back to them, as well as in supporting the 1952 revolution (Postero, 2017, p. 28).

The interrelations between indigenous identity and class identity changed through a new political discourse implemented by the Revolutionary Nationalist Movement (MNR) after the revolution. Postero (2017, p. 28) writes: "indigenousness was submerged in a class-based identity and mediated by a patron state through client unions". However, there were continuous tensions between class, "the leftist workers-based ideologies" (Postero, 2017, p. 28) and ethnicity. Ultimately, this led to the division of the CSUTCB, in which one camp embraced radical Aymara Nationalism, also known as the Katarista movement started by Aymara intellectuals in the 1970's claiming indigenous people suffered a double oppression both through being an exploited class and through their ethnicity. They fought for political, economic and cultural emancipation for indigenous people (Postero, 2017, p. 28). The other camp continued to work with limited results within the traditional political system (Postero, 2017, p. 28).

Throughout the 1980's and 1990's a national indigenous movement took form, leading to the creation of *Confederación Indígena del Oriente Boliviano* (CIDOB), the Indigenous Federation of Eastern Bolivia (Postero, 2017, p. 30). Focusing on indigenous recognition rather than class, this movement sought collective landownership and rights solely based on ethnicity (Postero, 2017, p. 30). At the same time as this movement grew, neoliberal strategies were implemented

by the government. Because class was not an important aspect of this new indigenous movement, the neoliberal reform embraced the movement and incorporated indigenous demands in its policies thus giving way for new political spaces (Postero, 2017, p. 30; Haarstad and Andersson, 2009, p. 2). Haarstad and Andersson (2009, p. 8) claims that "[t]hroughout the era of neoliberal reform, indigenousness has replaced the labor movement as the locus for popular mobilization". Despite the government recognizing indigenous rights, it did not lead to any structural changes for the indigenous population (Postero, 2017, p. 30).

3.2.2 The rise of MAS

As described in above sections, social movements, resistance against neoliberal reforms and demands for greater participation and inclusion of indigenous rights laid the foundation for a new political discourse, in which MAS was central. In his campaign leading up to the elections of 2005, Evo Morales promised to revoke neoliberal strategies and to regain sovereignty over natural resources which would form the base of a socialist, redistributive scheme (McKay, 2018, p. 1255). The neoliberal policies had several consequences for Bolivian society; the open-market policies weakened workers' rights and the miners' unions, and the closing and privatization of mines forced many miners to relocate (Postero, 2017, p. 29; Haarstad and Andersson, 2009, p. 11). Postero (2017, p. 97) describes how the layoff of miners was perceived as a "blow to the dignity of Bolivia's working people".

The neoliberal reform led unemployment to rise to 20% (due to closing of mines) and several of the miners moved to the Chapare area of Cochabamba where they started growing coca-leaves (Haarstad and Andersson, 2009, p. 11). Once again, the miners organized themselves in a new movement, known as cocaleros – coca growers union (Postero, 2017, p. 29). This movement, which Evo Morales became a leader of, has a strong anti-imperialism stance as well as supporting ethnic demands (Postero, 2017, p. 29).

The *Movimiento al Socialismo* (MAS), or Movement for Socialism party, was founded in 1995 by an alliance of various peasant and cocalero organizations (Schilling-Vacaflor, 2011, p. 7). MAS was able to gather these various organizations by constructing an idea of what Postero (2017, p. 26) call "indigenous nationalism". This was an important step in amplifying the voice of indigenous actors, and the party gained wide support from other groups in society such as "indigenous lowland and highland organizations, urban intellectuals and workers, trade unions, and leftist groups" (Schilling-Vacaflor, 2011, p. 7).

Following the great mobilization from various social movements, Morales and MAS won the elections in 2005 (McKay, 2018, p. 1247). The "Water War" and "Gas Wars" (further discussed in section 3.2.4.1) in the early 2000's displayed great dissatisfaction with how the ruling party were managing natural resources (McKay, 2018, p. 1247). The demand for change and greater social inclusion paved way for MAS to be successfully elected. In a country in which a minority elite of European heritage had been the most powerful economically and politically, the election of MAS represented a radical change (Farthing and Kohl, 2014, p. 22). Evo Morales, with Aymara indigenous heritage, promised to end the injustice indigenous people had suffered and to lead a revolutionary socialist agenda based on indigenous values, sovereignty over natural resources and decolonization (Postero, 2017, p. 117; Hicks and Fabricant, 2016, p. 90). Among the elite of landowners controlling 70% of arable land, the socialist discourse of MAS was not well received, as they feared land reform (Farthing & Kohl, 2014, p. 1).

As the party name suggest, the major pillar of MAS is found in its socialist ideology. Bolivia has long experienced severe inequality along with stark racist trends, excluding the indigenous majority from political and economic influence. After the election in 2005 which *Movimiento al Socialismo* won, right wing movements and eastern elites mobilized against Morales, spurring racial violence in Cochabamba and Santa Cruz (Farthing and Kohl, 2014, p. 47). Conflicts regarding autonomy of the departments fueled violence, and according to Farthing and Kohl (2014, p. 48) right-wing mobs attacked government buildings and indigenous people. Aleem (2019*a*) writes that socialism in Bolivia is not only about economics but is closely related to racial identity and class. During the MAS administration the indigenous population, which generally experience higher poverty rates, have been included in the economy and face less discrimination (Aleem, 2019*a*). When looking at the violent spurs against indigenous MAS supporter occurring under the current interim government (Davis et.al, 2019) it becomes very clear that although the MAS administration addressed structural racism and implemented inclusive policies especially for the indigenous peoples, Bolivian society still battles explicit forms of racism. According to observers, grave human rights violations are taking place in Bolivia now and the military has been given exempts from criminal responsibilities (Davis et.al, 2019; Amnesty International, 2019).

In the start of his presidency, Morales emphasized the concept of indigeneity and decolonization as key factors in building a "new" Bolivia. The new constitution of 2009 enhanced indigenous peoples' rights and recognized Bolivia as a Plurinational state in which indigenous people have the right to "self-government, their culture, recognition of their institutions, and the

consolidation of their territorial entities" (Constitute Project, n.d). After 14 years in power, the discourse has changed and Morales has recently framed economic liberation as an imperative for decolonization, thus legitimizing the escalation of natural resource extraction under state control (Postero and Fabricant, 2019, p. 101).

3.2.2.1 Resource governance under MAS

As discussed above, natural resources are closely linked with Bolivian imaginaries and represents something at the very core of Bolivian identity. Throughout history, control over natural resources have shifted from colonial powers to the state and to private companies. The 1952 Bolivian Revolution overthrew a powerful elite of landholders and tin barons and was the first attempt in recent history to nationalize the tin mines which accounted for the majority of export at the time (Jenkins, 1997, p. 311).

Regaining national sovereignty over natural resources is thus something that strikes a chord with the Bolivian people (Postero, 2017, p. 97). In 2006, when MAS came to power, the government nationalized the oil and gas sector by staging a military take-over of foreign-owned oil and gas installations (Postero, 2017, p. 97). Later, the foreign companies were given a chance to renegotiate their contracts with Bolivia in which taxes and royalties were raised, leaving Bolivia with 54% of the profits (Postero, 2017, p. 97).

Throughout the 20th century Bolivia exported grand quantities of silver, rubber and tin but did not manage to change its internal production structures or develop an industry of value-added products (Gudynas, 2015, p. 37). An explicit target of the 2016-2020 Economic and Social Development Plan (ESDP) is to industrialize the hydrocarbon- and mining sector while ensuring national sovereignty over natural resources (Ministerio de Planificacíon del Desarollo, n.d, p. 125-128). According to Gudynas (2015, p. 49), natural gas is the main primary resource exported in Bolivia, standing for 51,1% of all exports. In recent years, Bolivia has become one of the largest gas producers in Latin America and gas production is named a State priority in the ESDP (Ministerio de Planificacíon del Desarollo, n.d, p. 125). Export statistics shows that Bolivia has one of the regions lowest shares of manufactured exports, at about 5%, as well as one of the lowest medium- and high-tech exports at 1.8% (World Bank*c*, n.d*c*)

While restoring national sovereignty over natural resources and industrializing the extractive sectors have been central in MAS' political discourse, McKay (2018, p. 1256) argue that Bolivia is still dependent on raw material export and that they still are unable to create value-

added products. He claims Bolivia has increased its dependency on primary materials in the years since Morales came to power, writing that primary material export increased from 89,4% to 96% of total export in the year 2006-2013 (McKay, 2018, p. 1256). The government has ambitious goals of moving away from being a primary-material exporter, stating in the ESDP that by 2020 80% of mineral exports should be value-added products, evident in the lithium project which has high ambitions of producing batteries (Ministerio de Planificacíon del Desarollo, n.d, p.128).

3.2.2.2 Social policies

In the ESDP the state says that profit from any public company shall be redistributed in social policies that will benefit all Bolivians (Ministerio de Planificacíon del Desarollo, n.d, p. 124). According to Postero (2017, p. 99), the "[t]he 2005 oil and gas law established that the direct taxes from natural gas profits, [alos known as] the IDH, should be distributed to public universities, municipalities, departments (regional governments), and indigenous groups". The taxes have been spent on several social programs, including the conditional cash transfer programs targeting the elder population, school children, mothers and low-income families, which is a key pillar in the social policies implemented by Morales (Postero, 2017, p. 99). Critics claim that CCT programs do not have a long-term effect as they do not change the economic structure and thus are not likely to raise the standard of living (Postero, 2017, p. 99). Others are more positive, stating that such programs reduce poverty and enable families to invest in the "human capital of future generations" (Nagels, 2016, p. 479). According to the Ministerio de Planificacíon del Desarollo (n.d, p.16), 40% of the Bolivian population benefitted from the cash-transfer programs in the years from 2006-2014. For the poorest people, the cash transfers were significant contributions to their income (Aleem, 2019*a*).

In addition to the cash-transfer programs, the Economic and Social Development Plan mentions several other measures implemented by the MAS administration, such as improved access to water, sanitation and hygiene services, increased access to electricity (the electricity company Electricity Carrier Company was nationalized in 2012), greater access to housing for vulnerable sectors of the population (through the Social Housing Program and the State Housing Agency) and better health services (Ministerio de Planificacíon del Desarollo, n.d., p. 20-24).

3.2.3 A brief overview of the Bolivian economy

While the discourse of MAS, in which they depend on revenues from the extractive sector to ensure development on one hand and striving to live in harmony with Mother Earth promoting

"indigenous values" on the other, might be contradictory, the government's socialist strategies have succeeded in reducing social inequalities and stabilized the economy. According to Balch (2019) poverty rates fell from 59,9% in 2006 to 34% in 2017, while the economy has grown on average 4,9% per year since MAS came to power. These numbers show the percentage of the population living under the *national poverty line*, which is defined on the basis of household surveys (World Bank, n.d*g*). Comparing World Bank data from 2005, the year in which Morales was elected, until 2017 there has been significant reduction in poverty rates. Measured in 2011 PPP[3], data for 2005 shows that 19.5% of the population lived on 1.90 dollars a day, while in 2017 the number was reduced to 5.8%. The population living on less than 5.50 dollars a day was 52% in 2005, while it had been reduced to 25% in 2017 (World Bank, n.d*f*).

These data are quite extraordinary in comparison with other countries in the region at the same time. The Economic Commission for Latin America and the Caribbean (ECLAC) released a report in 2018 that projected an average economic growth of 1.7% for the region in 2019 (ECLAC, 2018). Looking at growth rates in the region since 1990, the trends show significant differences between the region as a whole and Bolivia.

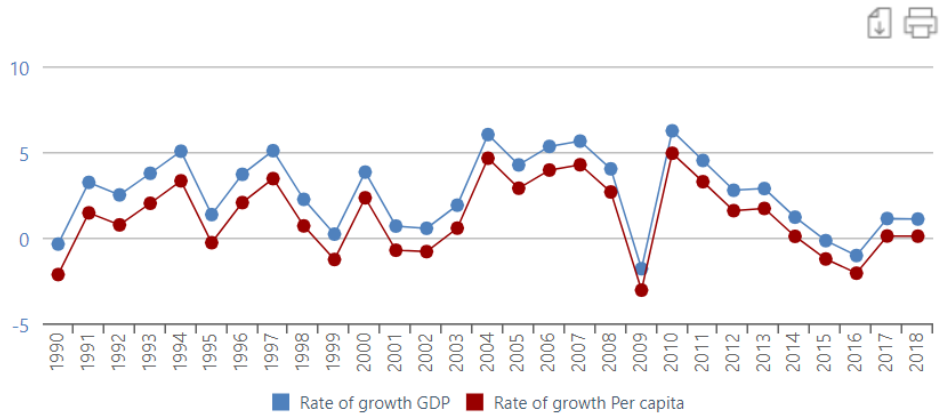

Figure 2. Annual growth rates at constant prices of 2010: Total GDP & GDP per capita, Latin America and the Caribbean. Source: https://estadisticas.cepal.org/cepalstat/Perfil_Regional_Economico.html?idioma=english

[3] Purchasing power parities, a theory aiming at comparing different countries' currencies

Although the growth rates have been fluctuating since 1990, there are significant differences between the region and Bolivia especially from 2008 onwards. While the region suffered from the global market failure in 2008, Bolivia has had a steady increase of GDP growth since 2009.

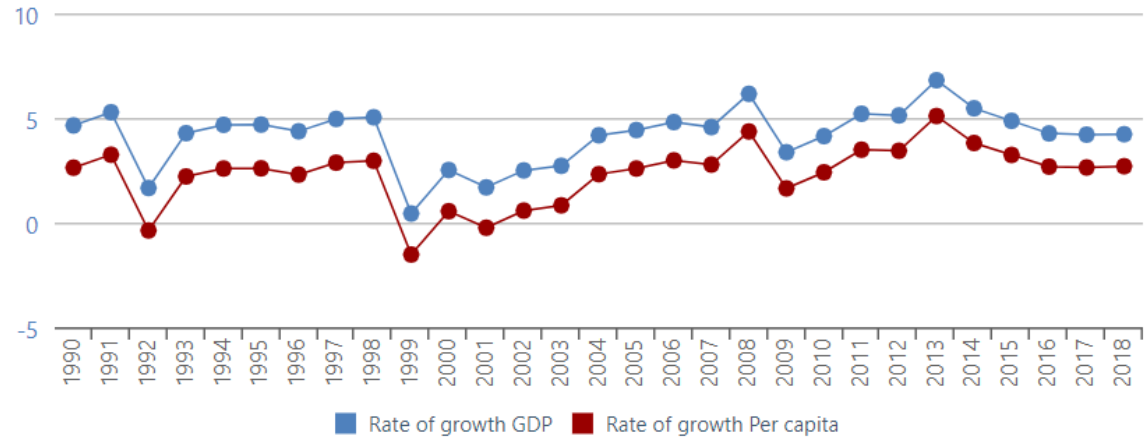

Figure 3. Annual growth rates at constant prices of 2010: Total GDP and GDP per capita, Bolivia. Source: https://estadisticas.cepal.org/cepalstat/Perfil_Nacional_Economico.html?pais=BOL&idioma=english

Despite heavy reliance on gas export, which makes the economy subject to high volatility, the economic growth has been rather stable. Postero (2017, p. 99) notes that "Per capita income has risen from $1,010 in 2005 to $2,922 in 2013 [and] The country's exports went from $2.8 billion in 2005 to $12.8 billion in 2014". Since Morales took office in 2006, urban unemployment rates fell by 4% and the minimum wage increased from 500 bolivianos in 2005 to 1,645 bolivianos a month in 2013 (Postero, 2017, p. 99). The fact that GDP grew, and poverty- and inequality rates dropped substantially at the same time, must be seen in context of the socialist policies implemented. Aleem (2019*a*) writes of Bolivia's remarkable results that it "shows that socialist projects can help societies escape poverty, rather than condemn them to it". Looking at government expenditure, World Bank data shows that health expenditure rose from 4.9% of GDP in 2005 to 5.8& of GDP in 2016 (World Bank, n.d*d*). However, government expenditure on education has been uneven. In 2003, expenditure on education was at 6.3% of GDP, then peaking in 2009 with 8% of GDP while after that government expenditure on education has decreased. In 2014 data shows 7.2% of GDP was spent on education (World Bank, n.d*e*).

3.2.3.1 Bolivian economy pre-MAS

In their analysis of the monetary and fiscal history of Bolivia, researchers at the Federal Reserve Bank of Minneapolis, writes that Bolivia's modern economic history (from 1960-2017) can be divided into five periods:

Year	Characteristics
1960-1977	- Rapid economic growth
1977-1986	- Debt crisis and hyperinflation
1986-1998	- Slow recovery period
1998-2002	- Financial crisis
2002-2017	- Economic growth - Increased state participation and nationalization of key sectors from 2006 onwards

Figure 4. "Bolivia's modern economic history". Adapted from: Kehoe, T.J., Machiado C.G., & Peres-Cajías. (2019). The Monetary and Fiscal History of Bolivia, 1960–2017 (https://doi.org/10.21034/sr.579).

The uneven economic development experienced since 1960 is explained through several different narratives such as failure to diversify the economy, dependency on foreign aid and lack of industrialization (Kehoe et.al, 2019, p. 1). The first period of rapid economic growth is attributed to high commodity prices and capital inflow at the time, which then was followed by a period of negative external shocks and increasing international interest rates leading to a severe debt crisis not only in Bolivia but the entire region (Méndez-Marcano & Pineda, 2014). These analysis's derive mainly from only looking at numbers in terms of GDP, exports, commodity prices, fiscal deficit etc., while leaving out the global political economy at play.

However, the economic history of Bolivia can not be understood without looking at the broader global political economy. The US has been deeply imbedded in the Bolivian economy since the 1950's, when the IMF first introduced its stabilization programs reducing inflation, through liberalizing markets and reducing public spending (Kofas, 1995, p. 214). This was part of a larger foreign policy strategy of mitigating communist influence and radicalization in Latin America, as well as ensuring economic interests. The IMF stabilization plan, however, did not manage to ensure social and political stability (Kofas, 1995, p. 215). Kofas (1995, p. 230) argue that rather than stabilizing the economic and social problems in Bolivia, the US interference in the Bolivian economy exacerbated existing polarization and led to the "destruction of democracy" culminating with the military coup of 1964.

Jenkins (1997, p. 312) state that the debt crisis and hyperinflation of the late 70's through the late 80's, in which GDP per capita fell by nearly a fifth, led to severe political instability and increased social mobilization. The deteriorating economic situation paved way for the New Economic Policy (NEP), a neo-liberal stabilization and structural adjustment program, implemented by the Paz administration in 1985 (Jenkins, 1997, p. 312). While the NEP did improve the short-term economy, the social costs was enormous – a point which I discussed in more detail in the section on neoliberalism earlier in this chapter.

3.2.4 Extractivism and conflict in a Latin American context

Andreucci and Radhuber (2017, p. 280) define extractivism as: "a type of natural resource extraction which (a) is large scale and/or very intensive; (b) is oriented primarily towards export; and (c) entails little or no industrial processing". Conflicts and extractive activities seem to be closely linked; according to Gudynas (2015, p. 63) there have been registered conflicts related to extractivism in every single Latin American country since 2010. While governments across Latin America have strengthened their environmental policies, these policies often remain on paper and are not translated into practice, leading to tensions with environmentalists and indigenous communities (Gudynas, 2015, p. 66). The conflicts are usually between multinationals and local communities who suffers the consequences of dispossession and destruction of livelihood (Bebbington, 2009*a*, p. 12).

The extractive frontier requires vast areas of land, some of which are protected or designated indigenous territories. In Peru, hydrocarbon blocks, cover more than 70% of the Amazon and 17 of the blocks are in reserved for indigenous people; In Ecuador two thirds of the Amazon are open for hydrocarbon exploitation and in Bolivia hydrocarbon exploitation is increasing both in the Amazon and in designated indigenous territories (Bebbington, 2009*a*, p. 14). In Peru and Colombia governments have proceeded to criminalize protests, openly siding with the extractive sector (Fabricant and Gustafson, 2015).

The extractive sector across Latin America has been subject to mass demonstrations. Bebbington (2009b, p. 9) explains the protests as reactions to issues of dispossession, pollution and royalties related to the extractive sector, and describe the protests as unique because of the participation of different ethnic groups, classes and social movements. In recent Bolivian history, the Isiboro Secure Indigenous Territory and National Park (TIPNIS) conflict is most dominant, in which the government planned to build a highway across the park to the Brazilian border (Fabricant and Postero, 2015, p. 452). The TIPNIS area is home to several indigenous

communities, as well as being a national park, and the decision sparked mass demonstrations and outcry against the government (Fabricant and Postero, 2015, p. 453). While destruction of territory and biodiversity was one concern, Fabricant and Postero (2015, p. 453) notes that the conflict was more complex than that stating that historical tensions between lowland and highland population was another source of conflict. Hope (2016, p. 925) argue that the project must be seen in the wider context of the governments national development plan, writing that the highway would pass several hydrocarbon reserves making it strategically important for future extractive projects.

Perreault and Valdivia (2010, p. 690) suggests that a political ecology framework can be used to explain the complex context in which resource conflicts occur. By exploring the "social relations of production and consumption, as well as the geographical imaginaries that give resources their commodity form and social meaning" one can find explanations for resources conflicts (Perreault and Valdivia 2010, p. 690). Further they note that it is crucial to be attentive to political ideologies that shape resource extraction, as well as the political economies "that structure resource access" (2010, p. 691). From this perspective, resource conflicts are inextricably linked with imaginaries, and should not be reduced to the more simplistic concept of the resource curse. McNeish (2018, p. 6) argue that local communities and civil society across Latin America has not been passive bystanders of natural resource exploitation, but rather they have expressed active agency through political mobilization and organization. The water- and gas wars in Bolivia proves an excellent example of this and will be discussed in the next section.

3.2.4.1 "Water wars" and "Gas wars"

In the year 2000 the "Water Wars" in Cochabamba erupted – a large social mobilization against the privatization of water. Through the late 90's the government had sold 30-year water concessions for La Paz, El Alto and Cochabamba to multinational company Bechtel as part of privatizing services (Hicks and Fabricant, 2016, p. 89-90). While commodification of water was prized in the international development community as a pro-poor method that would "promote resource conservation", protesters championed collective water rights (Hicks and Fabricant, 2016, p. 90). By giving multinationals monopoly over water services, the people would be subject to increased prices only profiting the multinationals. This touched a nerve among the population and can be seen as the tipping point for the frustration that had been growing over the past decade: it united people from various walks of life who organized

together in the “Coordination for the Defense of Water and Life”, cutting across race, class, gender and urban/rural groups (McKay, 2018, p. 1254). It culminated in clashes between protesters and police throughout the first months of year 2000 and ended with the government terminating the contract with Bechtel in April 2000.

In 2003, the government planned to export gas in pipelines through Chile and into the United States (Postero, 2017, p. 31-32). This again sparked demonstrations over control of natural resources and demonstrators set up road blockades cutting off food and gas to La Paz (Farthing, 2018). The demonstrations lasted for several weeks and the government responded by declaring a state of emergency and sending military troops to deal with the protesters (Farthing, 2018). The violent clashes led to the resignation of president Gonzalo Sánchez de Lozada, who later fled to the U.S (Postero, 2017, p. 31; Farthing, 2018).

The neoliberal policies had not worked to ensure inclusion of the Bolivian people, and more than half the population was impoverished and one third lived in extreme poverty in the mid 2000’s (McKay, 2018, p. 1255). The Water War and Gas Wars, along with the extreme poverty rates, signaled significant failures of the neoliberal reform. These events and the social movements behind them laid the foundation for a new political discourse that would nationalize Bolivia’s natural resources. Since 2008, lithium has been a key resource within this discourse and the next section is dedicated to discussing the role of lithium in a national and global context.

3.3 On lithium

Lithium (Li) is a soft alkali metal with the atomic number 3. It is found in more than 150 minerals and in brines, but the concentration of it is relatively low making it economically unjustifiable to exploit most of it (Flexer et.al, 2018, p. 1189). To make it economically viable, the lithium concentration must be higher and there are three main types of deposits where lithium can be exploited from; brines, pegmatites (magmatic rocks) and sedimentary rocks (Gruber et.al, 2011, p. 762). Australia are the largest producer of lithium from hard rock ore, while Chile are the largest producer of lithium from brines (Flexer et.al, 2018, p. 1190). Gruber et.al (2011, p. 762) describes brines as “saline waters with high contents of dissolved salts”. Such brines are commonly found in salt flats, like Salar de Uyuni in Bolivia where research for this study was conducted. About 66% of the world’s lithium resources are found in brines (Barrera, 2019*b*).

While the interest in lithium has increased in recent years due to new technology and electrification of vehicles, lithium can be applied in many various areas. It is used in among other ceramics, glass, medicine, rechargeable batteries for smaller devices, as well as strengthening aluminum frames (Jaskula, 2019, p. 98).

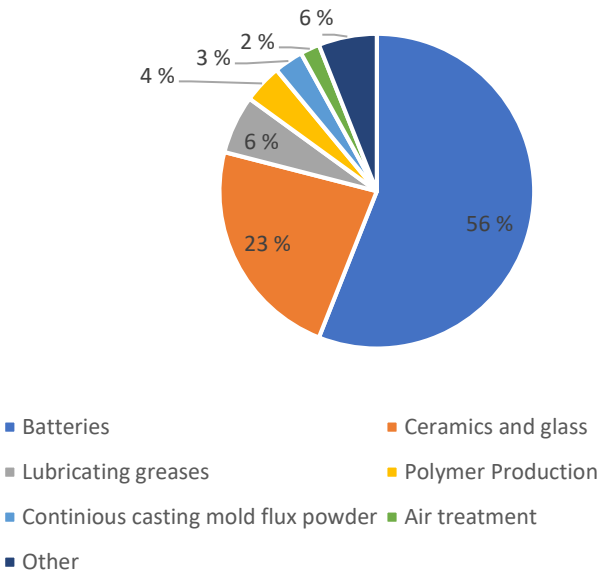

Figure 5 "Uses of lithium". Source: Jaskula, B. W. (2019). https://prd-wret.s3-us-west-2.amazonaws.com/assets/palladium/production/atoms/files/mcs-2019-lithi.pdf

Numbers vary greatly with regards to how much lithium exist in the world; Gruber et.al (2011, p. 760) puts the estimated world lithium resources at 39 million tons while the U.S Geological Survey puts the number at 55 million tons (Jaskula, 2019, p. 99). It is necessary to differentiate between resources and reserves when discussing minerals and metals, and Vikström (2013, p. 253) explains the difference as: "resources are generally defined as the geologically assured quantity that is available for exploitation, while reserves are the quantity that is exploitable with current technical…conditions". The reserves are thus what is important with regards to production and how much lithium can be economically extracted.

Although global lithium resources could potentially be as much as 55 million tons, the estimated world reserves are between 14 and 15 million tons (Vikström et.al, 2013, p. 247; Narins, 2017, p. 325). Two things can impact whether a deposit is classified as a resource or reserve; new mining technology and global prices (Gruber et.al, 2011, p. 761). If prices increase and more

efficient methods of extraction are discovered, more deposits can be considered economically viable for exploitation and thus become classified as lithium reserves.

3.3.1 Global market and actors

According to the United States Geological Survey (USGS), "Lithium supply security has become a top priority for technology companies in the United States and Asia", and has been included in a list of critical minerals created by the U.S Department of Interior (Jaskula, 2019, p. 99). It is of paramount importance to secure lithium resources in order to keep up with the new technologies and transition to sustainable energy. As mentioned in above sector, 56% of lithium is used for batteries. The electrical vehicle (EV) market, which currently depend on lithium-ion batteries, is expected to increase in the next decades, thus the increase in lithium demand is attributed to this market. Currently, Australia, Chile and China are the largest producers of lithium, with Australia being the largest producer of lithium from minerals and Chile being the largest producer of lithium from brine (Jaskula, 2019, p. 99; Viktstöm et.al, 2013, p. 254). There is no exact number of how much lithium is produced each year, but the USGS estimated production in 2018 to be 85.000 tons and the lithium consumption around 47,600 tons, which is a steady increase from previous years (Jaskula, 2019, p. 98-99). As production increases and exceeds demand, the prices have decreased over the past year (Jaskula, 2019, p. 99).

China, the world's largest electrical vehicle market, is expected to account for 48% of EV sales by 2025 according to forecasts by Bloomberg New Energy Finance (2019). Currently, China has a float of 421,000 electrical buses and is leading the electrical transport transition with 73% of global lithium cell manufacturing capacity (Rapier, 2019). In addition to be the world's third biggest producer of lithium, Chinese company Xinjiang TBEA has negotiated a joint venture with Bolivian *Yacimientos de Litio Bolivianos* to exploit lithium resources in the smaller Coipasa and Pastos Grandes salt flats in Bolivia (Ramos, 2019). Another Chinese giant, Tinaqi Lithium, holds 51% of the shares of Australia's largest lithium mine and have just acquired 2,1% shares in Chilean SQM, one of the world's largest producers of lithium (Barrera, 2019*a*).

Europe, U.S and Japan as the largest electrical vehicle markets after China (Bresser et.al, 2018, p. 177). In Europe, Norway is among the leading national markets. Despite continuous oil exploitation, the government's National transportation plan aims at replacing fossil-fuel private vehicles and buses with EV during the next decade (Regjeringen, 2017). By 2025 all new car sales shall be emission free and all city buses shall be electric or use biofuel. At the time of

writing, in 2019 over 44,97% of car sales were EVs, 11,8% hybrids (HEV) and 11,22% plug-in hybrids (PHEV) in Norway (Norsk elbilforening, 2019).

3.3.2 Lithium exploitation in Bolivia

In Bolivia, vast deposits of lithium rich brines can be found in the Salar de Uyuni, the world's largest salt flats along with the smaller salt flats of Coipasa and Pastos grandes. The USGS estimates the Salar de Uyuni to hold 9 million tons of lithium - a significant amount of the known world resources (Jaskula, 2019). An evaporitic method is used for extracting lithium from brines, in which brine is pumped from the ground beneath the salt crust into shallow evaporation ponds (Flexer et.al, 2018, p. 1189; Vikström et.al, 2013, p. 254). The technique is highly climate dependent as wind, sun and rain are crucial factors in the evaporation and precipitation process. Desirable conditions include high solar radiation and low precipitation rates, which makes the method very time consuming taking up to 24 months to complete (Vikström et.al, 2013, p. 254; Flexer et.al, 2018, p. 1189). These challenges pose threats to new investment in lithium plants, despite the predicted increase in demand. According to Flexer et.al (2018, p. 1193), prospection and piloting can take up to 10 years leaving the investors with no, or very little, profit in those years.

Evo Morales first announced his plans to develop the lithium industry in Bolivia in 2008, and in 2014 he took steps in implementing his vision by having the state invest $995 million to develop the lithium resources (Hancock et.al, 2018, p. 552). Opposing the neoliberal strategies that allowed foreign exploitation of natural resources, the MAS administration proclaimed national sovereignty over the lithium resources, intending to build a lithium industry in Bolivia where lithium is not only exported but also processed (Hancock et.al, 2018, p. 553). An industrial plant for lithium carbonate is planned to open in 2020, while industrial plants for lithium hydroxide and magnesium hydroxide are planned for 2021 (YLB, 2018, p. 10). MAS government plans also included producing cathodes and batteries in Bolivia in the next five year. The government had also plans to exploit other elements from the lithium deposits in Salar de Uyuni, including potassium chloride and boron (Gruber et.al, 2011, p. 762). Revette (2017, p. 156) claims that state control over lithium resources have created high hopes among Bolivians that this project will actually benefit the local communities as well.

Despite promising 100% government ownership of lithium, Bolivia is dependent on foreign investment to develop its lithium industry. Due to lack of experience in developing and processing lithium, it is necessary for Bolivia to partner with foreign companies that has the

required expertise (Hancock et.al, 2018, p. 555). While this is a standard position within the extractive sector, information on these partnerships remains limited however, and there are concerns among the population about what these partnerships entail (Interviews). In 2018, YLB partnered with German ACI Systems Alemania which led to the creation of a joint venture between the two companies named YLB-ACISA E.M (ACISA, n.d). The joint venture will exploit lithium resources in Salar de Uyuni and expect to produce 35.000-40.000 tons of lithium hydroxide per year starting in 2022 (ACISA, n.d). While Bolivia holds 51% of the share, critics worry that the contract might not be beneficiary for Bolivia. This is both due to the timeframe of the deal, which spans 70 years, and the fact that ACISA would be allowed to exploit the residuals – which could be more profitable than the lithium carbonate itself. The deal also states that 80% of the lithium should be exported to Germany, meaning only 20% will remain in Bolivia for further processing (Deutsche Welle, 2019).

While Bolivia might hold the world's largest deposits of lithium, the quality of the lithium is questioned (Narins, 2017, p. 322). According to Gruber et.al (2011, p. 762), "the average concentration of lithium in major brine resources varies from about 0.14% at the Salar de Atacama, in northern Chile, to 0.02% at Silver Peak, Nevada". In Bolivia, the concentration is relative low with about 0.05%. However, due to the large quantity of lithium brine it is still considered economically viable (Gruber et.al, 2011, p. 763). To use lithium in batteries, a purity of 99.99% is required, and a report made by the NGO CEDLA claims that the sale records of lithium carbonate shows that the lithium carbonate sold had only a purity of 98%, making it inviable for battery production (Ávila, 2018, p. 14)

High ratios of Li/Mg, meaning high contents of magnesium in the brines, make it costly to extract lithium, along with challenging natural conditions. Salar de Uyuni has higher precipitation rates than neighboring Chile and is subject to seasonal flooding which can affect the evaporation process (Jamasmie, 2018). The temperatures also drop as low as -30 degrees Celsius in the winter making the evaporation process slower.

3.3.3 Environmental concerns of lithium extraction

According to Flexer et.al (2018, p. 1194) the water used for the evaporation process is not fresh water but brine water, which contains 9 times higher salts concentration than sea water. However, fresh water is needed in other steps of the extraction process and could potentially deplete water resources for local communities. While Flexer et.al (2018, p. 1194) are cautious

in determining how water resources are affected by lithium extraction, Hancock et.al (2018, p. 553) claims the water usage will come at the expense of agriculture.

The ecosystem in Uyuni is unique, and concerns are raised regarding the ecological consequences of resource extraction in such a fragile area. Flexer et.al (2018, p. 1196) describes the area as a biodiversity hotspot "with high levels of endemic species, unusual ecological and evolutionary phenomena, and global rarity". Salar de Uyuni is also one of Bolivia's major tourist attraction, drawing people from all over the world to go on jeep safaris through the vast, otherworldly salt flats. Creation of large lithium plants could affect the tourism industry, which is an important source of income for many people in the Uyuni area.

4. Findings and analysis

Due to the qualitative nature of this study I have chosen to merge the findings and analysis in this chapter. Merging these two parts create a better flow in the text and provides a natural continuation of the context analysis which begun in the previous chapter. I have included a wide range of quotes from respondents so that the reader can get a picture of the way they discuss the various topics. Despite having translated most of the interviews from Spanish to English, their answers are written as direct quotes. This is done with the purpose of creating nearness to the respondents and provide an a truthful account of what was said.

Although there are several lithium projects going on in various locations (extraction is taking place in both Salar de Uyuni and the smaller Pastos Grandes, while the refining of the product in happening in other sites), I use the term 'lithium project' as a general term for describing all the activities linked to the extraction and industrialization of lithium. This includes both the evaporation process of extracting lithium as well as the process of creating value-added products based on various forms of lithium. Because the rationales behind the industrialization of lithium encompasses both these processes, using just the term 'lithium project' simplify the reading of the thesis. When it comes to analyzing impacts in the various communities included in this study, more detailed accounts of the various processes within the lithium project will be discussed.

The chapter consist of two main parts: the first part analyzes the rationales behind the lithium project in Bolivia, while the second part analyze socio-economic impacts related to the project. The possibilities and constraints of the project will be discussed continuously throughout this chapter, as this relates to both the rationales behind the project as well as with the impacts of the project. The first part is mainly conducted as document analysis, focusing on policy documents and public records. However, several qualitative interviews, especially with respondents from *Yaciminento de Litio Bolivianos*, are incorporated into this part of the analysis. The second part is concerned with the perceived socio-economic impacts and addresses several challenges regarding the lithium project, as expressed by the respondents. Notably, there is a general division between perceptions from respondents from YLB on one side, and municipality officials, community members and NGOs on the other. Included in this analysis are interviews with:

- 3 YLB representatives
- 6 experts, academics and NGO professionals – shortened to "experts" when I refer to their interviews in brackets
- 4 municipality officials
- 7 community members in various capacities

4.1 Rationales for lithium industrialization

This part of the analysis will focus on exploring the two first research questions:

1. *What rationales underpins Bolivia's strategy for developing a lithium industry?*
2. *What are the challenges for creating a sustainable lithium industry in Bolivia?*

Being a poor country with natural resources abundance and a long history of extractivism, it is imperative to explore how the government is now trying to change the story of Bolivia as a primary export country. The discourse of MAS has centered around sovereignty over natural resources as a mean to not only create economic growth, but also to restore the dignity of the nation (Ministerio de Planificacíon del Desarollo, n.d, p. 7).

The next two sections will outline the main targets of the governmental development plan, *Agenda Patriótica 2025* (Patriotic Agenda), followed by a discussion of how the MAS development discourse is perceived by professionals and experts outside the lithium areas, and municipality officials and community members in the lithium areas.

4.1.1 Agenda Patriótica 2025

Analyzing some of the most recent development strategies proposed by the MAS government, it is evident that rationales for developing a lithium industry are connected as much with ideas of decolonization and sovereignty as they are with economic concerns. In 2013, the Ministerio de Planificacíon del Desarollo (Ministry of Development Planning, MPD) launched the *Agenda Patriótica 2025* which outlined 13 development goals Bolivia should reach before 2025 (MPD, 2013). In addition to eradicating extreme poverty and access to basic services such as health and education, the development goals focus on sovereignty over natural resources and freedom from capitalism (MPD, 2013).

The Agenda specifically addresses the development of "sovereign technology" within several areas such as gas, hydrocarbons, mining and lithium production. It frames dependency on mining and hydrocarbons as part of the colonial heritage, and states that Bolivia will create a

holistic development which is based on a diversified production and economy (MPD, 2013). Thus, creating a national lithium industry is directly connected with rebuilding a sovereign, decolonized state. It is also important to note that all of these development goals are set to happen within a framework that respects the "rights of Mother Earth" and *Vivir Bien* (MPD, 2013).

4.1.2 The Economic and Social Development Plan (ESDP) 2016-2020

The ESDP "constitutes the strategic framework and prioritization of goals, results and actions to be developed in the third period of [the MAS] government", between 2016-2020 (MPD, 2015, p. 8). It strongly emphasizes that the idea of *Vivir Bien* is an integrated part of the development strategy, stating that it promotes respect and "harmonious coexistence between human beings and nature" and inclusion of all peoples (MPD, 2015, p. 9).

Looking at how the ESDP addresses management of natural resources, it strongly reaffirms that natural resources belongs to the people and that the role of the state is to administer these resources. Despite stating that dependency on hydrocarbons and mining is linked to the history of colonialism, ESDP state that these sectors will continue being key for economic development (MPD, 2015, p. 124).

Further, the ESDP state that social policies shall be strengthened through increased revenues from the natural resources sector (MPD, 2015, p. 124). Within the mining sector, a stated goal is to increase primary production with the aim of creating value-added goods and thus diversify income sources (MPD, 2015, p. 128). Creating industrial plants for the production of potassium salts and lithium carbonate are explicit targets, and these plants were envisioned to be fully operative by 2020 according to the ESDP. The plan also discusses the importance of promoting partnerships between foreign direct investment (FDI) and national enterprises, as a way of generating value-added production and sets the target of receiving FDI equivalent to 8% of GDP by 2020 (MPD, 2015, p. 98). The ESDP also addresses several structural challenges, such as "reducing the macroeconomic imbalances, optimizing the efficiency and progressivity of public spending, and ensuring sufficient returns from large investment projects" (World Bank, 2019).

4.1.3 Framing lithium industrialization within decoloniality

In a historical perspective, the rationales behind the lithium project become quite evident. Bolivia no longer wishes to be a primary material exporter, but to create its own processed,

value-added products which can be sold at higher prices. Breaking with past inequal power-structures, this project is clearly linked with coloniality thinking. There is a unique sense of pride in this project, reflecting the Bolivian imaginaries connected with natural resources. Morales' decision to nationalize the lithium resources is thus of strategic importance and central in the decolonization program of the government.

Respondents across the various localities and social groups in my sample frequently addressed the infamous extractive history of Bolivia when discussing the lithium project, highlighting their expectations of this project benefitting people rather than foreign companies. One respondent stated that "[b]efore, the foreigners came and took the oil…but now there is an agreement, the lithium is 51% ours, Bolivian (Interview with municipality official, Rio Grande, May 2019). Another says, "[t]hroughout history, the natural resources of Bolivia have always been exploited [by foreigners]. But I hope that it will be different this time" (Interview with community member, Uyuni, May 2019). A third respondent elaborates even more explaining "In the 16th Century the Spaniards arrived in Bolivia, because it was the main silver mine in the world. In Potosi. But they took all the wealth, and Bolivia remained poorer…for the first time in history we have the opportunity to have real economic development. Not only with the lithium, but for all of Bolivia" (Interview with expert, La Paz, March 2019).

As evident in the Agenda Patriótica 2025, the lithium project is directly connected with rebuilding a sovereign, decolonized state. Being the protagonists of their own development resonates well with the respondents, of whom the majority embrace the lithium project as a "new start" for creating development for Bolivia. One respondent working in a La Paz based organization points to the paradox of this, saying that the premise of industrialization as key for development is based on a Eurocentric view on development which he claims have been internalized by Bolivian people (Interview with expert, La Paz, June 2019)27LP). According to him, the "decolonization" project is, thus not rooted in Bolivian traditions.

4.1.4 Value-added chain

Bolivia's economy is based primarily on raw-material exports and has yet to develop a proper industry with a value-added chain. Lithium thus represents a golden opportunity to join in on the green-tech economy and to leave behind their role as a primary material exporter. With ambitions of producing not only lithium carbonate and hydroxide, but also cathodes and batteries, Bolivia places itself as an important actor in the global market. The importance of creating value-added products was highlighted by the majority of respondents. A respondent

working with YLB stated “If we make this, it will be a historical project because we will make all of the steps of the process. And we will demonstrate that in Bolivia it is possible to reach industrialization, and to process our resources to make a final product” (04LP, 22.03.19).

As will be discussed in later sections, technological knowledge and lack of human capital are perceived as major challenges in creating a lithium industry in Bolivia. Obviously, without the proper knowledge, value added products cannot be created. Concerns whether Bolivia can change its past trajectory was found among several respondents, with one saying: “The challenges is to not reproduce the extractivism, but to realize the industrialization” (07CB, 08.04.19). Another stated: “We do not want other countries to come and extract it from us and then sell our own technology…we want lithium to be well used, not only to be extracted” (18RG, 16.05.19). People are also growing impatient with regards to the lithium project, with one respondent saying: “According to the government, we should at least be manufacturing lithium batteries in few years, but to date we still can´t” (10CK, 15.04.19).

There are several other resources found in Salar de Uyuni, besides lithium, and if Bolivia is able to build industrial plants they could potentially also capitalize on the other resources. A respondent from YLB elaborate on this, saying “the salt flat doesn’t just have magnesium and potassium, but also other minor elements that can generate a larger chemical industry” (Interview with YLB representative, La Paz, March 2019). However, the question remains if they are able to capitalize on the resources available. A few respondents also raised concerns regarding the quality of the lithium found in Salar de Uyuni, saying it might not be good enough for battery production. One respondent says: “In La Palca they have started producing batteries, but only in small scale and not the size they want to. They need more and better technology to purify the lithium carbonate, because only highly purified lithium, 99,6% pure, can be used for batteries” (23UY, 22.05.19). The ratio of magnesium/lithium is as mentioned high in lithium found in Bolivian brine, however one of the respondents who have worked with the lithium project claims it will not be a big problem, because there is technology that can extract and purify it (01LP, 19.03.19).

Although Bolivia has experienced economic growth, they have not been able to attract more FDI. Statistics show that FDI typically is about 2-3% of GDP, whereas the goal, as stated in the ESDP, is 8% of GDP (The Global Economy, n.d). This could potentially lead to less development of value-added production, and thus slow down Bolivia in its attempt to enter the global market as a large-scale lithium producer.

4.1.5 Discussion of the MAS discourse

Denouncing capitalist perspectives and emphasizing subaltern perspectives on development has been an important strategy for the *Movimiento al Socialismo* administration. *Vivir Bien* and Rights of Mother Earth was an integral part of their discourse, evident in both the constitution and ESDP. When applying a political ecology framework on MAS policies, certain contradictions appear. Although claiming to be rooted in "indigenous values" in which a harmonious co-existence with nature is emphasized, the discourse of the MAS administration has also been dependent on increased exploitation of natural resources as this is necessary to ensure social benefits and human development.

It becomes clear that the extractive history is very much present in today's thinking about natural resources. Interviewees keep reflecting on the past, mentioning how "they" or "Bolivia" have been exploited by the Spaniards or, more recently, multinationals. However, there is a certain optimism regarding the lithium project which is seen as a Bolivian owned project. Although several respondents are concerned whether Bolivia will actually be able to industrialize the lithium resources, they are generally positive about the project because it is nationalized from the start.

Although a certain optimism prevails, respondents were critical in regard to whether the project will lead to any structural changes in the economy. An academic I interviewed discussed how the management of natural resources had changed with the MAS government, noting that in the past *"*[e]xtraction is linked to a very poor participation of the state and a very high participation of multinational companies. So very few parts of the earnings were for us, and everything were for other countries. So, we were rich in resources, but didn't get the money. And every transnational company didn't care about the people or the environment" (Interview with expert, Cochabamba, April 2019). Highlighting some of the main challenges throughout Bolivia's extractive history and addressing the structural inequalities between the Global North and the Global South, the respondent said that the inauguration of the MAS government in 2006 was a welcomed change. Restoring power over natural resources led to the anticipation that Bolivia would finally profit from their natural resources by building their own industry.

However, the same interviewee claims the government has failed in this matter. She states: "the problem is we are not doing the industrialization. We are still selling and extracting and exporting raw materials… We sell the oil and import gasoline. So, if you analyze, it is almost exactly as before – we are selling the raw materials and not making any value-added products"

(Interview with expert, Cochabamba, April 2019). According to the development plan, increased production of value-added products is an explicit target, of which 80% of mineral exports should be value-added products. Morales claimed his administration has been the first to export refined and contained gas, through the nationalized petroleum company Petroleros of Bolivia (YPFB) (Telesur, 2019). The government is highly dependent on natural gas exports, which accounts for 30% of its exports. A persistent problem in Bolivia appears to be continuous dependence on primary material export which has increased during the MAS administration.

The concern regarding lack of structural changes in the economy is supported by another respondent working in a NGO, who claims that although the implementation of socialism has led to improvements of living standards, Bolivians are still "living under a primary export pattern – we are a rentier economy that lives out of the exploitation of natural resources which has deepened with our economy" (Interview with expert, La Paz, April 2019).

One respondent suggest that socialism is part of the reason why the government has not been able to industrialize, because they have spent the money on "social things" rather than developing the Bolivian industry (Interview with expert, Cochabamba, April 2019). In this perspective, social benefits are perceived as short-term benefits that do not improve the overall economic situation of Bolivia. However, hard data shows significant improvements in the Bolivian economy, which had one of the highest real GDP growth rates in the region in 2018 (International Monetary Fund, 2018). The Bolivian economy has steadily increased since Morales came to power, however, as the respondents suggest, it is highly dependent on natural resources and is volatile with regard to changes in commodity prices (International Monetary Fund, 2018).

Despite the social development the MAS administration has accomplished, the process of industrializing and diversifying the economy seems to be going slowly, fueling the concern of respondents. According to a Bloomberg article, the YLB pilot plant only produced 250 tons of lithium carbonate in 2018, whereas the goal is to produce 150.000 tons within five years (Lombrana, 2019).

While some respondents are skeptical of whether the discourse of MAS can transform the Bolivian economy, others are more positive of the changes implemented. It is evident that natural resources policies concern most Bolivians, in the sense that they are deeply connected with their identity and feelings of national sovereignty. Mentioning looting by multinational companies, an interviewee celebrates Evo Morales for changing these structures, saying "When

Evo Morales arrived, he denounced and saw the situation, reversed it, and now the minority share goes to the companies, the majority goes to Bolivians" (Interview with community member, Rio Grande, May 2019). Another interviewee residing in the same town, states that the new policies have had major effects in the way Bolivia is cooperating with other countries. Multinationals can no longer loot national resources, because the policies ensure that Bolivia is treated as an equal partner (Interview with municipality officer, Rio Grande, May 2019). This echoes the targets of the ESDP, in which sovereignty of natural resources is a key element.

Seen in an international context, it is quite extraordinary that Morales has been able to nationalize the resources and reduce exploitation by multinationals. Several respondents compared Bolivia's lithium industry with that of Chile and Argentina, currently two of the world's largest lithium producers, saying that they have sold their rights to develop a lithium industry to multinationals while Bolivia has been developing a strong national strategy for lithium exploitation (Interview with expert, La Paz, June 2019; Interview with YLB representative, March 2019).

In the past, Bolivia's leaders have been forced to resign due to conflicts related to natural resources management and the failure of ensuring redistribution of revenues to the people (Aleem, 2019*a*). This makes for an interesting point, given the forced resignation of Morales in November. Morales had strong policies for nationalizing natural resources, as well as industrializing them in order to create a solid revenue base for further redistribution. This appeared to be a popular stance among both the public and the government, whom widely supported the nationalization policies. Resource nationalization must also be seen in a class perspective, in which the social policies have benefited the poorest population of which the majority are indigenous. As Farthing & Kohl (2014, p. 1) noted, the small elite of landowners felt threatened by the socialist discourse of MAS. A few respondents mentioned that Morales' policies could potentially scare off foreign investors, and thus slow down the industrialization. However, the state of the current market suggests there are several companies willing to invest in Bolivia, and earlier this year a deal with India was signed (Mishra, 2019).

It is evident that MAS has taken major steps in transforming the Bolivian economy. Given the unstable economy before Morales first came to government, partly due to failures of diversifying the economy and lack of industry, the idea of developing a Bolivian owned industry was considered a smart move. The MAS discourse has focused on decolonization, sovereignty over natural resources and economic growth. Through nationalizing several industries, Morales has been able to implement social policies which have contributed to better

living standards for much of the population, and he has achieved a significant reduction in income inequality as measured by the Gini index – the higher the index, the higher the income inequality within society. When taking office in 2006, Bolivia's Gini index was 56.7, while in 2017 it went down to 44, the lowest recorded number for Bolivia (World Bank, n.d*b*).

5.1.5.1 Perception of *Vivir Bien* as an approach to development

Widely recognized for his environmental concerns, Evo Morales is actively using the concept of *Vivir Bien* when promoting his politics. Outside Bolivia, he is often seen as a champion for protection of the Earth, whereas in his own country perceptions of his commitment to environmental issues are divided. Bolivians are familiar with the concept of *Vivir Bien*, but the majority of the respondents don't believe that the government is actively trying to pursue it as a systemic alternative. Rather than protecting the environment, many interviewees discuss a new form of national extractivism taking place under the Morales government. About the authenticity of *Vivir Bien*, an interviewee notes: "It is so nice if you analyze it, because you are not talking about wealth as the only way to grow, but you can be good in other ways too. But it's only a speech from the government*"* (Interview with expert, Cochabamba, April 2019). This was echoed by most of the interviewees. Several stated it is "just a speech" and that it has little effect on the policies implemented.

With an anti-capitalistic stance, Morales actively used the concept of *Vivir Bien* in his first election campaign and incorporated it in the new constitution of 2009. *Vivir Bien* presented an alternative development model, however, it has already been established that extractivism intensified after Morales took office. Arguing that extractivism is necessary for social redistribution, there is still debate on how this affects the natural environment as well as to which extent the redistributive policies are fair (Fabricant & Gustafson, 2015*b*). Once I mentioned *Vivir Bien* to an interviewee, he interrupted me before finishing the sentence, exclaiming: "Good living [*Vivir Bien*] for him, his 30th floor palace with his helicopter every day. He lives well, a millionaire, but the people? Why is it going to be the town's house? Is it our home?" (Interview with community member, Cochabamba, May 2019). The "palace" the interviewee refers to, is the new, controversial Presidential residence Evo Morales built which he calls Casa Grande del Pueblos. It rises high above the historic buildings at Plaza Murillo in La Paz, and with a price tag of $34m it stirred great controversy over public spending (Collyns, 2018). It is evident that many have lost faith in the revolution Morales' once represented, with one interviewee saying: "The government says one thing to the people but does something very

different and there is no balance. Pachamama is like a slogan" (Interview with community member, Potosi, May 2019).

While extractivism is necessary for enabling social policies, it is hardly compatible with the discourse of *Vivir Bien*. One of the respondents claims that this government "is the worst government for conservation and environment", further arguing that "they don't care about the environmental impact or indigenous peoples rights as long as they can make money" (Interview with community member, Uyuni, May 2019). Another respondent back this claim, saying that the government has increased exploitation of natural resources, also in protected areas with indigenous communities (Interview with expert, La Paz, March 2019). These claims, along with the TIPNIS conflict, have weakened the image of Evo Morales as a protector of Mother Earth and raised questions whether it is appropriate for the government to claim a discourse based on *Vivir Bien*.

The TIPNIS conflict is also part of the larger picture of energy politics in Bolivia. Morales has previously said that he wants Bolivia to become the energy hub of Latin America, by building hydroelectric power plants and selling the surplus to the rest of the continent. The infrastructure required to achieve this, will inevitably affect indigenous communities and their natural environment (Hope, 2016, p. 927). Lithium exploitation is also part of this context. A respondent working with YLB discusses the role of lithium in a global energy context, saying: "It is vital because it will allow us, on one hand, a development, and also making the change of the energy matrix. Because we don´t produce gasoline, we don´t produce diesel, we produce gas. Then for us is critical having an alternative source of energy, especially in order to generate electricity" (Interview with YLB representative, La Paz, March 2019).

Through the interviews and by analyzing the development discourse of Morales, is becomes evident that the idea of *Vivir Bien* is just exactly that; an idea. The symbolic effect has been major, but it has had limited impact on development policies. Postero (2017, p. 93) notes that the discourse is under scrutiny as critics claim it is not compatible with the current development strategy based on intensified natural resources extraction. Initially a discourse based on (constructed) indigenous values and key in the decolonization project, it now seems that is has lost its authenticity. Rather than a real alternative to development, Vivir Bien is now framed within more traditional discourses on development, as evident in the law on the Framing Law of Mother Earth and Integral Development to Live Well which implies that a "certain type of development is necessary to achieve *vivir bien*" (Postero, 2017, p. 115). Among the respondents, it is clear that their perception of *Vivir Bien* is closely knit to ideas about

environmentalism and thus not representative of the MAS administration's practices in the extractive sector.

4.1.6 Climate change and lithium exploitation

A few of the interviewees recognized climate changes as a crucial challenge for developing the lithium industry in Bolivia. As discussed, the methods for extracting lithium is highly weather dependent requiring solar radiation and minimum precipitation. A mining expert and academic explained that 10 years ago when they first started seriously exploring the lithium resources, they simply adopted the method used in the Atacama desert in Chile. However, they soon faced challenges. The interviewee says "The climate has changed. El Niño arrived because the planet is warming, and now it is raining in the deserts of Atacama and Uyuni. Some years ago, there was only two weeks of rain but now it is four or five months of rain" (01LP, 19.03.2019). These changes must be considered when methods for extracting lithium is discussed. The unique geographical location of Uyuni and its weather patterns require a different approach than in the Atacama desert.

Other interviewees connect climate change with industrialization. Despite lithium being a key metal in the low-carbon energy transition, there are worries that the extractivist path lead to more climate change. This brings about a paradox within the lithium project; although it might be important for mitigating emissions in other countries, how will it affect the local biophysical environment?

One respondent emphasizes the structural inequalities between the Global North and the Global South, stating: "The exploitation of natural resources, the destruction of the ozone layer, the heating of glaciers, loss of ice. All these facts are due to the overexploitation of non-renewable natural resources and their supposed development. The north lives well, the south lives badly." (14CB, 03.05.19). Another respondent also expresses this view, stating that climate change is a result of "unbalanced production and consumption" (03LP, 21.03.19). He further states that global geopolitics makes it challenging to address these issues. The reflections of this respondent point to an awareness of overarching global structures creating inequality.

4.1.7 Discussion of rationales

The rationales for extracting and industrializing lithium have several layers. The lithium project is an important step in diversifying the economy, which currently is heavily reliant on natural gas exports. If succeeding in industrializing lithium, Bolivia could become one of the top

producers globally. This would be a groundbreaking change from its past, as evident in the statements by the respondents who are very aware of the unequal political and economic structures between the Global North and Global South. The findings point to a significant perception of the project being interlinked with the discourse of decolonization, with the majority of respondents reflecting over the injustice suffered in the past.

A key rationale from the governments side is that the lithium project is key in increasing revenues that would enable them to continue and expand their social policies. It is interesting to note that although the MAS administration has achieved great improvements in welfare and reduction in poverty, this was barely mentioned by any of the respondents. While linking the MAS policies and resources nationalization to decolonization and a key feature in building a sovereign state, few respondents linked the project directly with social policies. This could be due to the fact that the project is not yet fully industrialized, and it is difficult to know how it will impact the economy before it is fully operational. As many of the respondents remain critical of whether it will be possible for Bolivia to create a successful national lithium industry, they might not even have considered the wider impacts it can have.

However, many of them mention what it could mean for Bolivia on the global level. It is evident that lithium is perceived as a strategic metal, and most of the respondents are aware of its importance in the global market. The role of lithium as key in the energy transition is recognized, and a few of the respondents links this with climate change. The international politics of lithium is key and will be discussed in the next part of the analysis.

Vivir Bien has been thoroughly discussed by respondents, because of the governments' explicit focus on it. More than representing a systemic alternative, I argue that the conceptualization of *Vivir Bien* is used to frame the discourse of the MAS administration within coloniality thinking. As Morales has explicitly denounced capitalism, stating in the *Agenda Patriótica 2025* that Bolivia seeks freedom from capitalism, the extractive development model needed another foundation based on "indigenous values" which are viewed as antithetical to capitalism. As evident in the findings, none of the respondents regards *Vivir Bien* as actual government practice.

4.2 Possibilities and constraints of lithium industrialization

This second part of the analysis will explore the following research questions:

3. How are lithium resources utilized to ensure economic and social development?

4. How can lithium extraction benefit or harm communities in close proximity to extraction sites?

5. How are tensions between resource extraction and environmental protection handled?

Compared with previous decades, Morales has been able to achieve more economic prosperity for the general population than any other administration. The reduction in inequality must be seen in relation with the socialist policies implemented, and redistribution of revenues from extractive sectors. Resource nationalization is key in this development, which makes for an interesting analysis of the possibilities and constraints regarding the current lithium project.

As explored by Kohl and Farting (2012) and Revette (2017), Bolivian imaginaries are closely knit to natural resources and their potential to induce economic prosperity. The geographic areas included in this study all have a connection with natural resources; Uyuni, Colcha K and Rio Grande are in the epicenter of the lithium reservoirs, while Potosi is severely affected by its long history of silver mining.

While Bolivia has a long history of exporting raw materials, the MAS government have nationalized several key natural resources sectors in the recent years and the industrialization of lithium aims at creating value-added, locally produced products. This section will analyze how local residents perceive the possibilities and constraints of the project, and whether it differ from other extractive projects in their opinion. However, one of the respondents working in an NGO, pointed out that there is actually little public debate regarding the lithium project (Interview with expert, La Paz, June 2019). According to him, information about the project is not accessible to the public, making it difficult to have open debates on environmental- and socioeconomic impacts (Interview with expert, La Paz, June 2019).

4.2.1 Education and skilled workforce

In order to examine the impacts of lithium industrialization, the challenges of the projects must first be addressed. When discussing the challenges of creating a sustainable lithium industry in Bolivia, several interviewees highlight lack of education and lack of technology as the main challenges. One interviewee notes: “I think the major problem is that we need more education of specialists, to get the knowledge in Bolivia… Our own people need the knowledge. Not just

bring in the companies, and when they leave, we are left with nothing" (Interview with expert, Cochabamba, April 201). A municipality officer echoes this same concern, saying: "[w]e don't have the professionals to exploit lithium, we need good professionals, so we don't depend on foreign companies" (Interview with municipality official, Colcha K, April 2019).

Many respondents felt that higher education, or more precisely lack of quality higher education, is a major problem in Bolivia. Discussing this matter with my Spanish teacher, he expressed concerns about the education system in Bolivia and the training of teachers. The impression of the education system seems to be overall negative among the interviewees, in which one stated:

> We haven't developed as other countries in terms of technology or knowledge. Our education in universities is bad, very bad…we don't have people prepared for technology here, to industrialize minerals and lithium… We are not focusing on knowledge. We have this, we have the resources. And we are happy with that. In Bolivia, we think if we have the Salar then we are rich (Interview with community member, Uyuni, May 2019).

This statement points to a perception that education is not prioritized by the government. According to Brugger and Zamora (2014, p. 82), numbers from 2011 shows that Bolivia spent around 8.5% of its GDP on education. While this is higher than the average in the region, they write that the youth unemployment rate in Bolivia is higher than in other Latin American countries (Brugger & Zamora, 2014, p. 82). The majority of the interviews indicated a perception of poor educational opportunities in Bolivia. Many respondents claimed that the government has not been doing enough to invest in education, and thereby not ensuring the skilled workforce needed for the lithium project. Brugger and Zamora (2014, p. 82) argue that Bolivia's low manufacturing exports statistics shows that they have not been able to create a skilled workforce.

Years with commodity booms and extractivism have not led to significant improvements in human capital, despite investment in education. The respondents from YLB, however, claim they are working to find a balance regarding this issue. One of them stated: "[t]he project and the government are helping local people to specialize, achieve degrees in chemistry, in geology, and so on, so that they will work with us. Then we also try to recruit people, not only as workers, but as technicians (Interview with YLB representative, La Paz, March 2019). Another said: "YLB is trying to create jobs for people in the local communities in Potosi, and they arrange courses for especially young people to engage them in the work of YLB" (Interview with YLB representative, March 2019).

Although respondents raised concerns regarding whether Bolivia has the workforce needed to realize lithium industrialization, it appears the government has been addressing this issue. In October 2019, Morales inaugurated the Technological Institute of Lithium in Potosi which aims at training specialists within chemistry, mechanics, electricity and electronics (Molina, 2019). According to Morales, this institute is part of the strategy of ensuring technological independence for Bolivia (Molina, 2019).

4.2.2 Claims to royalties

When visiting the city of Potosi, I witnessed a peaceful march by *Comité Cívico de Potosi* (COMCIPO), a civic entity fighting for the rights of the people of Potosi and their claims to natural resources, championing higher revenues from the lithium project. According to the latest agreements before Morales' resignation, the department of Potosi, where Salar de Uyuni is located is set to receive about 3% royalties which would be shared between communities throughout the department. In this march, they demanded increased benefits for the Potosi people, carrying signs stating that lithium belongs to all the people of Potosi. Calling for 15% royalties, COMCIPO has demanded greater participation in the negotiations regarding lithium projects and is taking a clear stance against the historical exploitation of Potosi. The people of Potosi are familiar with protesting, and one respondent notes that "Previous governments had planned to sell out Uyuni to multinationals [25 years ago], but because of protests from the people of Potosi it remained in Bolivian hands" (Interview with YLB representative, La Paz, March 2019).

When interviewing a representative from YLB, she clearly emphasized that the lithium project is a *national* project. By this she meant that Bolivia as a state owns the natural resources, and thus the wealth should go to all of Bolivia, not only Potosi. Being aware of their claims to royalties, she simply stated "it is not the local communities that should benefit from it" (Interview with YLB representative, La Paz, March 2019).

With the once majestic Cerro Rico ("Rich mountain") towering over the city, the hardships of extractivism is still evident in Potosi. The silver found within this mountain funded the Spanish empire, while a great number of the miners were slaves who died under the harsh conditions. Today, about 15.000 men still works in the mines extracting a variety of minerals including tin, lead and zinc, yet the working conditions has not improved much. My visit to the mine was not a pleasant experience; after only spending about 2 hours within the mines I had problems with breathing and seeing properly. The miners lack proper security equipment, thus toxic dust from

asbestos and scoliosis are claiming many lives with most of the miners not surviving past the age of 50. The tour guide said the mountain is exhausted, and nobody knows how much more mining it can take. In 2011 a sinkhole was detected, and the peak of the mountain was at risk of collapsing (Shahriari, 2014). The guide put is simply, stating "[w]e eat the mountain and the mountain eats us" (Personal communication, 08.05.2019).

Although the kind of mineral extraction in Cerro Rico differ vastly from lithium extraction in Salar de Uyuni, it provides important context in the narrative of natural resources governance. Given the history of Potosi, both the city and the department, it is no surprise that the people want a fair share of the natural resources found there and to ensure that profits do not all go to foreign companies. Several of the respondents link the extractive history with under-development; one respondent states "[t]he exploitation that the Spaniards have done in Potosí has contributed to the development of Europe in a certain way but not to Bolivia, Bolivia was left poorer" (interview with community member, Rio Grande, May 2019). As the poorest department of Bolivia, increased royalties from extractive projects within the department could help boost development, and this is where perhaps the most central conflict related to lithium industrialization is concretized; how can royalties from the lithium project be redistributed in a manner that benefit all of Bolivia, including the periphery?

Royalties from the lithium project were a concern among respondents in the town of Colcha K. One of the respondents felt that injustice had been committed, saying on the issue of royalties: "[i]t has been paralyzed and is a pending issue that is not being compensated. The mining royalties are precisely in compensation for the environmental impact in the area where they are working, and that aspect is not being fulfilled" (Interview with municipality official, Colcha K, April 2019). For him, royalties are not just a matter of development but also seen as a rightful compensation for any environmental impact the project may have on his community. Another respondent from the same town states "[t]he royalties are not seen. Although the project is large, local communities are not being directly benefited. Maybe a percentage of the royalties will come to us, but it will be minimal" (Interview with municipality official, Colcha K, April 2019).

It is evident that all communities, both in close proximity to extraction sites but also those in other parts of the department, have strong feelings about how they should benefit from the lithium project. While the government has a rather centralized approach, stating that the natural resources belong to the whole country and not specific departments, the perspective of the local communities in the department of Potosi suggest they would prefer royalties directly channeled to local governments. The socialist approach by the MAS government is dependent on revenues

from the extractive sector, however, some communities are not satisfied with the results of the redistributive schemes. This will be further discussed in the next section.

4.2.2.1 Local economic impacts

> There are no good public systems in Uyuni, there is garbage everywhere, no good hospitals and the streets and roads are not good. We don't get any help from the central government to develop the region. There is no presence of the state here and very little revenues from the project will go to Uyuni, nearly nothing (Interview with community member, Uyuni, May 2019).

The lithium project brings about challenges in how to redistribute revenues and royalties, as well as to which degree local communities can benefit from it. When talking with the interviewees, several pointed to Rio Grande as the community which benefits most from the project. One respondent stated: "Rio Grande is the one that is benefiting a lot in terms of resources. You are going to ask there, the whole movement that is being generated is based on YLB. Rio Grande is the community that has benefited from work, they have several projects with the community such as the subject of aggregates, for example" (Interview with municipality official, Colcha K, April 2019). Another says, "[t]he only one that comes to benefit in this case is Rio Grande because when I worked there, they were in the construction of the [evaporation] pools, they have monopolized the service of dump trucks, transportation etc" (Interview with community member, Potosi, May 2019). A resident of Rio Grande confirms they are benefitting from the lithium project, claiming they are the only community that provides "resources needed for exploitation", which includes water, aggregates, stones, sand, gravel and transportation (Interview with community member, Rio Grande, May 2019). Interviewing a municipality officer in Rio Grande, he also mentioned the same thing, saying "A lot of people are working with lithium here in Rio Grande. Other villages are working with quinoa and camelids, but here they are working with the YLB and the industrial Llipi plant (Interview with municipality official, Rio Grande, May 2019).

When visiting Rio Grande, big trucks dominated the scenery and it was evident that transport is a major business within the community. Some of these are related to the Borax-industry, which is the primary source of employment in Rio Grande, but several are also contracted to the lithium project. While the town itself did not strike me as an especially rich area, it does provide necessary services such as water, electricity, a school and sometimes mobile service. One of Rio Grandes municipality officials told me they have demanded that YLB assist them

with education and health services, as well as taking care of the environment (Interview with municipality official, Rio Grande, May 2019).

Residents of the communities visited are disappointed in the lack of cooperation between YLB and local enterprises and workers. Few people are hired locally, and a municipality officer in Colcha K say they have tried to arrange meetings with YLB to discuss how local businesses and workers can be part of the lithium industry. However, according to him YLB is outsourcing several services: "[t]hey are going to export the product to Brazil and what are they going to do? They are hiring FCA for transport [a train service], when we have large truck transport cooperatives here, we have all kinds of transport machines and no preference is being given to us" (Interview with municipality official, Colcha K, April 2019).

In the bigger picture, however, the revenues from natural resources extraction forms the base of the socialist state. A respondent working with the YLB reflects on this, saying "[t]he state policy is to redistribute among the population the surpluses [we get] from natural resources through improving road infrastructure, communications, health. So, we can say there's a contribution" (Interview with YLB representative, La Paz, March 2019). Many respondents commented on expectations regarding increased economic activities in their communities.

4.2.3 Environmental concerns

My initial thought was to explore tensions between economic development and environmentalism regarding lithium exploration. However, it proved difficult to get access to the environmental assessment report of the lithium project. While YLB and the government said such report has been published, I was not able to obtain access to it. Thus, analyzing environmental impacts was not feasible for this study. Two respondents, working in two different NGOs in La Paz said it was near impossible to find any independent environmental assessment reports, and, according to them, the only one available by YLB states there are no significant environmental impacts (Interview with expert, La Paz, March 2019; Interview with expert La Paz, June 2019). As public information on this matter was rather limited, the respondents were divided on how they assessed potential environmental impacts.

Respondents at YLB tell a story of lithium being a "clean" extractive project, with strict environmental guidelines and limited residuals. Because extraction of lithium from brine is natural in the sense that natural processes do most of the job, one respondent said they consider the method as environmentally friendly (Interview with YLB representative, La Paz, March

2019). By monitoring the available water resources as well as water-usage in the extraction process, they ensure that they are not contributing to desertification of the area (Interview with YLB representative, La Paz, March 2019). Having an informal chat with some quinoa farmers outside Uyuni, I asked them whether they were concerned of any environmental impacts on their crops. While saying they had heard about issues regarding water, they did not fear it because according to them the rainfall was sufficient enough for the quinoa crops. A municipality official from Rio Grande said he has been reassured by engineers working with YLB that there won't be an issue with depleting water resources, saying: "[t]he engineer told us that if the town runs out of water, it would be his fault. He says, 'why would I put more plants here if there is no water', he always says that, and that is why the plant is going to be built. Therefore, we are calm" (Interview with municipality official, Rio Grande, May 2019).

The majority of respondents, with a few solid exceptions, believed that the lithium project would not have significant negative impacts on the environment, because it is mainly a "natural process" referring to the evaporation method used for extraction. One respondent note that although there are many harmful extractive projects, many see the lithium project as a "good project" that does not affect the environment (Interview with community member, Uyuni, May 2019). When asked about what kind of information they had gotten about the lithium project, all of them, with the exception of respondents working with YLB, responded that the information was very limited. This leads to a lot of misconceptions, as one respondent said: "when we don't have any reports to compare, all we can do is speculate" (Interview with expert, La Paz, June 2019). Despite limited access to information however, respondents clearly have an opinion on how the project will affect, or in this case not affect, the environment. In Colcha K, one respondent says: "[t]he population is concerned that the Salar is going to be destroyed. But at the end of the day, we also know that the lithium project will bring development, economic investment and royalties – hopefully" (Municipality official, Colcha K, April 2019). The project is linked with high expectations of "development" although respondents are not sure how exactly they will benefit.

The imaginaries linked to resource extraction becomes evident in the interviews, where several respondents said it is necessary to use whatever *Pachamama* (Mother Earth) has to offer, because there will always be environmental impacts anyway. There clearly exist a debate concerning the environmental aspects of the lithium project, evident when asking a YLB employee about if they had done an environmental assessment report. The first response was to argue that some activists and researchers claim that the lithium project will deplete water

resources, without even asking YLB about the matter (Interview with YLB representative, March 2019). However, as mentioned at the start of this section, it is very difficult to obtain access to the reports, which also several NGO's experienced difficulties with. Rather than having an open dialogue about possible impacts, these difficulties in obtaining information only leads to more distrust.

Although the MAS administration has held a clear environmentally friendly profile, with regards to its emphasis on vivir bien and the inclusion of the Rights of Mother Earth framework in the constitution, the politics on the ground show a different conceptualization of nature. The Bolivian economy is dependent on resource extraction thus it must legitimize the exploitation of natural resources in a manner that doesn't conflict with frameworks of "indigenous values". By framing economic liberation as an imperative for decolonization, the MAS administration has been able to do this. "Taking" from nature is seen as a necessity in breaking with colonial heritage.

While the environmental impacts of lithium exploitation remain under-researched, one of the respondents argued that negative environmental impacts can be justified, because, - in the long run, the lithium industry will contribute in changing the current polluting, high-carbon energy system. Thus, what the lithium project is a contribution to "the concept of protecting Mother Earth" (Interview with YLB representative, La Paz, March 2019). This narrative resonates well with how the government is framing the project in a political ecology perspective, in which they conceptualize ideas of extractivism within subaltern knowledges focusing on protecting nature and Mother Earth. Although the MAS administration has contradicted this discourse with other extractive projects, the lithium project is perceived to be relative environmental-friendly in comparison.

4.2.4 Cooperation between the state and periphery

The issue of a centralized state with little connections to the periphery is addressed by several interviewees whom discusses the challenges both between the central government and local governments, and a lack of cooperation between the state and educational institutions. One of the academics I interviewed claimed that the lithium project is very secretive and that the YLB does not cooperate with local universities (Interview with expert, La Paz, March 2019). This must be seen in relation with investment in human capital, or the lack of it. If students and professors are not given an opportunity to be part of the project, the claim of the lithium project to be 100% Bolivian is severely weakened. When interviewing a representative from YLB, she

claimed however, that YLB is trying to create jobs for people in the local communities in Potosi, and that they arrange courses targeting young people to engage them in the work of YLB. She further said they are conducting seminars at various universities, in order to increase interest and knowledge of lithium (Interview with YLB representative, La Paz, March 2019).

A respondent in Colcha K, a village claiming to be the "capital of lithium", discusses the issue of centralization, saying "[t]here is already a flaw, because they know little or nothing about our reality here and that will generate many difficulties over time and can even generate social problems" (Interview with municipality official, Colcha K, April 2019). There is clearly a gap between decisions made by the central government, and information given to local authorities. Another municipality officer of Colcha K expresses frustration in regard to the flow of information, saying that the government has been very cautious about what kind of information they give to whom. This leads to a lot of uncertainty for local authorities, and the respondent further said "[t]he government tells us that [the lithium project] will generate many sources of employment, royalties, but we must see, because it sounds like a dream. We certainly do not know how much it will really generate" (Interview with municipality official, Colcha K, April 2019).

4.2.5 Cooperation with foreign partners

The government has explicitly expressed that the industrialization of lithium will be a 100% Bolivian project. Some interviewees have doubts whether Bolivia can manage this project, especially in the way the government is framing the project. One interviewee noted: "[f]or me, the project is a big bubble of illusions, that we would be able to make it a 100% state project. It is just illusions, maybe with good intentions, but it is too big for us. We don't have the infrastructure, the technology or even the knowledge" (Interview with expert, Cochabamba, April 2019). Thus, foreign expertise is needed. However, the governments joint venture with German company ACI Systems Alemania (ACISA) has led people to reject the idea of this being a Bolivian project and concerns about whether it will be different from the past. As mentioned in the introduction the deal with ACISA was wrecked on November 4th, reportedly due to protests from the Civic Committee of Potosi, but no further information has been given regarding the current situation.

Although most of the respondents acknowledge the need for cooperation with foreign companies, they are aware of the extraction history in Bolivia and emphasizes that the government must be in charge of the resources and make arrangements that will benefit Bolivia.

As one respondent stated: "[w]e need to be the one with the power, even if we don't have the knowledge" (Interview with expert, Cochabamba, April 2019).

There are several reasons for Bolivia to cooperate with foreign companies. One respondent reflected on this, saying "they are more advanced than us…in the management of technologies, equipment and all that. But if they would work in alliance with Bolivia, that is to say that they do not enter as a private company, it would be better" (Interview with municipality official, Colcha K, April 2019). It is interesting to note the wording of the respondent here. Narratives of the Global South as being less 'advanced' and 'developed' are common stereotypes often held by Global North governments and corporations, and such narratives can eventually be internalized by people of the Global South. These narratives are often used to justify foreign control of strategic natural resources, and hence can constitute by themselves an obstacle to a successful nationalization of the lithium project.

Another respondent stated the importance of having good partners, claiming that the deal with ACISA was good because Bolivia owns the majority of the venture with a 51% share and as long as this is respected there won't be a problem. According to him, the real problem is the global market in which 4 major companies control about 50% of the lithium market and it is thus important to have a strategy for working with these companies (Interview with community member, Uyuni, May 2019).

For YLB, it was a strategical decision to get involved with ACISA, stating that they needed "international alliances" (Interview with YLB representative, La Paz, March 2019). Others are more skeptical of the joint venture between YLB and ACISA, claiming that Bolivia is giving up too much power. Despite owning 51% of the venture, a respondent working in an NGO in La Paz, claimed that ACISA would be the one with real power (Interview with expert, La Paz, June 2019). According to this respondent, ACISA would have a veto right, along with several key lead positions within the joint venture. Juan Carlos Zuleta, an economist and outspoken critic of the governments lithium policies, claims the deal the Bolivian government has made with ACISA is clearly disadvantageous for Bolivia (Personal communication, May 2019). Although the law states that the first phases of processing lithium should be done by YLB, ACISA is allowed to process the residuals. According to Zuleta, residuals are considered a raw material meaning that it should be processed by YLB before foreign companies are involved (Personal communication, May 2019). There is an ongoing debate regarding use and further processing of residuals. Whether foreign companies can exploit residuals depends on whether residuals should be considered a raw material, meaning that only Bolivian companies can

process it, or if it should be considered a processed material, because it derives from other forms of processing and thus making it possible for foreign companies to process it. The definition of residuals has implications for how royalties are divided, and Zuleta claims that the current arrangement with ACISA is depriving local communities of royalties ((Personal communication, May 2019). A respondent working with an NGO echoes this concern, saying that according to the deal in place at the time of my fieldwork, ACISA is allowed to produce potassium chloride and lithium hydroxide from the residuals of the lithium carbonate plant, and buying these products at the cost price rather than the market price thus depriving Bolivia of revenues (Interview with expert, La Paz, June 2019).

Respondents from YLB claims that Bolivia has taken several steps to ensure that the lithium industrialization will indeed be a Bolivian owned process, highlighting the fact that Bolivia always have at least 51% of the shares when cooperating with international companies. They also note that foreign partners in the lithium project must accept several conditions, as discussed in Chapter 1. The respondents emphasize the conditions of 51% majority to the Bolivian part as well as technology transfer. One of the respondent working at YLB, says "[i]t's not how it used to be in the old days, [when] we had a model where a transnational company came, exploited [the natural resources] using advanced technology but with very low job growth, and then most of that surplus was transferred to their home-country. Now we wanted to change that, hence the joint venture by the state ensures 51% for the Bolivian State, and 49% for the strategic partner" (Interview with YLB representative, March 2019).

Again, historical parallels are drawn to explain the current strategy on natural resources management. Equal partnership is a resurrecting topic in all the interviews and all respondents are clear on the point that Bolivia should be in control of its own resources. Lithium represents a new way for Bolivia, in the sense that the state is controlling it and deciding how these resources should be exploited. However, foreign interests are deeply embedded in the Bolivian strategy as YLB depends on technologies and skilled workers from abroad. This does not mean that the nationalized lithium project can't succeed. Quite the opposite, this is a normal strategy for developing industries. In my home country, Norway, the oil industry was developed with the help of international oil companies who assisted both in extracting oil as well as building local competences (Ministry of Finance, 2015). The government adopted a long-term strategy of high taxes and created a sovereign fund, which ensured that petroleum would benefit future generations as well (Ministry of Finance, 2015).

A respondent working with YLB highlighted the links with the global economy, saying that the lithium project will serve as a gate-opener for "Bolivia to have a say" in the global economy (Interview with YLB representative, La Paz, March 2019). With the US declaring lithium a critical metal for economic and national security, and is launching an initiative, along with 9 other strategic partners, to "discover and develop reserves of minerals used to make electric vehicles, as part of a strategy to be less dependent on China"(Gardner et.al, 2019), it is evident lithium is on the global agenda.

Lithium plays a crucial role in the global economy which is taking baby-steps transitioning from fossil fuels to low carbon energy. The other countries joining the US initiative in becoming less dependent on China regarding the future green technologies, include both the Congo and the Philippines whom have some of the world's largest reserves of cobalt, as well as lithium-rich Argentina and Australia. The role of lithium in international political economy is thus necessary to consider when analyzing the project. Several countries have taken an interest in developing lithium in Bolivia, with China and Germany being granted the largest deals. The decision to partner with India is quite controversial, as it aims at building battery factories in India rather than Bolivia (Mishra, 2019). Although it is necessary for Bolivia to secure business partners, the deal with India will not contribute to job-creation within Bolivia. The recent wrecking of the joint venture between YLB and German ACISA, at the same time as political turmoil following Morales' resignation, produces major uncertainty about the future of the lithium project.

4.2.6 Summary of discussion

This chapter has dealt with some of the key possibilities and constraints of the lithium project, as perceived by the respondents. While the majority of respondents are generally positive to the lithium project, especially because they perceive it as a Bolivian owned project, there are concerns regarding the specific ways in which it will benefit local communities. Among the experts interviewed, they concur with the idea of industrializing but have concerns about the methods and strategy of the government. Ensuring Bolivian interests are particularly important for this project, while the experts fear the government is not doing this properly.

Several respondents held the perception of a lack of proper education to create a skilled workforce. According to many of them, although this project is a sovereign project, the government has failed to focus on building local knowledge needed for the project. The expert respondents also noted the gap in cooperation between the lithium project and universities and

local researchers. YLB on their side, claim they have several ongoing programs aiming at creating interest for the project. The newly opened Technological Institute for Lithium might be an attempt to close the gap between the industry and other actors within society. We should also take into account the possibility that respondents' negative perceptions about the possibility to create a skilled Bolivian workforce in the lithium sector might be influenced by commonly held negative stereotypes held by Northern companies and governments, as mentioned in above section. This also links to my emphasis on coloniality and decoloniality in previous sections on this chapter, as such perceptions could themselves become a barrier to the successful mobilization of popular support for a nationalized lithium industry.

A major constraint of the lithium project is the lack of information regarding environmental consequences. Neither the local communities nor NGO's have access to reliable, independent information about how the project might affect the natural environment. Given the excessive extractive history in which local communities have suffered environmental degradation, respondents have concerns about environmental impacts. However, the little information they do get seems to project a simple story of it being a "clean" extractive project, with few or none environmental implications.

Claims to royalties and redistribution of tax revenues are major concerns of the respondents. While YLB emphasizes that Salar de Uyuni is a fiscal land, the respondents clearly express that they think the local communities should receive more benefits. They expect the lithium project to create jobs, as well as revenues that will contribute to better health and education services. They also mention compensation for any environmental damages that may arise in the future.

Although all the respondents acknowledge that it is necessary for Bolivia to partner with foreign companies, there are concerns regarding what these partnerships entails. The majority of respondents express satisfaction with YLB having a 51% majority in joint ventures and projects, as this is perceived as evidence that it is a Bolivian owned project. Other respondents, mainly those who work in NGOs or are experts within the field, are more critical to the deals Bolivia has made. Despite having 51% of the share, they fear that the deal with ACISA is unfavorable for Bolivia.

5. Conclusion and recommendations

This thesis has sought to explore the possibilities and constraints of lithium extraction and industrialization in Bolivia, in the context of a global energy transition to low-carbon energy. This chapter will summarize the findings and link them with the research questions and the main objective of the thesis. This thesis has included perceptions from residents of communities surrounding the Salar and has also discussed the rationales behind the national development strategy. This provides a holistic picture of the lithium project in Bolivia reflecting on how the project is perceived at both the local and national level. However, I do not claim that these findings are representative for all Bolivians as the sample is too small to generalize. Nevertheless, it does provide insights into the framing and perceptions of the project, as experienced by the respondents.

The findings suggest that on the local level, the development of a lithium industry is inextricably linked with the Bolivian imaginaries of natural resources, as discussed by for example Revette (2017), and Kohl & Farthing (2012). In general, respondents have strong notions about natural resources and what they could mean for the socio-economic future of Bolivia. A common perception is that by gaining national control over natural resources, national sovereignty is restored. However, the government must be able to show that the revenues will benefit the people. The findings suggest that respondents are growing impatient because they have not seen the effects of the lithium project yet.

On the national and global level, it is evident that the lithium project is deeply embedded in international political economy of energy. The strategic importance of lithium has led several countries to take initiatives in securing lithium resources. This presents both possibilities and constraints for Bolivia. It puts pressure on them to industrialize faster, to have a chance of competing in the global market. At the same time, they must negotiate fair deals with foreign partners, ensuring benefits for the public. Bolivia has developed strong national policies for natural resources extraction, yet they are still able to attract foreign investment from countries such as China, India, Germany and South Korea, proving that its' policies on extractive sectors are compatible with the global market. Due to the current unstable political situation in Bolivia, it is however unclear how future investments will look like and whether Bolivia will be able to maintain it's 51% share policy within the lithium industry.

5.1 Rationales for industrializing lithium in Bolivia

The global market is part of the rationales underpinning Bolivia's strategy for developing a lithium industry. Although a more thorough analysis of the global market is required, the demand for lithium has fueled the industry in Bolivia with optimism for its economic future. The findings suggest there are three main motivations for the lithium project:

- It is part of the decolonizing strategy which includes sovereignty over natural resources
- It is an attempt to move up the value-chain
- It is an important step in diversifying the economy

The decolonization discourse is clearly articulated in the development strategy of the MAS administration which states that natural resources are to be under sovereign control. The lithium project is important in this discourse, as all the steps of processing the metal will take place within Bolivia, thus making it a unique project. While respondents not necessarily use the term "decolonizing" about the project, the majority uses phrases like "it is a Bolivian project" and "the foreigners will not take our resources", emphasizing that this project will benefit the people of Bolivia rather than multinationals and foreign actors. The discourse promoted by the MAS administration has linked decolonization with economic liberation, thus giving way for increased natural resources extraction. Whereas this strategy has led to increased conflicts in some extractive sectors, the findings suggest that there have been few conflicts over lithium extraction. Rather than major demonstrations regarding use of territories and disregard of indigenous peoples rights, the skepticism has primarily focused on revenue claims and how the project should benefit local Salar communities. However, despite some conflicts regarding revenues, the findings point to a common understanding of the lithium project as something that will improve the Bolivian economy.

If able to fully industrialize lithium, Bolivia could move up the value-chain and become a lead supplier of lithium to the global market. This is a key rationale for the lithium project, evident in the Social and Economic Development plan stating the importance increasing value-added exports. This too, is linked with the coloniality discourse and economic liberation. By producing their own products rather than exporting raw materials, Bolivia is moving away from the colonial heritage in which natural resources exploitation has left little profit for the Bolivian people. The results so far, however, show that industrialization and creation of value-added products are taking longer time than expected. The quality of the products is also questioned, leading to concerns about whether Bolivia can compete with other established producers.

Value-added production is closely related to the goal of diversifying the economy. Today, Bolivia is dependent on natural gas exports, leaving the economy subject to high volatility. It is crucial for the government to find alternative sectors to rely on, and lithium stands out as a good choice given the global energy transitions taking place.

The MAS government explicitly stated in the Economic and Social Development Plan that social policies should be strengthened through increased revenues from the natural resources sector (MPD, 2015, p. 124). The industrialization of lithium must therefore be seen in relation with the redistributive policies implemented by the MAS administration. The socialist policies promoted by MAS was dependent on taxes from the natural resources sector, in which oil and gas has played a key role. As discussed in the introduction, there is a consensus that we need an energy transition moving away from carbon energy to renewable energies. Thus, investment in lithium was a strategic move for diversifying the economy and ensuring future revenues that would enable continuation of the social policies. How these rationales might change with the new government is however unclear, as well as how it will affect the redistributive policies.

The findings of this thesis show that although a strategy of diversifying the economy are in place, broad skepticism remains regarding whether Bolivia will be able to successfully industrialize lithium. The reasons for the skepticism are linked with poor access to information about the project; respondents know little about issues regarding environmental impact, progress of the project and how revenues will be redistributed. Consequently, trust in both the government and the lithium project itself is reduced.

5.2 Possibilities and constraints of lithium extraction and industrialization

As this thesis has argued, the lithium project faces several challenges. These include but are not limited to: lack of local participation and training within lithium technology, distribution of revenues and royalties, and transparency in deals negotiated with foreign actors. Respondents express dissatisfaction regarding the cooperation, or lack thereof, between central governments and local governments, claiming that they receive very limited information about the progress of the project. Although YLB provides information in accordance with the free, prior and informed consent statute, information is nevertheless missing among the respondents.

Climate change was also brought up as a challenge by a few respondents, saying they fear the climate changes Bolivia is already facing will make lithium extraction difficult due to increased precipitation which slows down the evaporation process. Technology and lithium purity are

also concerns raised by respondents. Because lithium extraction and industrialization require more advanced methods than traditional mining, such as silver and tin extraction, respondents fear Bolivia will lag behind when it comes to technological solutions. A respondent from YLB said they support exchange between professionals, and that Bolivian personnel are sent abroad to learn about new technologies within the lithium industry (Interview with YLB representative, March 2019). This shows that there is an ongoing process to improve Bolivian competence within this field.

The findings of this thesis show that communities surrounding Salar de Uyuni experience a lack of cooperation and knowledge-sharing from the central government. Residents in the towns have limited information about the ongoing processes and about potential impacts for their local communities. Information about progress, environmental assessments and distribution of revenues remain unclear for the majority of respondents, leading to speculations about the true beneficiaries of the project. The issue of revenues is especially pressing, and persistent demonstration from groups in Potosi was part of the reasons for cancelling the deal with German company ACISA (Ramos et.al, 2019). ACISA has not released any comments on the issue since November 4th, and at the time this thesis is being written the future of the Bolivian-Germany partnership remains uncertain. Although this situation could not be analyzed in this thesis, it is clear that there are several forces involved in this situation. Geopolitics play a central role in the deals negotiated, and as this thesis have argued, international political economy of energy is a highly relevant framework for analyzing lithium industrialization in Bolivia.

It is too early to know how the lithium project may affect the long-term economy in Bolivia, and whether it will be part of changing the economic structure. Depending on the market and future deals with foreign partners, the lithium project could prove key in transforming the Bolivian economy. Lithium is clearly a strategic resource for the future and has become almost synonym with "green technologies". However, it is interesting to note the lack of research on local consequences, especially regarding how it might affect the biophysical environment. Although the MAS administration has attempted to frame extractive projects within the framework of *Vivir Bien*, the findings suggest that this is viewed as just a "speech" among the respondents. The majority of respondents had no faith in the environmental policies of the MAS administration, and with restricted access to environmental assessment reports, this could potentially lead to future conflicts on lithium industrialization and environmental protection.

When analyzing the research question "How can lithium extraction benefit or harm communities in close proximity to extraction sites?", it became evident that at this stage of the

lithium industrialization process, the effects are not yet fully visible. Respondents are raising concerns about several issues but could not give concrete examples of how this project is affecting their communities at this moment. The previous sectors have already discussed some of the concerns, such as distribution of revenues and expectations of economic growth, lack of information and possible environmental impacts. The concerns regarding environment include water resources although respondents are divided on this matter. The NGO's expressed the most concern regarding water resources, saying that due to the lack of transparency and access to environmental assessment reports there is no knowing whether the extraction may increase salination in the water or/and deplete water resources. Respondents in Salar-communities, however, did not express much concern regarding water resources. The different perceptions raise questions about where they get information from, and who are responsible for the information.

As the lithium project is currently ongoing, and not fully industrialized, this thesis could only discuss *expectations* linked with lithium revenues, as well as some of the economic impacts experienced by the town of Rio Grande. Rio Grande has experienced economic development not as much due to revenues and royalties from the lithium project, but from the logistical services needed for the project. The town have been able to secure transport deals, and are suppliers of gravel, stones and water. This has led to increased job opportunities and thereby a positive economic impact on the town. However, jobs connected directly with lithium industrialization are high-skilled and require higher education. Many respondent thus express disappointment that the lithium project has not been able to create more jobs for local communities.

Although the lithium project creates optimism for a better economic future in Bolivia, respondents are concerned that Bolivia does not have the required expertise to successfully industrialize lithium. A majority of respondents said that Bolivia lack the knowledge and skills to take lead in this project. Although it is natural to seek knowledge from foreign partners, representatives from YLB also clearly emphasized that Bolivia is developing their own, new technology within lithium processing. With the newly opened technology institute in Potosi, it is evident that Bolivia is focusing on building national competencies. Nevertheless, the majority of respondents had negative perceptions regarding Bolivia's ability to create a skilled workforce. This could be interpreted as if though they have internalized narratives of the Global South as inferior to the Global North – as evident in the coloniality discourse.

5.3 Policy recommendations

This thesis has addressed several challenges and constraints for the lithium project, and this section will provide policy recommendations according to the findings. The findings show that respondents perceive a lack of cooperation between the government, institutions and civil society organizations. I therefore recommend that the government develop a strategy for enabling knowledge-sharing between universities, civil society and YLB regarding lithium technologies. This will contribute in building local competencies, which are necessary for Bolivia in order to develop a leading lithium industry. The newly opened Technological Institute of Lithium in Potosi appears to be a great start for such a strategy. However, other stakeholders such as NGOs should also be included. The findings suggest there are several NGO's with wide competencies on the lithium industry, and independent researchers working in these organizations could be valuable contributors in strengthening and building a skilled work force.

This thesis found that lack of information about the lithium project lead to speculations which in turn weakened the trust in the government and their management of the project. The government should thus ensure public access to crucial information such as the environmental assessment report. Increased transparency is generally recommended, and I recommend the government involve more people at the bottom. I acknowledge that a strong, centralized government is necessary in order to implement redistributive schemes that will benefit the whole population. Nevertheless, I recommend stronger cooperation with local communities regarding the lithium project.

Further, a revision of how revenues and royalties are distributed should be reconsidered. The majority of respondents find the current arrangements on revenues to be unfair and they express deep dissatisfaction with the current system. Their perceived exclusion from revenues schemes have led to demonstrations in Potosi, demanding a higher percentage of revenues to ensure development. By ensuring a fair share of revenues to the most affected communities the government can reduce tensions and enable new methods of ensuring local development. The government should develop a strong strategy for how lithium revenues and royalties should be managed, and possibly explore the idea of creating a sovereign fund that will ensure economic benefits for the future as well.

5.4 Recommendations for further research

This thesis has not addressed the recent resignation of Evo Morales, and to what extent it was a coup d'état. However, the issue of lithium is highly politicized and recent newspaper articles speculate in what the coup means for the lithium project. Some have clearly implied that it must be seen in relation to control over lithium resources, a claim Morales himself has addressed as well (Conese, 2019). It is not the objective of this thesis to discuss this claim, but I strongly recommend further research address this issue. Following negotiations with foreign investors is imperative, as well as closely monitoring how lithium is managed with regards to revenue claims and social redistribution. I have argued that one of the main rationales behind the lithium project is related to decolonization, and that the project comes with great pride because it is a Bolivian-owned project. With a new administration it will be interesting to see whether this discourse changes, and if the premise of the project being Bolivian will still hold strong or if it will fall in the hands of multinational corporations.

During the fieldwork in Bolivia, I obtained newspaper articles regarding lithium for the past 5 years. However, due to time-constraints I was not able to analyze the material for this thesis. I thus recommend a thorough analysis of how the lithium projects is framed in the Bolivian media, and to which extent this is part of influencing perceptions about the project. Many respondents had very clear opinions about the project but could not account for where they had found information about it. It is thus necessary to investigate who gives information, what kind of information is given, and which stakeholders are part of providing information to the Bolivian public.

A major challenge in writing this thesis was gaining access to any environmental assessment reports regarding lithium industrialization. YLB did not respond to my requests, and the NGO's I talked with claimed they were not allowed to access to the lithium plants and thus could not conduct their own environmental assessment reports. I strongly recommend research on environmental impacts, as this was a concern among many of the respondents but something which they had very limited information about.

References

ACISA. (n.d). *ACI Systems Alemania in Bolivia*. Retrieved from: https://www.acisa.de/lithium/ Viewed: 11.10.19

Ahmed, N. M. (2017). *Failing States, Collapsing Systems: BioPhysical Triggers of Political Violence.* Cham: Springer.

Aleem, Z. (2019*a*, October 1). Bolivia's remarkable socialist success story. *The Nation*. Retrieved from: https://www.thenation.com/article/economics-socialism-bolivia-evo/

Aleem, Z. (2019*b*, November 18). Bolivia's coup is still happening. *The Nation.* Retrieved from: https://www.thenation.com/article/bolivia-coup-morales/

Amnesty International. (2019, November 18). Bolivia: Jeanine Áñez must immediately repeal decree giving impunity to Armed Forces personnel. Retrieved from: https://www.amnesty.org/en/latest/news/2019/11/bolivia-derogar-norma-impunidad-fuerzas-armadas/

Andreucci, D. & Radhuber I. M. (2017). Limits to ''counter-neoliberal" reform: Mining expansion and the marginalisation of post-extractivist forces in Evo Morales's Bolivia. *Geoforum, 84*(2017), 280-291. DOI: https://doi.org/10.1016/j.geoforum.2015.09.002

Arnade, C. W. & McFarren, P.J. (2019, July 30). *Bolivia*. Retrieved from: https://www.britannica.com/place/Bolivia

Arsel, M., Hogenboom, B. & Pellegrini, M. (2016). The extractive imperative and the boom in envrironmental conflicts at the end of progressive cycle in Latin America. *The Extractive Industries and Society.* 3(2016), 877-879. DOI: http://dx.doi.org/10.1016/j.exis.2016.10.013

Atkinson, P. and Hammersley, M. (2007). *Ethnography: principles in practice. 3rd edition.* New York: Routledge

Ávila, P.P. (2018). Lithium: Changes in the industry and uncertainty regarding its industrialization in Bolivia. *Publication of the Energy Platform, 67*(18), 1-21.

Balch, O. (2019, March 7). How a populist president helped Bolivia's poor – but built himself a palace. *The Guardian*. Retrieved from:

https://www.theguardian.com/world/2019/mar/07/how-a-populist-president-helped-bolivias-poor-but-built-himself-a-palace

Barandiarán, J. (2019). Lithium and development imaginaries in Chile, Argentina and Bolivian. *World Development 113*(2019), 381-391. DOI: https://doi.org/10.1016/j.worlddev.2018.09.019

Barrera, P. (2019*a*, May 7). *Top lithium-mining companies*. Retrieved from: https://investingnews.com/daily/resource-investing/battery-metals-investing/lithium-investing/top-lithium-producers/

Barrera, P. (2019*b*, April 29). *Types of lithium brine deposits*. Retrieved from: https://investingnews.com/daily/resource-investing/battery-metals-investing/lithium-investing/lithium-deposit-types-brine-pegmatite-and-sedimentary/

BBC. (2019, December 6). Evo Morales: Overwhelming evidence of election fraud in Bolivia, monitors say. *BBC News.* Retrieved from: https://www.bbc.com/news/world-latin-america-50685335?intlink_from_url=https://www.bbc.com/news/topics/c2mzxvpymppt/bolivia-crisis&link_location=live-reporting-story

Bebbington, A. (2009a). The New Extraction: Rewriting the Political Ecology of the Andes? *NACLA report on the Americas.* Retrieved from: https://www.nmbu.no/sites/default/files/pdfattachments/bebbington_the_new_extraction.pdf

Bebbington, A. (2009b), Latin America: Contesting extraction, producing geographies. *Singapore Journal of Tropical Geography*, *30*(1), 7-12. doi:10.1111/j.1467-9493.2008.00349.x

Blaikie, N. (2010). *Designing social research: The logic of anticipation. 2nd edition.* Cambridge: Polity Press

Bloomberg New Energy Finance. (2019). *Electric Vehicle Outlook 2019.* Retrieved from: https://about.bnef.com/electric-vehicle-outlook/

Bold, R. (2017). *Vivir Bien*: a study in alterity. *Latin American and Caribbean Ethnic Studies, 12*(2), 113-132. DOI:10.1080/17442222.2017.1325100

Bresser, D., Hosoi, K., Howell, D., Li, H., Zeisel, H., Amine, K., & Passerini, S. (2018). Perspectives of automotive battery R&D in China, Germany, Japan, and the USA. *Journal of Power Sources, 382*(C), 176-178 DOI: https://doi.org/10.1016/j.jpowsour.2018.02.039

Brugger, F., & Zamora, K.L. (2014). Why Commodity Booms Have Not (Yet?) Boosted Human Capital: Bolivia's Struggle to Create a Skilled Workforce. In G. Carbonnier, M. Carton & K. King (ed.), *Education, Learning, Training: Critical Issues for Development* (p. 81-101). DOI: https://www.jstor.org/stable/10.1163/j.ctt1w76wjj.13?seq=1#metadata_info_tab_contents

Collyns, D. (2018, August 16). Bolivian president's new residence is as imposing as it is divisive. *The Guardian.* Retrieved from: https://www.theguardian.com/world/2018/aug/16/bolivian-president-evo-morales-new-residence-is-as-imposing-as-it-is-divisive-la-paz

Conese, I. (2019, December 9). Was Bolivia's coup over lithium? *TRT World*. Retrieved from: https://www.trtworld.com/magazine/was-bolivia-s-coup-over-lithium-32033

Constitute Project. (n.d). *Bolivia (Plurinational State of).* Retrieved from: https://www.constituteproject.org/constitution/Bolivia_2009

Cossom-Eide, H. (2018, December 9). Mukwege kritiserer elbil-industrien: -Vi har alle et ansvar for konflikten i Kongo. *NRK*. Retrieved from: https://www.nrk.no/urix/mukwege-kritiserer-elbil-industrien_-_-vi-har-alle-et-ansvar-for-konflikten-i-kongo-1.14332916

Davis, A., Chomsky, N., Crabapple, M. & Pilger, J. (2019, November 24). Repressive violence is sweeping Bolivia: The Áñez regime must be held to account. *The Guardian.* Retrieved from: https://www.theguardian.com/commentisfree/2019/nov/24/bolivia-anez-regime-violence

Deutsche Welle. (2019, October 8). Bolivians protest over lithium deal with German company. *Deutsche Welle.* Retrieved from: https://www.dw.com/en/bolivians-protest-over-lithium-deal-with-german-company/a-50732216

Encyclopaedia Britannica. (2019, September 19). *Uyuni Salt Flat*. Retrieved from: https://www.britannica.com/place/Uyuni-Salt-Flat Last viewed: 12.11.19

Escobar, A. (2007). Worlds and knowledges otherwise. *Cultural Studies, 21*(2), 179-210. DOI: https://doi.org/10.1080/09502380601162506

Escobar, A. (2010). LATIN AMERICA AT A CROSSROADS: Alternative modernizations, post-liberalism, or post-development? *Cultural Studies, 24*(1), 1-65. DOI: https://doi.org/10.1080/09502380903424208

Escobar, A. (2015). Degrowth, postdevelopment, and transitions: A preliminary conversation. *Sustainability Science, 10*(3), 451-462. DOI: 10.1007/s11625-015-0297-5

Fabricant, N. & Gustafson, B. (2015, March 2). Revolutionary extractivism in Bolivia? *NACLA*. Retrieved from: https://nacla.org/news/2015/03/02/revolutionary-extractivism-bolivia Last viewed: 05.11.2019

Falzon, M.A. (2015). Multisited field studies. In Wrigth, J.D (Red.), *International Encyclopedia of the Social & Behavioral Sciences, 2nd edition.* Elsevier. DOI: https://doi.org/10.1016/B978-0-08-097086-8.12211-1

Farthing, L. & Kohl, B. (2014). *Evos' Bolivia: Continuity and Change*. Texas: University of Texas Press

Farthing, L. (2018, April 6). A surprise win for the victims of Bolivia's Gas War. *NACLA.* Retrieved from: https://nacla.org/news/2018/04/06/surprise-win-victims-bolivia's-gas-war Viewed: 09.10.19

Flexer, V., Baspineiro, C. F. & Galli, C. I. (2018). Lithium recovery from brines: A vital raw material for green energies with a potential environmental impact in its mining and processing. *Science of the Total Environment, 638*(2018), 1188-1204. https://doi.org/10.1016/j.scitotenv.2018.05.223

Gardner, T., Scheyder, E. & Choy, M. (2019, September 26). Nine countries join U.A strategic initiative. *Reuters*. Retrieved from: https://www.reuters.com/article/us-usa-minerals-china/nine-countries-join-us-strategic-minerals-initiative-idUSKBN1WB2VP

Geddes, M. (2014). Neoliberalism and local governance: Radical developments in Latin America. *Urban Studies, 51*(15), 3147-3163. DOI: https://doi.org/10.1177/0042098013516811

Grosfoguel, R. (2011). Decolonizing Post-Colonial Studies and Paradigms of Political-Economy: Transmodernity, Decolonial Thinking, and Global Coloniality. *TRANSMODERNITY: Journal of Peripheral Cultural Production of the Luso-Hispanic World, 1*(1)
Retrieved from: https://escholarship.org/uc/item/21k6t3fq

Gruber, P. W., Medina, P. A., Keoleian, G. A., Kesler, S. E., Everson, M. P. & Wallington, T. J. (2011). Global Lithium Availability. *Journal of Industrial Ecology, 15*(5),760-775. doi:10.1111/j.1530-9290.2011.00359.x

Gudynas, E. (2015). *Extractivismos: Ecología, economía y política de un modo de entender el desarollo y la Naturaleza.* Cochabamba: CEDIB

Gudynas, E. (February 2018). Contribution to Roundtable on *Vivir Bien*. *Great Transition Initiative*. Retrieved from: http://www.greattransition.org/roundtable/vivir-bien-eduardo-gudynas.

Haarstad, H., & Andersson, V. (2009). Backlash Reconsidered: Neoliberalism and Popular Mobilization in Bolivia. *Latin American Politics and Society, 51*(4), 1-28. Retrieved from http://www.jstor.org/stable/20622757

Hancock, L., Ralph, N. & Ali, S.H. (2018). Bolivia's lithium frontier: Can public private partnerships deliver a mineral boom for sustainable development? *Journal of Cleaner Production, 178*(2018), 551-560. DOI: https://doi.org/10.1016/j.jclepro.2017.12.264

Hicks, K. & Fabricant, N. (2016). The Bolivian Climate Justice Movement: Mobilizing Indigeneity in Climate Change Negotiations. *Latin American Perspectives, 43*(4), 87-104. https://doi.org/10.1177/0094582X16630308

Hope, J. (2016). Losing ground? Extractive-led development versus environmentalism in the Isiboro Secure Indigenous Territory and National Park (TIPNIS). *The Extractive Industries and Societies, 3*(2016), 922-929. DOI: https://doi.org/10.1016/j.exis.2016.10.005

Hope, J. (2017). The constraints of an 'ironic scholar': Negotiating critical engagement with indigeneity and nature conservation. *Geoforum, 78*(2017), 74-81. https://doi.org/10.1016/j.geoforum.2016.11.008

International Monetary Fund. (2018, December 6th). *IMF executive board concludes 2018 IV consultation with Bolivia.* Retrieved from: https://www.imf.org/en/News/Articles/2018/12/06/pr18453-imf-executive-board-concludes-2018-article-iv-consultation-with-bolivia

IWGIA. (2019, April 24). *Indigenous peoples in Bolivia*. Retrieved from: https://www.iwgia.org/en/bolivia

Jamasmie, C. (2018, December 12). *Germany secures access to world's second-largest lithium deposit*. Retrieved from: https://www.mining.com/germany-secures-access-worlds-second-largest-lithium-deposit/

Jaskula, B. (2019). *Lithium. U.S. Geological Survey, Mineral Commodity Summaries, February 2019.* Retrieved from: https://prd-wret.s3-us-west-2.amazonaws.com/assets/palladium/production/atoms/files/mcs-2019-lithi.pdf

Jenkins, R. (1997). Trade Liberalisation in Latin America: The Bolivian Case. *Bulletin of Latin American Research 16*(3), 307-325. Retrieved from: https://www.jstor.org/stable/3338945

Kehoe, T.J., Machiado C.G., & Peres-Cajías. (2019). The Monetary and Fiscal History of Bolivia, 1960–2017. *Federal Bank of Minneapolis*. Retrieved from: https://doi.org/10.21034/sr.579

Kern F. & Markard J. (2016) Analysing Energy Transitions: Combining Insights from Transition Studies and International Political Economy. In: Van de Graaf T., Sovacool B., Ghosh A., Kern F., Klare M. (eds) *The Palgrave Handbook of the International Political Economy of Energy* (p. 291-318). London: Palgrave Macmillan

Kofas, J.V. (1995). The Politics of Austerity: The IMF and U.S foreign policy in Bolivia, 1956-1964. *The Journal of Developing Areas, 29*(2), 213-236. Retrieved from: https://www.jstor.org/stable/4192439?seq=2#metadata_info_tab_contents

Kohl, B. (2002). Stabilizing neoliberalism in Bolivia: popular participation and privatization. *Political Geography, 21*(4), 449-472. DOI: https://doi.org/10.1016/S0962-6298(01)00078-6

Kohl, B. (2006). Challenges to neoliberal hegemony in Bolivia. *Antipode, 38*(2), 304-326. DOI: https://doi.org/10.1111/j.1467-8330.2006.00581.x

Kohl, B. & Farthing, L. (2012). Material constraints to popular imaginaries: The extractive economy and resource nationalism in Bolivia. *Political Geography 31*(4), 225-235. DOI:10.1016/j.polgeo.2012.03.002

Lombrana, L. M. (2019, October 11). Lithium battery dreams get a rude awakening in South America. *Bloomberg.* Retrieved from: https://www.bloomberg.com/news/articles/2019-10-11/lithium-battery-dreams-get-a-rude-awakening-in-south-america

McKay, B.M. (2018) The politics of convergence in Bolivia: social movements and the state. *Third World Quarterly*, 39(7), 1247-1269, DOI: 10.1080/01436597.2017.1399056

McNeish, J.A. (2018). Resource Extraction and Conflict in Latin America. *Colombia Internacional, 93*(2018), 3-16. DOI: https://dx.doi.org/10.7440/colombiaint93.2018.01

Méndez-Marcano, P., & Pineda, J. (2014). *Working Papers no. 06/15, Fiscal Sustainability and Economic Growth in Bolivia*. Retrieved from: https://www.bbvaresearch.com/wp-content/uploads/mult/WP_1406_tcm348-420923.pdf

Mills, R. (2018, December 26). *Bolivia: Where revolutionaries and lithium miners go to die*. Retrieved from: http://www.mining.com/web/bolivia-revolutionaries-lithium-miners-go-die/

Ministry of Finance. (2015, April 15). *The management of the Norwegian Petroleum Wealth.* Retrieved from: https://www.regjeringen.no/en/aktuelt/the-management-of-the-norwegian-petroleum-wealth/id2406271/

Minesterio de Minería y Metalurgia. (2008, April 1). *Decreto Supremo no. 29496.* Retrieved from: http://www.mineria.gob.bo/juridica/20080401-9-53-43.pdf

Ministerio de Planifícación del Desarollo/MPD. (2013). *Agenda Patriotica 2025*. Retrieved from:http://www.planificacion.gob.bo//uploads/AGENDA_PATRIOTICA2025_MPD.pdf

Ministerio de Planificacíon del Desarollo/MPD. (2015). *Economic and social development plan 2016-2020 within the framework of integrated development for living well*. Retreived from: http://www.planificacion.gob.bo/uploads/PDES_INGLES.pdf

Mishra, S. (2019, April 1). India gains access to Bolivian lithium reserves. *India Times.* Retrieved from: https://auto.economictimes.indiatimes.com/news/industry/india-gains-access-to-bolivian-lithium-reserves/68658595

Mitchell, T. (2009). Carbon Democracy. *Economy and Society*, *38*(3), 399-432. DOI:10.1080/03085140903020598

Molina, P.S. (2019, October 3). *Bolivia presenta el prime vehículo eléctico construido en el Centro Tecnológia del Litio en Potosí*. Retrieved from: https://www.pv-magazine-latam.com/2019/10/03/bolivia-presenta-el-primer-vehiculo-electrico-construido-en-el-centro-tecnologico-del-litio-en-potosi/

Nagels, N. (2016). The Social Investment Perspective, Conditional Cash Transfer Programmes and the Welfare Mix: Peru and Bolivia. *Social Policy and Society, 15*(3), 479-493. DOI: https://doi.org/10.1017/S1474746416000105

Narins, Tom. (2017). The battery business: Lithium availability and the growth of the global electric car industry. *The Extractive Industries and Society*, *4*(2017), 321-328. DOI: 10.1016/j.exis.2017.01.013.

Norsk elbilforening. (2019, August 22). *Statistikk med salg av elbiler i Norge*. Retreived from: https://elbil.no/elbilstatistikk/elbilsalg/

Pike, A., Rodríguez-Pose, A. & Tomaney, J. (2017). *Local and regional development*. Oxon/New York: Routledge

Porto-Gonçalves, C.W. & Leff, E. (2015). Political Ecology in Latin America: the Social Re-Appropriation of Nature, the Reinvention of Territories and the Construction of an Environmental Rationality. *Desenvolvimento e meio ambient, 35*(1), 65-88. DOI: 10.5380/dma.v35i0.43543

Postero, N. (2017). *The Indigenous State: Race, Politics, and Performance in Plurinational Bolivia*. Oakland: University of California Press. DOI: http://doi.org/10.1525/luminos.31

Postero, N. and Fabricant, N. (2019). Indigenous sovereignty and the new developmentalism in plurinational Bolivia. *Anthropological Theory*. *19*(1), 95–119. DOI: https://doi.org/10.1177/1463499618779735

Pugliellie, D. (2019, 25th April). *How electrification can supercharge the energy transition*. Retrieved from: https://www.weforum.org/agenda/2019/04/electrification-energy-transition-decarbonization-climate-change/ 30.04.2019

Quijano, A. (2007). Coloniality and Modernity/Rationality. *Cultural Studies, 21*(2-3), 168-178. DOI: 10.1080/09502380601164353

Ramos, D. (2019, February 6). *Bolivia picks Chinese partner for $2.3 billion lithium projects*. Retrieved from: https://www.reuters.com/article/us-bolivia-lithium-china/bolivia-picks-chinese-partner-for-2-3-billion-lithium-projects-idUSKCN1PV2F7

Ramos, D., Bronstein, H. & Pullin, R. (2019, November 4). Bolivia's lithium partnership with Germany's ACI Systems hits snag. *Reuters*. Retrieved from: https://www.reuters.com/article/us-bolivia-germany-lithium/bolivias-lithium-partnership-with-germanys-aci-systems-hits-snag-idUSKBN1XE01N Last viewed: 12.11.2019

Rapier, R. (2019, August 4). Why China is dominating lithium-ion battery production. Retrieved from: https://www.forbes.com/sites/rrapier/2019/08/04/why-china-is-dominating-lithium-ion-battery-production/#fabe47037867

Regjeringen. (2017,April 5). *En grønnere transporthverdag.* Pressemelding Nr. 68/17. Retreived from: https://www.regjeringen.no/no/aktuelt/en-gronnere-transporthverdag/id2548633/

Revette, A. C. (2017). This time it's different: lithium extraction, cultural politics and development in Bolivia. *Third World Quarterly*, *38*(1), 149-168. https://doi.org/10.1080/01436597.2015.1131118

Robbins, P. (2012). *Political ecology: A critical introduction*. John Wiley & Sons Ltd: Sussex

Schilling-Vacaflor, A. (2011). Bolivia's New Constitution: Towards Participatory Democracy and Political Pluralism? *European Review of Latin American and Caribbean Studies*. 10.18352/erlacs.9248. Retrieved from: https://www.researchgate.net/publication/307810823_Bolivia's_New_Constitution_Towards_Participatory_Democracy_and_Political_Pluralism

Sedimentary Rocks. (n.d). In *Encyclopædia Britannica.* Retrieved from: https://www.britannica.com/science/sedimentary-rock/Organic-rich-sedimentary-deposits

Shahriari, S. (10.01.2014). Bolivia's Cerro Rico, the 'mountain that eats men', could sink whole city. *The Guardian.* Retrieved from: https://www.theguardian.com/world/2014/jan/10/bolivia-cerro-rico-mountain-sink-city-potosi Last viewed: 08.11.2019

Smith, N. (2019, 22nd February). Bolivia's problem is macroeconomics, not socialism. *Bloomberg*. Retrieved from: https://www.bloomberg.com/opinion/articles/2019-02-22/bolivia-s-problem-is-macroeconomics-not-socialism Last viewed: 11.11.2019

Solón, P. (2018). The Rights of Mother Earth. In Satgar V. (Ed.), *The Climate Crisis: South African and Global Democratic Eco-Socialist Alternatives* (pp. 107-130). Johannesburg: Wits University Press. DOI:10.18772/22018020541.10

Telesur. (2019, January 6). Bolivia becomes natural gas powerhouse, expands exports to Peru. *Telesur*. Retrieved from: https://www.telesurenglish.net/news/Bolivia-Becomes-Natural-Gas-Powerhouse-Expands-Exports-To-Peru-20190106-0008.html

The Global Economy. (n.d). *Bolivia: Foreign Direct Investment, percent of GDP.* Retrieved from: https://www.theglobaleconomy.com/Bolivia/Foreign_Direct_Investment/

United Nations Development Programme. (n.d). *Renewable Energy*. Retrieved from: https://www.undp.org/content/undp/en/home/climate-and-disaster-resilience/sustainable-energy/renewable-energy.html

United Nations Framework Convention on Climate Change. (2019). *What is the Paris Agreement?* Retrieved from https://unfccc.int/process-and-meetings/the-paris-agreement/what-is-the-paris-agreement

United Nations. (2018). *Goal 13: Take urgent action to combat climate change and its impacts*. Retrieved from: https://www.un.org/sustainabledevelopment/climate-change-2/

Van de Graaf, T., Sovacool, B.K., Gosh, A., Kern, F. & Klare, M. T. (2016). States, Markets, and Institutions: Integrating International Political Economy and Global Energy Politics.
The Palgrave Handbook of the International Political Economy of Energy.
DOI: 10.1057/978-1-137-55631-8_1

Videmšek, M. & Krivic, M. (2018, February 2). Bolivias gullåre. *Aftenposten.* Retrieved from: http://www.aftenposteninnsikt.no/latin-amerika/bolivias-gull-re

Vikström, H., Davidsson, S. and Höök, M. (2013). Lithium availability and future outlooks. *Applied Energy*. 110: 252-266 https://doi.org/10.1016/j.apenergy.2013.04.005

Word Meteorological Organization. (2019). *Statement on the State of the Global Climate in 2018*. Retrieved from https://gallery.mailchimp.com/daf3c1527c528609c379f3c08/files/82234023-0318-408a-9905-5f84bbb04eee/Climate_Statement_2018.pdf

World Bank. (2019, October 15). *The World Bank in Bolivia*. Retrieved from: https://www.worldbank.org/en/country/bolivia/overview#1

World Bank. (n.d*a*). *Gender Data Portal: Bolivia*. Retrieved from: http://datatopics.worldbank.org/gender/country/bolivia

World Bank. (n.d*b*). *Gini index (World Bank estimates) – Bolivia.* Retrieved from: https://data.worldbank.org/indicator/SI.POV.GINI?locations=BO

World Bank. (n.d*c*). *Manufactures exports (% of merchandise exports) – Bolivia*. Retrieved from:https://data.worldbank.org/indicator/TX.VAL.MANF.ZS.UN?contextual=region&locations=BO

World Bank. (n.d*d). Current health expenditure (% of GDP) – Bolivia*. Retrieved from: https://data.worldbank.org/indicator/SH.XPD.CHEX.GD.ZS?locations=BO

World Bank. (n.d*e). Government expenditure on education, total (% of GDP) – Bolivia.* Retrieved from: https://data.worldbank.org/indicator/SE.XPD.TOTL.GD.ZS?locations=BO

World Bank. (n.d*f). Poverty headcount ration at $1.90 a day (2011 PPP) (% of population) – Bolivia.* Retrieved from: https://data.worldbank.org/indicator/SI.POV.DDAY?locations=BO

World Bank. (n.d*g*). *Poverty headcount ratio at national poverty lines (% of population) – Bolivia.* Retrieved from: https://data.worldbank.org/indicator/SI.POV.NAHC?locations=BO

Yacimientos de Litio Bolivianos/YLB. (n.d.) *Breve reveña histórica*. Retrieved from: https://www.ylb.gob.bo/inicio/acerca_de_YLB