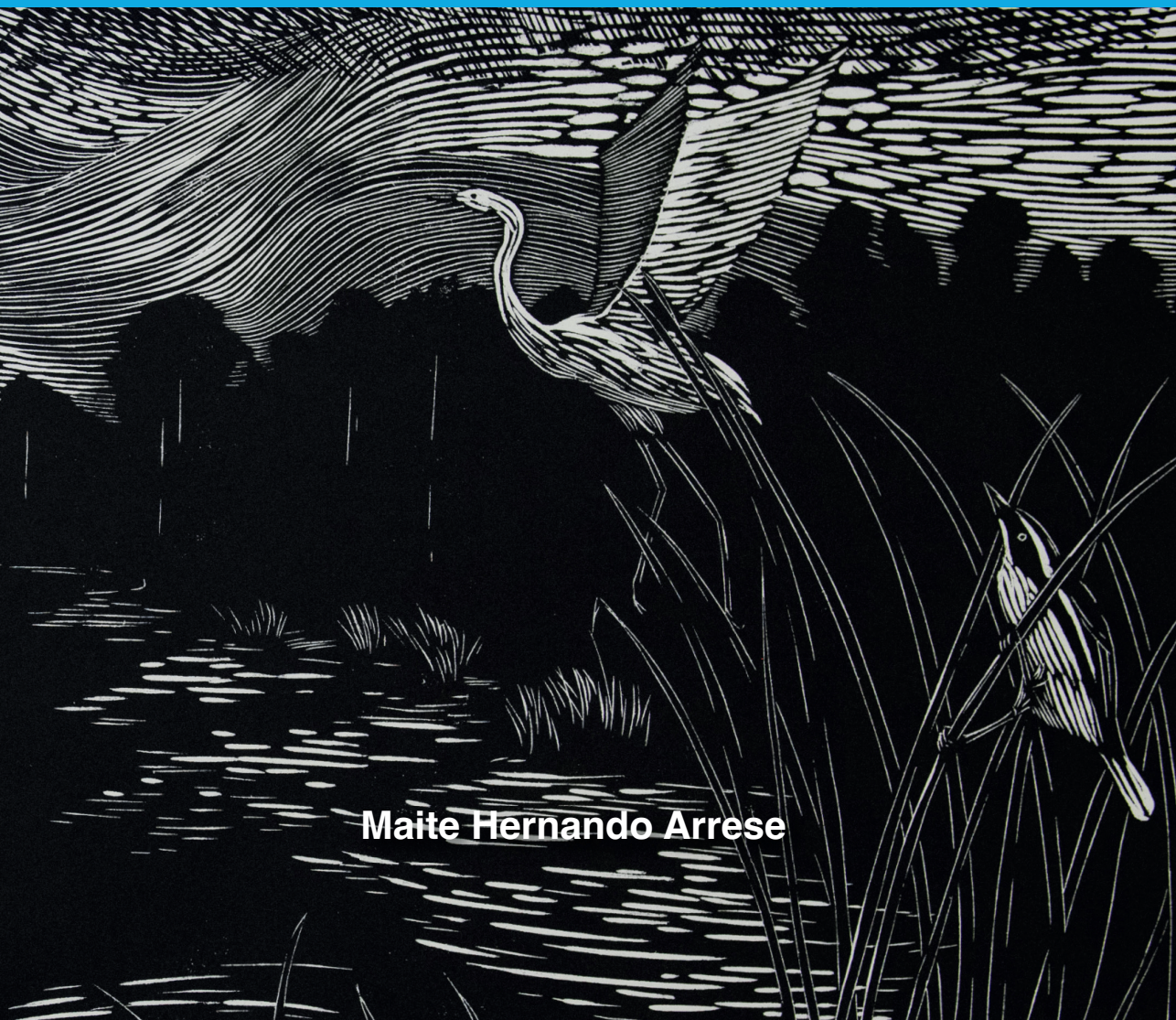
Let it flow!

Navigating hydropower conflicts in southern Chile



Maite Hernando Arrese

Propositions

1. Hydropower conflicts are ontological conflicts about water and development.
   (this thesis)

2. Social justice is a non-negotiable dimension of a fair energy transition.
   (this thesis)

3. A successful PhD supervision lies in the ability to set aside arrogance.

4. Researcher positionality can profoundly influence the trajectory of a research.

5. Conducting fieldwork with a child is a mutual learning opportunity.

6. Universities too often disregard local knowledge.

7. The militarization of indigenous territories and the criminalization of environmental defenders jeopardize democracy.

Propositions belonging to the thesis, entitled

Let it flow! Navigating hydropower conflicts in southern Chile

Maite Hernando-Arrese
Wageningen, 4 December 2023

Let it flow!

Navigating hydropower conflicts in southern Chile

Maite Hernando Arrese

Thesis committee

Promotor

Prof. Dr Han Wiskerke
Professor and Chair of Rural Sociology
Wageningen University & Research

Co-promotor

Dr. Elisabet Dueholm Rasch
Associate professor, Sociology of Development and Change Group
Wageningen University and Research

Committee members

Prof. Dr.ir. Rutgerd Boelens, Wageningen University & Research, The Netherlands
Prof. Dr Katy Jenkins, Northumbria University, London, United Kindom
Prof. Dr Tomás Ariztía, Universidad Diego Portales, Chile
Prof. Dr Margreet Zwarteveen, IHE Delft Institute for Water Education, The Netherlands

This research was conducted under the auspices of the Wageningen School of Social Sciences (WASS)

Let it flow!

Navigating hydropower conflicts in southern Chile

Maite Hernando Arrese

Thesis

submitted in fulfilment of the requirements for the degree of doctor

at Wageningen University

by the authority of the Rector Magnificus,

Prof. Dr A.P.J. Mol,

in the presence of the

Thesis Committee appointed by the Academic Board

to be defended in public

on Monday, 4 December 2023

at 4 p.m. in the Omnia Auditorium.

Maite Hernando Arrese
Let it flow! Navigating hydropower conflicts in southern Chile
180 pages.

PhD thesis, Wageningen University, Wageningen, the Netherlands (2023)
With references, with summaries in English, and Spanish

ISBN 978-94-6447-906-5
DOI https://doi.org/10.18174/639313

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Acronyms and glossary

AGG - Asociación Gremial de Generadoras de Chile
APEMEC - Association of Small and Medium Hydropower Plants
COFOMAP - Panguipulli Forestry and Lumber Complex
CONAF - National Forestry Corporation
CORFO - Corporation for the Promotion of Production
CDP- Consejo de Defensa de la Patagonia
CIFES - Center for Innovation and Promotion of Sustainable Energies
COP - Conference of the Parties
DIA - Environmental Impact Declarations
ENDESA – National Energy Company
EIA - Environmental Impact Studies
FAO - Food and Agriculture Organization of the United Nations
IICh - Instituto de Ingenieros de Chile
ILO - International Labor Organization
INE – Statistics National Institute
IPCC - Intergovernmental Panel on Climate Change
MMA - Ministry of the Environment
NCRE - Non-Conventional Renewable Energy
PSR - Patagonia Sin Represas
RBA - Araucarias Biosphere Reserve
RBBTLAA - Biosphere Reserve of the Temperate Rainforests of the Southern Andes
RDT - Red por la Defensa de los Territorios
SEA - Environmental Assessment Service
SEIA - Environmental Assessment System
SIPAN - National Agricultural Heritage Important Systems
SHP - Small Hydropower Plants
SNASPE - National System of State-protected Wilderness Areas
STS - Science and technology studies
UNESCO - United Nations Educational, Scientific and Cultural Organization
UNFCCC - United Nations Framework Convention on Climate Change
ZOIT - Zone of Tourist Interest
Association - Futa Koyagtun Koz Koz Mapu Association
Bosque Modelo – A network of local institutions and social organizations which aim to protect native forest in Panguipulli
Buen Vivir - good living
Comunidad - Comunidad Newén de Tránguil
Consulta Indígena - Consultation with Indigenous Peoples (169 Convention)

Eltün - cemetery
Katripache – person from another place
Kimün - knowledge
Ko - water
Küme mongen - good living
Itrofill mongen - biodiversity
Lonko - chief
Mapu - land
Newén - force
Ngen – protective spirit
Ngenko - owner and guardian of water
Ngillatún - ritual gathering
Nguillatuwe - ceremonial pampa
Parlamento - Parlamento Mapuche de Koz Koz
Pillanes - the spirits of the Mapuche ancestors
Piñones - pine nuts
Rukapillán – Villarrica volcano
Wallmapu - the Mapuche country
Wampo - a one-piece hand-carved boat from a tree trunk
Wenuy – friend
Werkén - spokesperson
Winka – white people

Acknowledgements

As I reflect on the people who deserve my gratitude for supporting me during this PhD journey, many memories come to my mind. First and foremost, I want to express my love and gratitude to my two *compañeros*, José and Manuel, with whom I had the opportunity of living in The Netherlands without losing the warmth of home. Thank you for joining me during my fieldwork trips and for always supporting me.

I want to offer thanks to my team of supervisors, Elisabet Rasch and Han Wiskerke, for their kindness and support throughout this research. Elisabet, thank you for believing in me and for the inspiring time doing research together in Chile. I am deeply grateful to have shared that cold spring in San Pablo de Tregua with you, alongside defenders of the territory of Latin America. Thanks for guiding me during the publication of our papers on hope and social movements. Han, thank you for supporting me on my decisions and for the feedback you have provided on my thesis. A special appreciation goes to my PhD colleagues at the SDC and RSO groups. Engaging in stimulating academic exchanges with all of you while maintaining a personal connection has been truly enriching.

There are several people in Chile who contributed to making this thesis possible, but unfortunately, some of them are no longer with us. My gratitude is especially directed towards my lagmen Rubén Collío, whose conviction and fight for justice deeply inspired this work. This thesis honours your memory and the memory of your beloved Macarena as well. Thanks to Julia and her husband for welcoming me into their home and sharing the history of Tránguil. My heartfelt appreciations go to Pedro and Bea, who have not only welcomed into their home many times, but also have become good friends. Without their support, as well as the support of Jorge and Pancho of the Parlamento Koz Koz and Angélica and Natassja of the Museo de Neltume, it would not have been possible to know Panguipulli's history, which was essential for understanding the enduring resistance towards extraterritorial development initiatives. My enormous gratitude goes to Ely López and her family for welcoming me into their home in Curarrehue, sharing so much knowledge, and providing endless laughter and good conversation. In particular, I would like to thank Juana Faúndez for showing me the richness of the simple life to which I aspire every day. Thanks to Anita and the Mapuche women of Curarrehue who made significant contributions to this project, particularly in helping me to understand the political role of hope.

I would like to express my gratitude to Javiera Naranjo, my friend and research assistant, who has always been there when I have needed her advice.

I would like to thank my family and friends for supporting me throughout the years, for your advice, for distracting me when I needed it, and for celebrating each of my achievements with me.

In the midst of hate, I found there was, within me, an invincible love.
In the midst of tears, I found there was, within me, an invincible smile.
In the midst of chaos, I found there was, within me, an invincible calm.
I realized, through it all, that in the midst of winter,
I found there was, within me, an invincible summer.
And that makes me happy. For it says that no matter
how hard the world pushes against me, within me,
there's something stronger – something better,
pushing right back.
Albert Camus

CHAPTER 1

Introduction and Thesis Outline

Introduction

It was raining heavily that afternoon of September in Liquiñe. Community leaders were doubting if the authorities would dare to come up to the mountains because of bad weather. We could barely hear each other inside the social headquarter because of the noise of rain falling on the tin roof. Then, momentarily, the rain stopped, and we could hear vehicles approaching. "It seems that now they are going to take us seriously because they are here despite the rain," a community leader said.

(Fieldnotes Liquiñe, September 2016)

In this thesis, I draw on ethnographic research conducted in Curarrehue and Panguipulli, two Mapuche Indigenous territories located in the Araucanía and Ríos regions in Chile (Fig. 5), to examine how do Mapuche community leaders and environmental defenders navigate the socio-environmental conflicts generated by hydropower projects in their territories.

The sentiments expressed in the ethnographic vignette that opens this section illustrate the widespread feeling of isolation and frustration among Mapuche leaders, who complain that their needs and demands are not taken seriously into account by authorities. The struggle of Indigenous leaders to defend their territory – usually within protected areas – and their everyday lives is seen from the perspective of hegemonic discourses, not as one for protecting the environment but as a struggle against development itself. However, in the context of hydropower development conflicts, Indigenous leaders argue that their struggle is for the defense of life, which is usually connected to the defense of water and common goods, and for human dignity.

Although there is growing recognition that Indigenous peoples' knowledge can contribute to fairer and more sustainable development (Sovacool, 2021; Walker et al., 2019), there is still an institutional predisposition to privilege scientific knowledge over other forms of knowledge, which creates cultural and linguistic barriers for marginalized Indigenous groups (Koenig, 2017; Tuhiwai, 2012; Zárate-Toledo, et al., 2019). While governments and private businesses encourage small hydropower projects based on the belief that such projects are a more sustainable alternative to large hydropower dams (Hirsch, 2016; Kelly, 2019), Indigenous groups claim that no matter their scale, hydropower initiatives significantly alter their relationship with water (Vos and Boelens, 2018; Boelens et al., 2019).

Ecological anthropology and ethnographic studies with Indigenous peoples (Descola, 2013; Escobar, 1998; Ingold, 2000; Kohn, 2013; de Castro, 1998) have drawn attention to non-Western ways of thinking about and relating to the environment, which challenges the nature/culture dichotomy characteristic of modern thinking. These studies approach differences, but beyond cultural perspectivism, understood as the idea that there are multiple perspectives about a single world or reality, and embrace the idea that there are multiple worlds or realities co-existing and interfering. This resonates with the notion of 'ontological politics,' which originated from the so-called 'ontological turn' in anthropology (Holbraad et al., 2014; Kohn, 2015). This turn challenges the idea of a fixed reality and instead emphasizes the co-constitutive relationship between reality and human practices. A political approximation to this turn has emphasized the idea that different ontologies co-exist and interfere. These ontologies cannot be hierarchically ordered because they are all equally valid and worthy of exploration (Blaser, 2013; De la Cadena and Blaser, 2018).

Science and technology studies (STS) scholars have also been interested in how different realities are brought into being and intersect. In her work, *The Body Multiple*, Mol (2002) argues that reality is not a given, but an achievement performed through practices, discourses, politics, and materials. This idea was later developed by Law and Mol (2008) in *The Actor-Enacted: Cumbrian Sheep in 2001,* where the authors look at the multiple ways in which the Cumbrian Sheep is enacted in the context of the British 2001 foot-and-mouth epidemic crisis.

These relational ontological approaches have produced new and valuable insights into how reality is continuously created and reconstructed through everyday practices, in which both human and non-human actors play a significant role. However, it is important to consider the potential risks of essentialism when using these approaches to analyze Indigenous peoples' relationships with nature. Starting from the premise that there is a dichotomy between Western and Indigenous, these approaches could generate a romanticized portrait of Indigenous people that might disregard their unique experiences, mask the differences within them, and overlook power relations that reinforce colonial dynamics (Graeber, 2015; Todd, 2016).

During my fieldwork, I noticed that some participants were less inclined to openly discuss or share their cosmovision with people from outside, because it holds a deep spiritual value that is considered sacred knowledge that must be closely guarded. In addition, years of exposure to academic research has created distrust due to the appropriation and misrepresentation of Indigenous knowledge and practices (Icaza, 2018; Tuhiwai Smith, 2012). Therefore, there is widespread criticism among Mapuche community leaders regarding the work of researchers who obtain relevant information without adequate feedback.

In this context, participants of this project were more willing to engage in discussions regarding social and political issues related to community matters, which persisted because of the colonial power dynamics that marginalized them from decision-making processes. Consequently, and in line with Stüdemann (2018), fieldwork experiences have led me to recognize that the core of the Mapuche people's struggle lies in their demand for recognition as political subjects in a 'common world.' Therefore, adopting an ontological lens when approaching their struggle could inadvertently reinforce the perception of Mapuche people as exotic 'other' and perpetuate neoliberal multicultural integration strategies that have historically disempowered them and depicted them as a marginalized traditional culture. As a result, state programs inspired by multiculturalism have primarily focused on providing technical support to enhance the economic conditions of marginalized communities through the commodification of their cultural practices, instead of addressing their demands for recognition of their way of life, self-determination, and autonomy (Cuadra, 2021).

Picture 1: *"Indigenous Mapuche territory is defended", Curarrehue (2017)*

Accordingly, during fieldwork and its aftermath, the questions in this thesis were reconsidered and re-framed. Besides, I began exploring new theoretical approaches to understand the entangled relationship between power relationships, politics, and the

environment at the local level. As such, I came to know of the micropolitical ecology approach, a theoretical framework that focuses on agency and resistance, particularly on how marginalized groups and communities resist development projects through grassroots organization and mobilization and construct new political and collective life projects based on their practices and knowledge (Horowitz, 2008; 2011; Rasch and Kohne, 2017).

This dissertation aims to open a space for reflection on the notion that local communities facing hydropower projects are powerless, and instead find ways to exercise agency by engaging in different resistance strategies to defend their territories and ways of life (Hall, 2013).

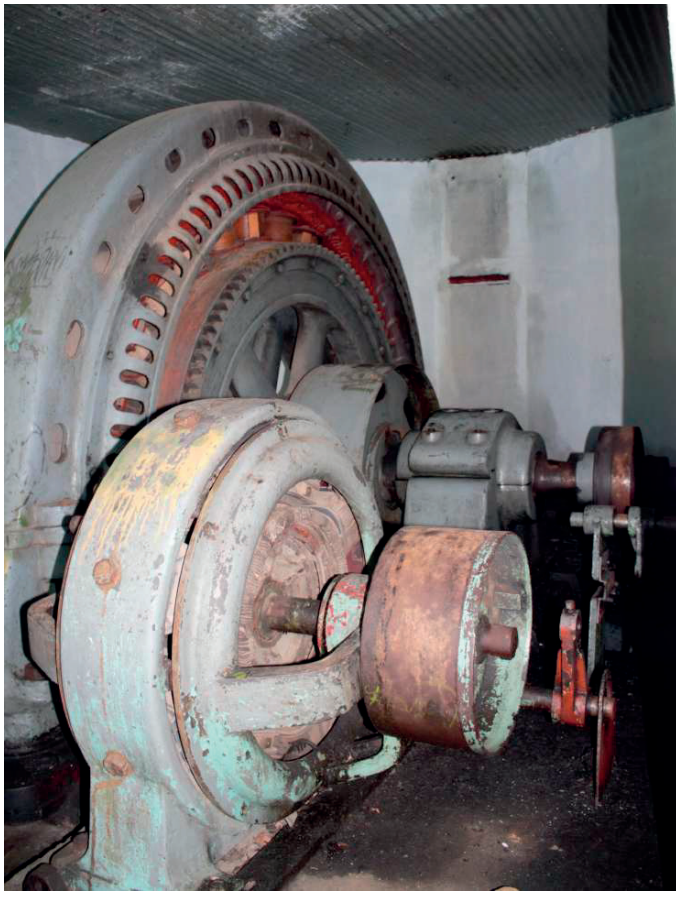
Damming rivers, freeing rivers

Water is the most abundant element on terrestrial surfaces, and living organisms are predominantly composed of it. Despite its importance, however, in contemporary (especially) Western societies, water has tended to be thought of and used as a raw material that can be reterritorialized, commodified, and controlled under the forward march of progress, which imposes its own timeline over other kinds of rhythms (Linton and Budds, 2014; Tsing, 2015). Consequently, rivers have been reduced to a modern abstraction, which can be controlled and "measured in cubic meters that falls through penstocks and turbines to generate hydroelectricity" (Linton, 2010:30).

In countries with large freshwater reservoirs, such as Chile, water has always played a vital role in ensuring energy supplies, and hydropower initiatives have historically been portrayed as the best alternative to generate clean energy at a low cost. The natural conditions offered by Chilean geography, such as high mountains, steep slopes, and heavy-flow rivers, have been described as 'energy sites' that must be exploited, otherwise 'water will be wasted into the sea' (Endesa, 1956:73, 82). Consequently, since the first half of the twentieth century, many rivers across the country, particularly in the central-south zone, have been dammed or diverted for both hydroelectricity generation and irrigation (Hernando-Arrese and Tironi, 2021).

However, over the last few decades, greater resistance to dam construction has led to a significant reappraisal of hydropower development (Varas et al., 2013; Schaeffer, 2017; Schaeffer and Smits, 2015; Susskind et al. 2014). In the past few decades, some important hydroelectric plants in Europe and the USA have been removed (Foley et al., 2017). Over the years, these projects have become less popular not only because they affect the livelihoods of local communities but also because the large reservoirs of stagnant water created by dams contribute to global warming (Rosenberg et al., 2000; Fearnside,

1995). In some countries, dam removal has been on the rise for a wide range of reasons, including potential public safety hazards and environmental restoration, because dams no longer serve their intended purpose (Vahedifard et al., 2021; Hommes, 2022).



Picture 2: *Ruins of a Hydropower plant of the early 1950s, Liquiñe, Panguipulli (2016)*

Moreover, the construction of the required transmission lines and substations to transport power from distant regions to demand centers has been strongly resisted by those who argue that they would affect protected areas, Indigenous territories, and human and nonhuman everyday life. In this context, small hydropower projects have emerged as a solution to both ecological and social concerns; however, resistance to this type of technology has persisted. This raises questions about the social and ecological consequences of this kind of technology and how local communities deal with the territorialization of these projects. Consequently, in this thesis, I explore how do Indigenous communities and environmentalist leaders navigate the socio-environmental conflicts that hydropower development generates in their territories.

Figure 1. *ENDESA: Map of the Hydropower Plant Pilmaiquén (1944)*

Building Hydropower Projects in Mapuche Indigenous Territories

Before contextualizing my research problem, it is worth mentioning that an important aspect to consider when investigating hydropower conflicts in Chile is that all the rivers flowing from the Andean Cordillera to the Pacific Ocean are managed under the Chilean Water Code, a legislation created in 1981 during the Pinochet dictatorship that controls the distribution of the country's water resources.

The Water Code is recognized internationally as an extreme example of water resource management through free market mechanisms (Budds, 2009b, 2013). One of its main features is that it separates water from land ownership to allow for water commodification (Bauer, 1995, 2015). Although the Water Code recognizes that water is "a national good to be used publicly and over which private individuals are given usage rights," in practice, the holders of these rights often assert themselves as water owners when interacting with communities. In sum, Chile is an exemplary case of neoliberal water privatization that has enabled private investors to hoard water use rights at no cost and perpetually.

In the early 1990s, 17 years after the Pinochet dictatorship, expectations of the return to democracy, along with the Indigenous emergence of Latin America (Bengoa, 2009), encouraged Mapuche to reclaim their political autonomy over their ancestral territories, either following a democratic or a disruptive path (Pairicán, 2014). Although the government launched a land restitution program in 1994, it followed a multicultural and neoliberal integration regime. For decades, the neoliberal multicultural model of national integration has imposed a logic that differentiates between the 'good' and the 'bad' Indigenous citizens, which operates as a tactic to eliminate political antagonism that condemns those opposing development projects as the 'bad' ones, ignorant, and selfish (Rancière, 2011).

In this context, a series of controversial hydropower projects were built in Mapuche Indigenous territories amidst severe political repression. One of the most contested was Ralco in the Biobío River, which, in turn, involved the eradication of approximately hundred Mapuche and flooding of more than 3000 ha (Fletcher, 2001; Orellana, 2005). The approval of this project brought about a nationwide debate concerning the social and environmental impacts of dam building (Moraga, 2001), along with revealing the failures of the Environmental Assessment Service (SEA, by its Spanish acronym). Furthermore, unprecedented massive mobilizations were organized countrywide, and, although they did not enable the project to be discarded, they facilitated the gathering of environmental, regionalist, and Indigenous movements.

Over the last two decades, Liquiñe and its neighboring locality Neltume, located in the Los Ríos region, have become sites of interest for transnational hydropower companies. In 2006, the Norwegian Energy Company SN Power proposed the construction of four hydropower plants (650 MW) (Susskind et al., 2014). In 2010, Endesa-España (currently Enel Generation Chile, an Italian energy company) submitted a hydropower plant project in Neltume (490 MW) for an environmental evaluation. However, an organized resistance movement integrated by Mapuche communities, environmentalists, and human rights organizations played an essential role in preventing the construction of both projects by asserting that they would impair the Mapuche way of life. They argued that the projects would provoke flooding of their sacred places, affecting their daily and seasonal activities.

Although the companies eventually withdrew from these projects, a decade later, many Small Hydropower Plants (SHPs) have been approved, built, or are under construction under the *Plan 100 Minihidros* (2014-2018) – 100 Minihydros Plan – encouraged by private investors and the Ministry of Energy.

Despite a lack of evidence, governments and the private sector have indicated that these projects are the best sustainable alternatives to large hydropower projects (Kelly, 2019; Premalatha et al., 2014). This belief is driven by the idea that since SHPs are 'small' they do not generate significant socio-ecological impacts that cannot be mitigated afterward. Accordingly, national authorities are attracting and encouraging private investment while deregulating the energy sector. Nevertheless, recent literature has questioned this belief by exposing some of the impacts of SHP, which, although site-specific, usually provoke ecological and social fragmentation (Couto and Olden, 2018; Kelly-Richards et al., 2017; Kelly, 2019).

The impacts of the boom of Small Hydropower Plants (SHPs)

On June 26, 2015, during the inauguration of the XI version of the Expo-fair of the Association of Small and Medium Hydropower Plants (APEMEC, by its Spanish acronym), Máximo Pacheco proudly announced the '100 Minihydros Plan.' The Minister of Energy at that time emphasized the following:

> "This plan occupies a central place in the Ministry of Energy. When President Michelle Bachelet took power, there were only 65 SHPs[1] in the country, and we

1 Although there are multiple and vague definitions of SHP, they mainly refer to the number of megawatts installed capacity (Kelly 2019). Internationally, as shown by Couto and Olden (2018), SHP are generally defined as those projects that produce less than 10 MW, whereas in the Chilean case, they have an upper limit of 20 MW.

> committed ourselves that at the end of her mandate [(2018)], there would be another 100 SHPs in Chile."
>
> (author's translation, Diario Financiero, 2015)

However, policymakers pay little attention to the impacts of SHPs because of the common assumption that these types of projects are environmentally friendly and cause no harm to local communities (Kelly, 2019). A few months later, after the Ministry of Energy announced a portfolio of 40 SHPs for the Araucanía Region, the territorial organization[2] summoned demonstrations in Santiago and Temuco. The protestors asserted that most of these projects were planned in headwater areas, which, along with being rich in biodiversity, were inhabited by Indigenous Mapuche people, who were neither informed nor consulted.

Although community leaders are aware that the mere fact of being consulted by the state does not guarantee binding participatory processes, they usually demand the implementation of the *Consulta Indígena*. This is guaranteed by the 169 Convention of the International Labor Organization (ILO) (hereafter 169 Convention), an international treaty enacted in 1989 that safeguards Indigenous and tribal people's rights, which was ratified and adopted by the Chilean state in 2008. Although the 169 Convention constituted the first legally binding international instrument devoted to recognizing, protecting, and promoting the rights of Indigenous and tribal people (Yupsanis, 2010), in Chile, a specific clause was invoked to make it non-binding (Carter, 2010). Therefore, the *Consulta Indígena* only serves as a mechanism that, along with slowing down the approval of development projects in Indigenous territories, also helps discourage capital investment. In contrast, the state has developed strategies, such as installing teams in some ministries to speed up Non-Conventional Renewable Energy (NCRE) projects[3].

Hydropower development is regulated in environmental law by megawatts alone; projects generating less than 3 MW are neither thoroughly evaluated nor consider participatory procedures, regardless of their potential impact (Kelly, 2018). This lack of accuracy raises concerns about the widespread use of MW as a single indicator for evaluating the degree of impact of SHPs, because it might allow negative development projects to pass as low-impact, and therefore, desirable, renewable energy options (Kelly, 2019).

Over the last decade, SPHs initiatives have multiplied in mountain valleys in the central-southern region of the country, mainly inhabited by Indigenous Mapuche. Local

2 Territorial organizations are composed of Indigenous and non-Indigenous members, who converge in the struggle against the expansion of capitalism's commodity frontiers in their lands.

3 https://www.df.cl/empresas/energia/fast-trackers-seran-parte-del-fortalecimiento-del-ministerio-de-energia (Accessed: 19-07-2023).

communities often do not find out about the projects until machinery and workers arrive in the territory to implement them. Although Chile ratified the 169 Convention in 2008, which implies that extractive industries must develop prior consultation about the project, companies arrive at territories with concessions granted by state institutions, despite not having asked Indigenous communities whether they agreed with the projects.

Picture 3: *"Imperialist trash you don't belong here. Out of the Lof Trankura GTD and its hydropower project", Curarrehue (2017)*

Research objective and questions

The people and events I engaged with during fieldwork invited me, among other things, to demystify and de-essentialize Indigenous cosmovision and connect politically with their struggles through collaboratively engaged research. As such, I adjusted the research objectives that I had established in my proposal for this PhD study in 2016, to explore and analyze how the river's ontologies were embodied in conduct by human and other-than-human agents and were parts of an arena representing support or resistance to the projects. Although I wrote the first two research chapters (chapter 1 and 2) inspired by this objective, my fieldwork experience made me distance myself from ontological turn reflection and led me to redefine the last two sub-questions to address theoretical

and methodological issues related to power relations, collaborative research, and the role that emotions play in inspiring political actions of social movement.

The research objective of this thesis is to understand the process of resistance to hydropower development in the Mapuche Indigenous territories of southern Chile, in the context of a paradigm shift from large hydropower dams to small hydropower. Therefore, my overarching research question is as follows:

How do Indigenous and environmentalist leaders navigate the socio-environmental conflicts that hydropower development generates in their territory?

This thesis is guided by the following four sub-questions, which are answered based on ethnographic and institutional inquiry guided by collaborative research conducted in southern Chile:

1) *What are the different technopolitical registers of hydropower development in Chile?*

To address this question, chapter 3 discusses multiple suppositions about the nature of water, the role of the state, and the imperatives of energy production that unfold in the context of a hydropower development conflict in Chile. I particularly focus on the HydroAysén case, a mega-dam project in two of Patagonia's mightiest rivers, Baker and Pascua, which unleashed the largest social mobilization in post-Pinochet times. This has led to a national debate around the construction of large hydropower dams, increasing political pressure for a paradigm shift towards renewable energy sources.

2) *What are the ontological backgrounds of water that hydropower projects encounter in Indigenous territories?*

This question is addressed in chapter 4, in which conflicts arising from constructing SHPs in Mapuche Indigenous territories are analyzed following a relational ontology approach. This chapter focuses on the antagonistic positions of the state, private sector, and Mapuche communities concerning water and the different ways in which they enact these positions. In this vein, my analyses illustrate that, regardless of its size, hydropower projects significantly alter the relationship between the Mapuche people and water.

3) *How do community leaders navigate social unrest, resistance, and ideas regarding energy development related to small hydropower projects?*

This question is answered in chapter 5, which demonstrates the contentious political dynamics community leaders experience in their resistance against SHPs, and how community leaders' political practices shape and are shaped by contingent encounters and alliances in specific historical and territorial settings. Inspired by the micropolitical

ecology approach, this chapter presents findings from two ethnographic case studies of SHPs in Indigenous Mapuche territory. The analysis focused on community leaders' resistance by discussing three key aspects: 1) access to information, 2) participation in decision-making processes, and 3) changes in community politics. These are different dimensions of the 'micropolitical life of SHPs,' a heuristic tool defined in collaboration with community leaders.

4) *What is the political role of hope in the conflicts caused by hydropower projects in Indigenous Mapuche territory?*

This question was raised during my fieldwork with Mapuche community leaders and environmental defenders, who invited me to reflect on and move beyond resistance to analyze their agency, self-determination, and self-representation. In this vein, chapter 6 discusses the political role of hope in the struggle for the defense of life raised by Indigenous and environmental movements and argues that beyond the opposition to specific projects, the fight for defending life raised by 'movements of hope' in Indigenous Mapuche territory presents us with alternatives to reconfigure the link between society and nature in a context of global socio-ecological crisis.

These questions follow an analytical logic that frames the phenomenon of hydropower development conflicts within a political and historical background and the experiences of the local inhabitants.

The societal relevance of this research became especially evident due to the growing promotion of NCRE projects headed by the Chilean government in the 2010s and the conflictive relationship that the Chilean state already has with the Mapuche people. In this vein, it is essential to analyze the social dilemmas associated with NCRE projects, which are linked, on the one hand, to opposition to security policies of the energy transition and, on the other hand, to a broader process of resistance. This resistance may enable the preservation and revitalization of other interactions with non-human actors that have not yet been adequately explored in previous research. This is particularly important in Chile because the experiences that Mapuche have in their daily lives are often overlooked, denying a wealth of knowledge that could contribute to development strategies other than the extraction of resource-based ones.

Theoretical Framework

During this PhD trajectory, I explored various theoretical approaches to understand the multilayered dynamics underlying the resistance of Indigenous Mapuche communities to hydropower projects. Accordingly, this research relies on an extensive body of

literature on STS, ontological politics, political ontologies, political ecology, and critical and reflexive ethnography. This theoretical framework attempts to elucidate the interconnectedness of sociopolitical, environmental, and cultural factors that shape the organization and mobilization of Indigenous communities.

As each research chapter (chapters 3, 4, 5, and 6) has its own distinct theoretical perspective(s) and methodological approach(es), it is challenging to provide an overarching theoretical framework. In this section, I therefore explore how different approaches complement each other in addressing the engagement of anthropology with water and hydropower conflicts. First, I highlight the ontological differences about water that become visible and are stressed in the context of socio-environmental conflicts caused by the hydropower infrastructure. Second, I focus on the micropolitics of these conflicts to shed light on the local particularities and difficulties faced by community leaders while navigating energy development in their territories. Finally, I emphasize the fundamental role that emotions play in constructing alternative trajectories toward a better future amidst chaos and despair caused by socio-environmental conflicts.

At the beginning of my doctoral journey, I began by questioning myself about the ontological differences emerging in socio-environmental conflicts. Therefore, my approach incorporated relevant literature from STS, ontological politics, and political ontologies. This literature challenges the idea that there is a single and objective reality with different perspectives on it (Escobar, 2018; De la Cadena and Blaser, 2018; Mol, 1999). This recognition prompts us to acknowledge and respect the various ways in which people perceive and navigate the world, highlighting the importance of incorporating their experiences into knowledge production, decision making, and the pursuit of social justice (De la Cadena and Blaser, 2018; Mol, 2002; Pickering, 2017).

In the global context marked by water scarcity, Indigenous water ontologies are becoming essential components for creating alternative and sustainable modes of governance. Historically, Indigenous people have questioned how water has been abstracted and transformed into a commodity (Linton, 2010; Ballestero, 2019). This struggle has inspired political ecology scholars to address the socio-political dimension of water management by creating a research line on water justice issues (Zwarteveen and Boelens, 2014; Swyngedouw and Boelens, 2018; Boelens et al., 2022). Furthermore, by engaging with ontological politics, other authors emphasize the importance of Indigenous cosmologies, arguing that water should not be viewed solely as a resource but also as a relational entity (Bonelli et al., 2016; Yates et al., 2017).

In this vein, the posthuman feminist Astrida Neimanis argues that "water is eminently naturalcultural," which means that "we co-emerge with the watery world we participate

in bringing about" (2014:15). This aligns with diverse notions such as 'waterscapes' (Swyngedouw, 2015), 'hydrosocial cycle' (Linton and Budds, 2014), 'hydrosocial territories' (Boelens et al., 2016), 'riverhood' and 'river commoning' (Boelens et al., 2022), which embraces the idea that water and society mutually constitute each other. Boelens et al. (2022) have contributed to the ontological debate on water[4], asserting that rivers are "arenas of material, social, and symbolic co-production among humans and nature". The authors offer an engaged framework for examining, theorizing, and supporting water justice movements in the struggle to protect rivers. This framework proposes four relational and interconnected ontologies: river-as-ecosociety, river-as-territory, river-as-subject, and river-as-movement. Even though this framework offers new insights into understanding Indigenous and grassroots actions, I regrettably became acquainted with it belatedly.

In line with Boelens et al. (2022), this thesis challenges the assumption that water is merely biophysical 'nature' or 'inert matter' and, therefore, must be conquered and managed, based solely on technical knowledge and capitalist imaginaries to guarantee its rational use and distribution. The authors argue that this prevailing approach overlooks alternative, locally grounded river knowledges and relationships, which can lead to significant alterations in water quality and river flow. As a consequence, concerns about justice come to the forefront. The authors propose the concept of 'riverhood,' which helps to understand "the different ways that rivers are imagined, defined, built, produced, and lived as socio-natural, political-economic, and cultural-symbolic systems" (Boelens et al.,2022:1127-1128).

My aim was to study the diverse factors that shape the way IIndigenous communities and environmentalist leaders navigate socio-environmental conflicts triggered by hydropower development. However, I came to the realization that the approaches explored above were insufficient to address the complexity of this phenomenon. Through my fieldwork experience, I gained a deeper understanding of the significance of comprehending the power struggles that arise within communities during periods of social fragmentation. None of the approaches I had been familiar with until then offered guidance for delving deeper into this aspect. In search of an approach that would allow me to understand the everyday actions of resistance at the grassroots level, I adopted a micropolitical ecology approach. This approach focuses on the ways in which power is exercised and also recognizes the agency of individuals and the ways in which they contest and resist environmental decision-making and resource management (Horowitz, 2008, 2011; Rasch and Köhne, 2017).

4 The authors define ontology as: *"a set of concepts and categories that help us to identify, assemble, order and explain particular entities: their nature and properties, the relations among the constituting parts, and the relationships that give them substance and meaning in their contexts" (p. 1136)*

The micropolitical ecology approach emerged when political ecology scholars began to employ an actor-oriented ethnographic methodology in order to challenge structuralist accounts that portray local communities homogeneously (Horowitz, 2011; Pelayo and Rasch, 2020). Hence, this approach enables a better understanding of the local particularities and complexities that community leaders face while navigating energy development in their territories[5]. On the one hand, it helps to untangle the interactions and negotiations that either facilitate or obstruct the construction of hydropower conflicts. On the other hand, it serves to identify and analyze the ways in which grassroots movements create novel political and collective initiatives by drawing upon their own practices and knowledge (Pelayo and Rasch, 2020).

This approach was also influenced by Deleuze and Guattari's concept of assemblages. Horowitz (2016) uses the concept of arborescent and rhizomic assemblages to analyze encounters between large-scale conservation and grassroots resistance to environmental extractivism in New Caledonia. Following McFarlane (2009) and Anderson and McFarlane (2011), Horowitz defines an assemblage as a dynamic gathering of diverse elements that emerge from the interplay between humans and nonhumans. The author highlights that the World Heritage program of the United Nations Educational, Scientific and Cultural Organization (UNESCO) operates on an arborescence model characterized by its bureaucratic nature and rigid hierarchical structure. In contrast, the IIndigenous activist group Rhéébù Nùù follows a rhizomatic model known for its nonhierarchical and highly dynamic structure. However, the author acknowledges that arborescent and rhizomatic models have the potential to hybridize or transform to one another to achieve their goals.

The idea of multiple realities, coupled with the notion of assemblages, has been a source of inspiration for my exploration of the role of emotions in shaping socio-environmental conflicts. Although this topic made a belated arrival on my PhD journey, I have arrived at the conclusion that by centering on emotions, it is possible to gain a more nuanced understanding of power dynamics and mobilization strategies to address hydropower conflict. This focus allowed me to examine the subjective lived experiences of community leaders dealing with the restoration of the social fabric within their communities following the atomization caused by hydropower development initiatives.

Hand in hand with the social unrest of 2019 in Chile, the concept of 'hope' began gaining attention and inspired both the process of constitutional change led by the Constitutional Convention and the presidential election of 2021. During my fieldwork, I

5 Fox et al. (2017) have pointed out that the call to focus more on micropolitics within political ecology is not new. They mention the work of Neumann (1992), who suggested that one way to enhance our understanding of environmental conflicts is by examining informal politics and smaller-scale spatial dynamics.

repeatedly heard about hope when Indigenous and environmentalist leaders discussed the essence of their struggles. As I delved deeper into the idea of the defense of life, I came to understand that it represented a struggle for a paradigm shift that gave us a deep sense of community and renewed our connection with nature. Accordingly, this study revealed the pivotal role of the emotion of hope in inspiring social movements beyond resistance against specific development projects. Emphasis is placed on the storytelling of leaders and members of the Mapuche Indigenous communities and environmentalist organizations who resist the construction of small hydropower projects in their territories. Despite the greening of the energy sector, understanding why resistance to hydropower projects persists, requires paying special attention to how actors experience the process of territorialization of energy infrastructure in a context shaped by asymmetric power relations. This is important in a global political context that pursues an inclusive energy agenda that does not leave minorities on margins.

Political ecology scholars have recently addressed the political role of emotions. González-Hidalgo and Zógrafos (2020) emphasized the importance of studying emotions in socio-environmental conflicts to gain a deeper understanding of the political dimensions of grassroots struggles for the environment. Egge and Ajibade (2021) drew attention to the role that emotions play in facilitating access to water and shaping resource conflicts within marginalized communities that operate outside traditional regulatory systems in East Porterville, California. Other authors (Kleres and Wettergren, 2017; Wlodarczyk et al., 2017) have linked hope with the perception of agency and its role in enabling individuals and communities to transcend fear and apathy by taking actions that allow them to project themselves into the future. As these authors showed, emotions have been a topic further developed by feminist political ecology, emotional geographies, and social movement theory to understand the relational formation of individual and collective subjectivities.

Amidst the chaos and despair caused by the potential and actual impacts of hydropower development initiatives on Mapuche Indigenous territories, I realized that there are simultaneous emerging ties of generosity and solidarity (Anderson, 2017; Solnit, 2009). When I began exploring the role of hope in the context of hydropower conflicts, I encountered literature that reflected on the potential for social change that emotions could unlock. For instance, González-Hidalgo (2021) describes 'the emotional' as a space that enables to comprehend and address power inequalities related to the defense of the commons. The author argues that researchers who spend time in locations affected by socio-environmental conflicts can observe both the anger and hope of environmental activists and witness how they cultivate ethics of care and affect for their land, territories, lives, and livelihoods. Other authors (Amsler, 2016; Dinerstein and Deneulin, 2012; Dinerstein, 2015) have focused on the role of 'hope movements,' which

has inspired my analysis of micropolitics and social change. As Amsler (2016) aptly put it, hope movements are counterhegemonic movements composed of individuals who strive for the radical transformation of reality by establishing new epistemological frameworks.

Inspired by this approach and by engaging in political activities alongside community leaders, I understand the relevance of making explicit my own positionality in this study. In a context shaped by state political violence against defenders of the territory, conducting ethnographic counterinsurgency research implies some ethical and methodological commitments, which are further discussed in chapter 2.

Outline of the Chapters

This thesis is organized into seven chapters that address the different dimensions of hydropower development conflicts in southern Chile. Chapter 2 presents the methodology on which this thesis is based. It particularly portrays the messy process of my methodological reflections and the decisions that made me distance myself from the ontological turn in anthropology to incorporate approaches on collaborative engaged research and emotions in social movements.

Chapter 3 addresses the case of HidroAysén and the different modes of existence of this hydropower project. This chapter is based on an article with the same title, co-written by Manuel Tironi, which was published in the journal *Tapuya: Latin American Science, Technology, and Society*. The chapter was inspired by ontological sensibility and the idea of worlding, which I used to argue that hydroelectric energy is embedded in, and is the source of multiple worlds where different ontologies of water and energy meet, not always peacefully. I identify three worlds or realities – yet not entirely autonomous – in which the HidroAysén project exists: the National Hydropower World, the Market Hydropower World, and the Sustainable Hydropower World. Through different ecologies, knowledge, and narratives, these three realities execute different parameters of reality and objectivity. My final argument is that an ontological approach to analyzing hydropower development and the conflicts that it has spurred can stimulate new ways of thinking about taken-for-granted assumptions, categories, and practices regarding the way hydropower is or might be produced.

Chapter 4 is based on a book chapter written originally in Spanish for a book of the Water Justice network. This book was entitled: *A contracorriente. Agua y conflicto en América Latina* (Against the current: Water and conflict in Latin America), and my chapter: *La vida social de los ríos y los conflictos hidroeléctricos en el Wallmapu* (The social life of rivers

and hydropower conflict in the *Wallmapu*). This chapter focuses on the ontological differences that arise between diverse agents in relation to water in the context of hydropower development conflicts. On the one hand, the Chilean government and electric companies have promoted an extractivist development model under which water and rivers are strategic resources for electric generation. On the other hand, Mapuche organizations promote a development model based on the *Buen Vivir* (good living) in which the inhabitants, through the recovery of Mapuche knowledge and practices, define how they want to live in their territories.

Chapter 5 is based on a paper I wrote with my supervisor, Elisabet D. Rasch, which was published in the journal *Energy Research & Social Sciences*. In this chapter, I examine how community leaders contest energy transition to protect their territories. I present findings from two ethnographic case studies of SHPs in Indigenous Mapuche territory. As SHPs of up to 20 MW are considered renewable projects by law, Chilean national authorities consider them a non-invasive eco-friendly solution and, consequently, most of these projects are approved without carrying out an Indigenous consultation and, thus, ignore community leaders' demands for territorial autonomy. Following a micropolitical ecology approach, this chapter analyzes community leaders' resistance to SHPs in Mapuche territories by discussing three key aspects: 1) access to information, 2) participation in decision-making processes, and 3) changes in community politics. These are different dimensions of the 'micropolitical life of SHPs,' a heuristic tool, defined in collaboration with community leaders to explore the contentious political dynamics that community leaders experience in their resistance against SHPs on the one hand, and to describe how community political practices shape and are shaped by contingent encounters and alliances in specific historical and territorial settings on the other. I conclude that despite the anguish caused by SHPs, community leaders bring about hope that may create possibilities for transforming their territories.

Chapter 6 builds on the same case studies presented in chapter 5, and it is also based on an article I wrote in Spanish with my supervisor Elisabet D. Rasch for the journal *Chungará: Revista de Antropología chilena*. This article is entitled: *Los Movimientos de Esperanza y la Defensa de la Vida en Conflictos Socioambientales en el Territorio Mapuche* (Hope Movements and the Defense of Life in Socio-Environmental Conflicts in Indigenous Mapuche Territory). In this chapter, I analyze the political role of hope in resistance to hydropower projects. Following a micropolitical approach, my objective is to understand, on the one hand, the tensions, and conflicts that this resistance produces within local communities and, on the other hand, the political role of hope in the struggle for the defense of life raised by Indigenous and environmental movements. In this regard, I seek to contribute to the literature on hope movements from the perspective of micropolitical ecology as well as to the developing debate on the role of emotions

and affects in social mobilization. Through collaborative and committed research, I examine two case studies, Añihuarraqui (Curarrehue) and Tránquil (Panguipulli) small hydropower plants, which allow us to delve into the social practices that produce and maintain hope amid apocalypse and despair. Beyond the opposition to specific projects, this chapter shows that the fight for the defense of life raised by movements of hope in Mapuche territory presents alternatives to reconfigure the link between society and nature in the context of the global socio-ecological crisis.

Finally, chapter 7 provides the conclusions of this study and discusses the central findings of my fieldwork and analyses, in line with the research objective that guided this thesis.

CHAPTER 2

Methodology

[It is necessary] to break the traditional relationship of submission and dependence, where subject / object asymmetry is transformed into something truly open, subject to subject in all aspects of life ...

(Fals Borda 1985:2)

"I met Pedro for lunch at Trafkintuwe, a community space self-managed by the Mapuche leaders of the Koz Koz parliament. As I´m sitting in front of Pedro, I observe the movement of people entering and leaving the place and curiously ask him: "Where did the idea of creating this space come from?" Excited, he looks around and replies: "This is a territory of resistance or rather of survival. Despite everything we have gone through, we have managed to preserve affection and care among ourselves. This place is like a little plant amidst the storm."

(Fieldnotes, 8 September 2016)

During my fieldwork, I lived in Tralcapulli, an Indigenous community situated approximately 13 km northwest of Panguipulli. Consequently, the community space Trafkintuwe that was introduced in the vignette above, became my second home, a place where I frequently sought solace and connection. Whenever I had to travel to the city, I would find refuge here, engaging in meaningful conversations, sharing 'mate', enjoying communal meals, and cherishing the company of friends and acquaintances. At times, however, I became aware of the fact that I did not fully belong, primarily because of my privileged position as a white Chilean researcher conducting a research project funded by the state in a context shaped by state violence. This status was not perceived favorably by all individuals associated with the organizations I interacted with during my fieldwork, as they were often themselves faced with the consequences of state violence.

Experiences like those described above, coupled with the literature review I conducted for this thesis, allowed me to understand why ethnographers have historically been mistaken for spies, particularly in situations of violence (Sluka, 1990). Pavéz' (2015) exploration of the concept of 'ethnographic laboratories' in Chile uncovers how the discipline has been characterized by state occupation and colonization. According to him, experiments conducted by ethnographers have led to significant transformations in the societies they study, which are often influenced by colonialist exploitation. Consequently, I found it important to follow a critical and reflective approach to my own positionality, which is rooted in my identity and professional training, which I describe in the first section of this chapter. After that, I go on to explain my methodological approach. This is followed by a description of my research topic and location, and a brief description of my ethnographic case studies. Next, the methods used to collect data for the four sub-questions are explained. Finally, I explain the data analysis process and limitations of this thesis.

A sociologist stepping into anthropology

I was trained as a sociologist; however, during my PhD journey, my engagement with anthropology grew steadily, leading me to become more involved in the field. However, this transition was not without problems and challenges, as I encountered resistance to letting go of my own beliefs and reframing the habit of working within certain methodological frameworks.

Consequently, this thesis reflects two distinct stages that I went through during my PhD journey. First, anchored in my sociological background, I wrote chapters 3 and 4 based on information gathered before starting and during the first years of my PhD. Rather than adopting an ethnographic approach, I focused on identifying and analyzing the historical, political, and economic patterns of hydropower development in Chile from a broader viewpoint, evaluating them in terms of their impact on individuals and society. Although I was inspired by anthropological literature and ideas in terms of how to develop my fieldwork, my analysis was still grounded in my experience as a sociologist. However, as my areas of interest span beyond my professional background, the second stage is characterized by my endeavor to engage with ethnographic and collaborative research methods. Subsequently, I wrote chapters 5 and 6 after developing the fieldwork. Hence, these chapters are based on ethnographic data collected from a specific area over an extended period in the field, where I was immersed for 17 months. As a result of this immersion, I began to reflect on my own positionality in the field.

Unlike my previous research experiences, doing ethnographic fieldwork made me aware of how a researcher's positionality and experience can profoundly influence and alter the trajectory of research (Milner, 2007). In some instances, this impact can even extend to transforming the researcher's life course (Fois, 2017). Criticizing the idea of a detached and objective view of knowledge, feminist scholars have drawn attention to the problem of the 'observational distance of neopositivism' (England, 1994) that puts the researcher in a position of total objectivity and omniscience to perform a 'god trick', that is seeing everything from nowhere (Haraway, 1988).

Consequently, I came to understand the importance of actively and thoughtfully navigating my relational positionality as an expert, guest, collaborator, and outsider, depending on the context in which I worked and the people I related with (Routledge and Driscoll, 2015). For instance, in the early draft of my research proposal, I intended employing visual research methods to gather the multisensorial nature of daily life experiences following non-representational methodologies (Rose, 2014). However, during my fieldwork, I realized how naïve I had been to think that this would allow me to explore how community and environmentalist leaders navigate hydropower

conflicts. Many of the actions they carry out are safeguarded to prevent the misuse of this information to criminalize their struggle; therefore, it was not possible to create an audiovisual record in a violent context without putting research participants in danger.

In 2017, after the first period of fieldwork, and because of the methodological challenges I faced along the way, I reflected on the importance of my own personal experiences, my position as a researcher, and the effects of my identity as a white Chilean woman (with a child at that time) on both the research participants and the way I conducted fieldwork. Regarding my role as a white Chilean researcher, I recall the morning I was invited to join a meeting in Curarrehue to present myself, my research assistant, and the research project. After presenting ourselves, a woman asked our host if he already knew us because she had had bad past experiences with other researchers who had shared the gathered data with private companies. Another woman asked me at which University I was based, and when I responded, she said, "¡Now, they have Chilean people working for Universities in The Netherlands to steal information!" On our behalf, another woman said that one should not generalize because there are some 'good' people among the researchers who can support their struggle. After the meeting, a few people approached me to tell me not to feel bad about the comment. I replied that I did not take it personally, but as a result of unethical research practices of other researchers in the territory that I did not want to repeat.

As a woman and a mother, I experienced strong emotions during my fieldwork. The death of Macarena Valdés, a community member of my age and mother of four, occurred only a week before I arrived in Panguipulli. During the first meetings with her community, I felt shattered to see her husband, Rubén, alone, caring for their children, one of whom was only one and a half years old. Moreover, the suspicions that Macarena could have been murdered by company workers, made me fear for my own safety. It took me a couple of months to immerse myself in this case study.

Several authors have argued (Stodulka et al. 2019; Thajib et al., 2019) that emotions play a central role in ethnographic fieldwork and therefore encourage researchers to acknowledge the significance of their own positionality. As I gradually became more involved in the resistance movement of Panguipulli, I felt the responsibility to contribute and provide firsthand information about the case of Tránguil and the events that led to the death of Macarena. Consequently, I attended diverse *trawün*, seminars, and meetings in which I shared preliminary results of my research.

Because of my fieldwork experiences and the importance of aligning my academic activities with my political ideas, this thesis (particularly chapters 5 and 6) adopts theoretical and methodological approaches that combine collaborative research and

activism. In a context shaped by unequal power relations, I consider that the only way of doing ethically sound research is to conduct collaborative engaged research (Kirsch, 2010, 2018). I further develop this and my methodological approach in the next section.

Research approach

My qualitative research approach was based on the constructivist research paradigm, which entails a collaborative co-construction of knowledge and meaning through interactions between the researcher and the participants, empowering the latter to narrate their own stories (Crabtree and Miller, 1999; LeCompte and Schensul, 2013). An important element of this constructivist position is acknowledging that the research process and interpretation of data are influenced by the researcher's own background, beliefs, and perspectives (Le Compte and Schensul, 2013).

The constructivist lens also guides the selection of specific qualitative methods to capture the multilayered nature of the research topic. The fieldwork involved different research activities, including participant observation, unstructured and semi-structured interviews, audiovisual workshops, and focus groups. These activities helped me understand and make sense of community leaders' experiences by building meaningful relationships with them (Robben and Sluka, 2012).

It is important to note that I specifically engaged with people from resistance movements against hydropower development, which in some cases were also part of ancestral communities. While many members of these movements are Mapuche, there are also *wenuy,* or *katripache*, that is, friendly people who come from different backgrounds but share the common trait of being attentive listeners who navigate life at a slower pace. They are not interested in taking anything away from the people they meet but rather in bringing news and knowledge from one place to another.

My political commitment to the struggle of community and environmentalist leaders has motivated me to pursue a collaborative ethnographic approach (Lassiter, 2005; Rappaport, 2008; Kirsch, 2018), particularly in terms of information gathering and data analysis. Hence, in line with Kirsch (2018), I want to clarify that I am not neutral regarding hydropower conflicts. Instead, I admit to having a sympathetic understanding of the concerns raised by the people with whom I was collaborating. Despite my earnest efforts to encompass the intricacies of the events under discussion, it is inevitable that there are still gaps in my analysis.

Nevertheless, an engaged ethnographic approach acknowledges the responsibility and commitment of researchers to address contemporary problems that they identify while conducting fieldwork. This approach brings together diverse elements of scholar activism to transform "the traditional, vertical researcher-researched relationship" (Rasch et al., 2022). Hence, and extending beyond the text they must write for their scholarly activities, through this approach, researchers can work "toward achieving a more ethical world" (Kirsch, 2018:236).

In sum, I embraced a collaborative research approach by engaging research participants in the information-gathering process. This was facilitated through workshops I co-organized, as well as in the analysis of data, which was discussed during various formal and informal *trawun* sessions with the research participants. Besides, I followed an engaged ethnographic approach by actively participating in the context that I was studying, assuming responsibilities, such as supporting the denouncement of a foreign researcher who was, in fact, an energy company consultant.

Research topic and access to the field

The early years of the 2010s were characterized by social unrest in southern Chile. Plans to build the HidroAysén mega-dam project in Patagonia sparked the most significant social mobilization since the post-Pinochet era, capturing the attention of many social scientists who embarked on studying this case (see for example Broitman and Kreimer 2018; Romero Toledo et al. 2009; Schaeffer 2015, 2017). At a lesser-known level, the people of Panguipulli also resisted the building of two controversial projects: Central Neltume and Central Trayenko. Although these conflicts received less media coverage than HidroAysén did, the tensions were significant (Cuadra, 2015; Maher, 2019)

At that time, I was developing my master's research on the socio-environmental impacts of a small hydropower plant in the Rukatayo, Los Ríos region (Hernando and Blanco, 2016). Furthermore, I was working on an environmental education project in Liquiñe, and recently co-authored a paper on the political and environmental history of Panguipulli (Barrena et al. 2016). Based on this experience, I had friends and acquaintances in this area before starting my doctoral studies. In informal conversations with community and environmentalist leaders, we discussed the boom of small hydropower in their territories. Drawing on my research background, they requested further information from me, so I wrote a document entitled 'Report on Small Hydropower Plants in Panguipulli' a few months after starting my PhD. Thus, despite this distance, I kept in constant contact with them, assuring my access to the field. In addition, I began to investigate an SHP in Curarrehue, a municipality located at the northern limit of Panguipulli. After massive

mobilizations against the project, I contacted a community leader to better understand the reasons for their resistance. I also shared a report on SHPs in Curarrehue with him and we agreed to meet once I started my fieldwork. This is more or less how my research began.

Research location and case studies

The fieldwork for this research was conducted in Curarrehue and Panguipulli, two rural territories of the Cordillera de Los Andes located in the Araucanía and Los Ríos regions (Fig. 5). They share a globally renowned national park, Villarrica, where the most active volcano in the country is located, *Rukapillán*, more commonly known as Villarrica. It is not only a glacier but also the homeland of the *Pillanes,* the spirits of the Mapuche ancestors, who fiercely defended their territory during military colonization. The landscape is distinguished by its abundant temperate rainforest complemented by numerous lakes, waterfalls, and rivers.

Picture 4: *Villarrica Volcano (Rukapillán)*

Curarrehue is located approximately 40 km from Pucón, a touristy lake city in the Araucanía region situated at the foot of *Rukapillán*. Its name, Curarrehue, refers to 'the place of the stone altar' in Mapudungun, the language of the Mapuche people, referring to the beautiful mountain range of the *Millallipén (*Las Peinetas).

Picture 5: *Millallipén, Curarrehue. Source: Ladera Sur*

This municipality is inhabited by 7,489 people. 66 percent of them identified as Mapuche (INE, 2017), who mostly came to inhabit this territory at the beginning of the 20th century after the military occupation of *Wallmapu* by the Chilean State, and in the 1920s and 1930s, after the national economic crisis (Municipalidad de Curarrehue, 2018). For decades, the main productive activities of the people of Curarrehue were the raising and commercialization of cattle, agriculture, and the sale of firewood. Although these activities continue to be developed, in recent decades, a turn towards family farming with an agroecological approach and the development of tourism with cultural relevance has been strongly promoted (Fuentes and Marchant, 2016).

As shown in Fig. 2, the entire municipal area is within the Araucarias Biosphere Reserve (RBA-UNESCO). Likewise, 50% of the municipal area falls within the National System of State-protected Wilderness Areas (SNASPE, by its Spanish acronym) administered by the National Forestry Corporation (CONAF, by its Spanish acronym). Curarrehue is part of the National Agricultural Heritage Important Systems (SIPAN) initiative led by the Food and Agriculture Organization of the United Nations (FAO), which reflects the interest of various institutions in discussing the biological and cultural biodiversity of this territory.

Case Study 1: SHP Añihuerraqui, Curarrehue

Añihuarraqui is the name of a tributary estuary of the Trankura river, situated in the Curarrehue municipality (See Fig. 2), which is also known as *Pichi Trankura* by local inhabitants. *Añihuerraqui* was the name used by the companies GDT Negocios and Enhol-España for their SHP project, with an installed capacity of 9 MW in the waters of the Añihuarraqui estuary.

A critical aspect of this project is that it would be placed in a religious territorial complex made up of a *Nguillatuwe* (ceremonial pampa) and an *Eltün* (cemetery) on the banks of the *Pichi Trankura* estuary, surrounded by the *Peñewe* and *Pünowemanke* hills. On the southern slope of the latter hill, there is a gravel road that leads to the border crossing to Argentina. Through this route, the inhabitants of Trankura Valley cross to collect *Piñones* (pine nuts), move cattle to summer camps, and transport firewood. It was also used by those fleeing the civic-military dictatorship (Huiliñir-Curío, 2018)

Although the SHP Añihuerraqui was approved in 2015, to date it has not been built because of the resistance of the local communities articulated in the *Consejo Medio Ambiental y Cultural Lof Trankura, Consejo de Autoridades Ancestrales,* and *Las Guardianas del Territorio*, political organizations created in the context of the conflict. At the same time, in some cases, those who make up these organizations are part of the *Red de Ferias Walüng* and the *Red de Economías Territoriales de Wallmapu*, spaces for collective action that highlight local development based on community-based tourism, promoting access to markets and local fairs for groups involved in agricultural production, traditional cooking, crafts, and sustainable harvesting.

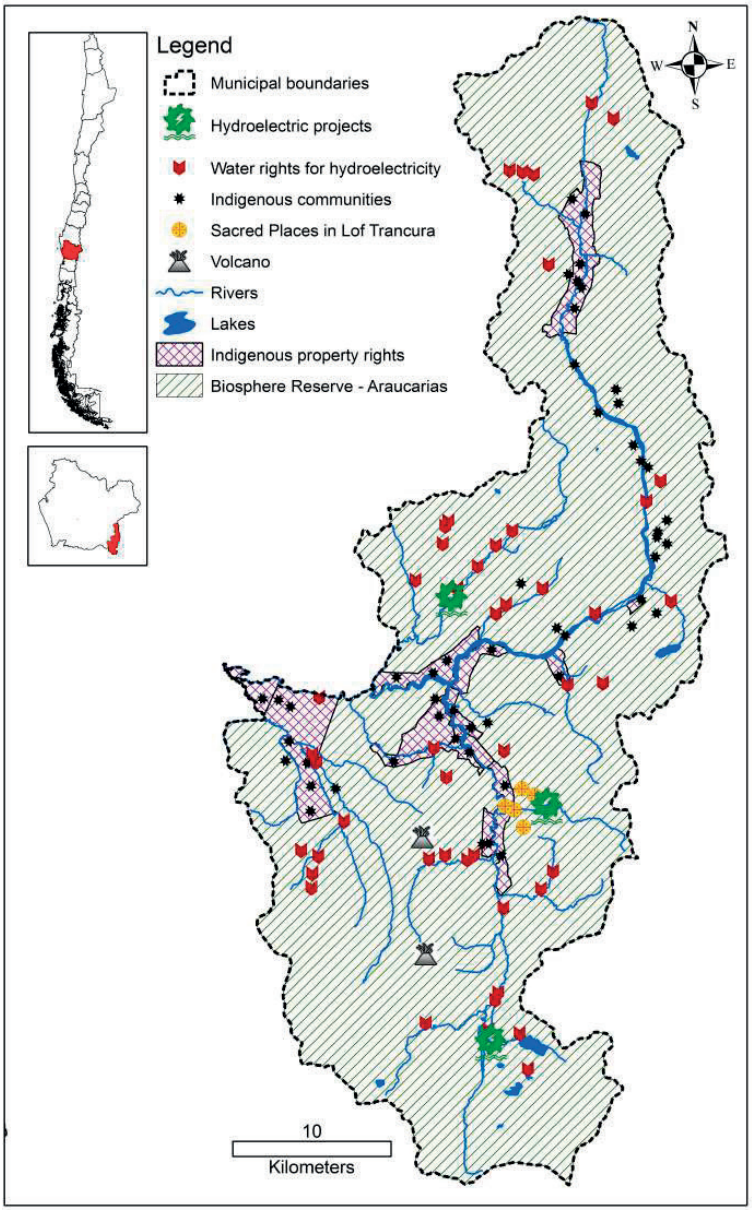


Figure 2. *Map of Curarrehue*

Panguipulli is located about 100 kilometers from Valdivia, the capital city of the Los Ríos region, and it is situated at the foot of the Rukapillán and the Mocho-Choshuenco volcanos (Picture 6). Panguipulli means 'land of cougars' in Mapudungun, given the significant population of this feline in the territory.

Picture 6: *Mocho Choshuenco Volcano, Panguipulli, 2018.*

Panguipulli is the largest municipality in the Los Ríos region, covering an area of 3,29 km2 and inhabited by 34,539 people, of which 43 per cent are Mapuche (INE, 2017). At the end of the 19th century, after the military occupation of *Wallmapu*, national and European settlers acquired land on which they developed agricultural industrial activities, mainly forestry (Barrena et al., 2016) [6]. Since the 1990s, there has been a shift from logging activity towards conservation and tourism, which has been promoted by international organizations, the state, and self-managed by Indigenous Mapuche communities.[7] However, in these territories, multifunctional farms still predominate, combining subsistence forestry, the production of vegetables and cereals (mainly for self-consumption), and small-scale livestock (Benra and Nahuelhual 2019). Large farms are concentrated in the headwaters of important hydrographic basins and, therefore, also concentrate water use rights (Benra and Nahuelhual, 2019).

54% of the municipal area is covered by native forest, mainly concentrated in two SNASPE wilderness areas: Villarrica National Park (which also extends to the municipality of Curarrehue) and Mocho-Choshuenco National Reserve. There are also four privately

6 The precarious conditions in which forestry workers lived were the reason for strikes and land seizures during much of the 20th century. In 1971, during the government of the *Unidad Popular*, and after the seizure of various farms, the Panguipulli Forestry and Lumber Complex (COFOMAP, by its Spanish acronym) was formed, a company that covered an area of more than 400,000 ha and operated under a co-management scheme between workers and the State (Barrena et al., 2016). After the civic-military coup of 1973, this company was dismantled, and the opponents of the military regime were persecuted, tortured, and disappeared.

7 Since 2007, Panguipulli has been part of the Biosphere Reserve of the Temperate Rainforests of the Southern Andes (RBBTLAA, by its acronym in Spanish), a program developed by UNESCO in sites of significant interest for the conservation of biodiversity (Pino and Cardyn, 2014). Along with this, in 2014, the Ministry of Economy, Development, and Tourism declared Panguipulli a Zone of Tourist Interest (ZOIT).

protected wild areas: the Huilo Huilo Biological Reserve, Pellaifa Estate, Linoico Park, and San Pablo de Tregua. Panguipulli is recognized as a Zone of Tourist Interest (ZOIT)[8] because of its special conditions for tourist attractions, such as volcanoes, lakes, rivers, hot springs, and native forests. Nevertheless, logging and the illegal felling of native forests continue to be important economic activities.

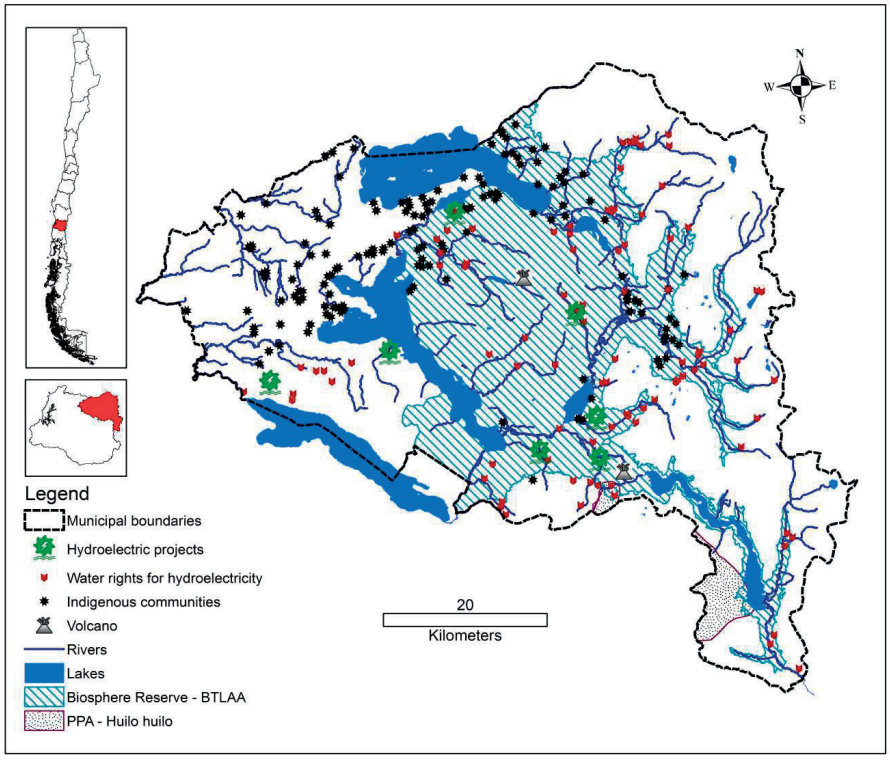


Figure 3. *Map of Panguipulli*

Case Study 2: SHP Tranquil, Panguipulli

The Tránguil River is a tributary of the Cuacua River, located in the municipality of Panguipulli, and flows along a road on the territory of Pedro Quilempán. Community. Tranquil, on the other hand, is the name given by the Austrian-Chilean company RP Global Chile to its 2.9 MW SHP project in the waters of the Tránguil River and an unnamed estuary.

8 According to the new Tourism Law (Law 20.423 of 2010), Areas of Tourist Interest (ZOIT) are "communal or inter-communal territories or certain areas within them, which have special conditions for tourist attraction, and which require conservation measures and an integrated planning to promote private sector investment" (Art. 13).

Conflicts over the project began when some men from the community started working for the company, whereas a group of women denounced that the project had been built on their property and on an Indigenous cemetery. Consequently, the community was divided, and opponents of the project began to face threats from their own relatives. As a result, they sought support from Rubén Collío, an environmental engineer who recently settled in Tránguil (Rojas and Hernando, 2019). The conflict escalated further when during the installation of the transmission line by the SAESA company, Macarena Valdés, Rubén's wife, was found dead after receiving threats from company employees.

In the context of the struggle against the SHP Tranquil, Rubén and the opponents of the project created a political community they named *Newen de Tránguil*. This community was supported by the *Parlamento Mapuche de Koz Koz* (hereafter: Parlamento), a Mapuche political and territorial organization that was originally constituted in 1907 and reactivated in 2007 in the context of the struggle against the hydropower projects *Central Neltume* (490 MW) and *Central Trayenko* (200 MW). The Parlamento promotes and implements initiatives that advocate for Mapuche subjectivity, identity, and the struggle for political autonomy (Guevara and Le Bonniec, 2008). The Parlamento formed the *Futa Koyagtun Koz Koz Mapu* Association (hereafter: Association), an economic management team, and assumed the responsibility of reactivating the old Panguipulli Railway warehouse —renamed *Espacio Trafkintuwe*— to promote an agenda of work aimed at recovering ancestral knowledge and practices.

After its construction in 2016, the SHP Tranquil was sold twice. First, it was sold by RP Global to Invercap SA, a Chilean holding company with an interest in mining and steel. Then, in January 2023, Invercap SA sold the SHP to EnfraGen LLC, a Latin America-focused renewables and grid business.

As fieldwork settings, Curarrehue and Panguipulli encompass various interconnections among people, water, forests, and volcanoes. It is highly frequented by tourists during the summer, making it one of the country's most popular destinations. It is also a site of biodiversity conservation value for endemic species that are at risk of extinction. In its cosmovision, the Mapuche people consider their territory to be a complex entanglement of multiple species, each with its own life, but that depends on each other. For them, rivers are sacred places, the veins of the earth, and the water their blood, which are protected by sensitive guardian spirits, whose presence is essential so that the water does not disappear (Di Giminiani and González, 2018; Bonelli et al., 2016). In this area, rivers are mighty and present significant differences in relief, making them attractive to energy investors.

Methods

Archival and secondary data

For answering sub-question 1 [*What are the different technopolitical registers of hydropower development in Chile?*], I worked with the data and information that I had gathered during my master's studies (2010-2012) and collaborative work with a Chilean scholar (2017-2018) to explore the different technopolitical registers of hydropower development in Chile. In chapter 3, I analyze the HidroAysén case, drawing on literature and interviews carried out in 2012 by a Chilean researcher, Manuel Tironi, in 2012. Manuel conducted 17 in-depth interviews with government officials (3), project managers (5), NGOs representatives (3), and representatives of civil society organizations (6). In addition to analyzing these interviews, I analyzed a range of archival sources, including government archives and reports (SEA and Ministry of Energy documents date back to the 1940s), newspaper articles, and media materials.

For answering sub-question 2 [*What are the ontological backgrounds of water that hydropower projects encounter in Indigenous Mapuche territory?*], I analyzed secondary sources, specifically government archives in two hydropower projects located on Indigenous Mapuche territory: Central Neltume and Doña Alicia. Inspired by anthropological debates on ontological politics, but still grounded in my sociological background, in chapter 4, I analyze the different ontological backgrounds of water encountering in hydropower projects on Indigenous territories. This chapter is based on an analysis of citizen observations forms submitted to the SEIA. In these forms, citizens can request a well-founded response from authorities regarding their concerns related to a development project. For the Central Neltume case, I examined 315 forms related to the project, as well as 15 documents from the *Consulta Indígena* process. In the case of Doña Alicia, I analyzed 237 forms pertaining to the project. These forms and documents were organized chronologically and coded for emerging themes. All documents are public and can be accessed at seia.sea.gob.cl. The analysis was complemented by other sources, such as newspaper articles and media materials.

In this sense, my PhD trajectory can be divided into two phases. The first, as described above, was rooted in my background experience as a sociologist. In this first phase, I used archival and secondary data analysis. This provided me with a broader temporal perspective to trace the evolution of hydropower development in Chile and to identify its political and economic patterns. As a result of this period, I published an article and a book chapter (chapters 3 and 4). The second phase began by designing my fieldwork and making sense of the collected data. During this phase, I made significant changes to adopt a collaborative anthropological research approach. Hence, chapters 5 and

6 are based on data collected using an engaged ethnographic approach, aimed at contributing to social change for the people and communities with whom I worked.

Participant Observation

To acquire firsthand insights into my research context, I immersed myself in various activities that allowed me to comprehend the behaviors and interactions of the research participants. As I have already mentioned, I had friends and acquaintances in my fieldwork area before starting my PhD. Hence, I became involved in the resistance movement against hydropower development from the beginning of my fieldwork. In this context, I attended different events, demonstrations, meetings and ceremonies, which allowed me to address the 3rd and 4th sub-questions of my research [*How do community leaders navigate social unrest, resistance, and ideas regarding energy development related to small hydropower projects?; and What is the political role of hope in the conflicts caused by hydropower projects in Indigenous Mapuche territory?*]. This included the *Encuentro: Extractivismo, crisis y soberanías locales* hosted in Valdivia between August 31 and September 2, 2016, attended by Mapuche leaders from Chile and Argentina. This event took place only a few days after Macarena Valdés' death, and it was the first time that the community spoke publicly about this act of violence. The event offered invaluable insights into a "hot situation" (Callon, 1998) characterized by its emotional expressiveness, which are discussed in chapters 3 and 4.

Between October 24 and 27, 2016, I attended two formal meetings held in Liquiñe because of the controversial situation of Tránguil. These meetings were attended by the Mapuche leaders of the Comunidad and Parlamento, lawyers from the NGO Observatorio Ciudadano, representatives from different public services, and the Provincial Governor of Valdivia. Like the event described above, these meetings provided invaluable insights about the relationship among the actors involved in the SHP Tranquil conflict and the conditions that originated it. Through these meetings, I obtained a first-hand account of some pertinent issues affecting local inhabitants, the community, and environmentalist leaders, such as the expropriation of a public road and the irregularities and illegalities of the SHP Tranquil project.

In addition to this event and meetings, I also participated in various Mapuche rituals and ceremonies, such as *Nguillatün*[9] and *Llellipün*[10], and political gatherings such as *Trawün*[11]

9 *Nguillatün* is one of the most important and oldest communal events in the Mapuche cosmovision. It brings together members of the Mapuche community to communicate with and honour their spiritual entities and ancestors. It is typically held outdoors in a sacred place, such as a grove or clearing in the forest, which is considered a place with Newen (spiritual power).

10 *Llellipün* is a morning ritual, in which Mapuche people plea to *chaw Ngünechen* (Mapuche deity) to have wisdom in the day-to-day activities.

11 *Trawün* is a Mapuche community assembly in which members of the Mapuche community gather to discuss various issues, make decisions, and address matters that concern their collective well-being.

and Koyagtün[12]. These activities revealed the significance of the Mapuche cosmovision not only in cultural terms but also in the political configuration of their struggle against the expansion of capitalist frontiers on their territory. In this context, I engaged in various informal conversations with friends, acquaintances, and occasionally, strangers. Through these conversations, I gained a better understanding of the context in which I was conducting my research.

I also participated in a yearly kayak race and musical festival in Curarrehue and an annual cultural kayak tour in Liquiñe and Neltume. Both were developed to disseminate the cultural significance of rivers to the Mapuche people. In Liquiñe and Neltume, alongside fellow kayakers, I navigated (with my 6 years old son) down the Cua Cua River for seven hours, making my way towards Tránguil and Neltume Lake. Upon reaching the destination, I engaged in Mapuche rituals and discussions concerning the historical resistance of Mapuche communities to hydropower initiatives.

Furthermore, living in Panguipulli for 17 months allowed me to appreciate and experience day-to-day living in a rural Mapuche community and to understand more deeply the economic, social, and political dynamics of the local communities. Informal conversations in this context were key to gathering new insights that would not have been possible through other methods.

Visual ethnography

For the 3rd and 4th sub-question, I was interested in experiences of social unrest and resistance of community leaders and the political role of hope they mobilize. Hence, during the first period of my ethnographic fieldwork (August 2016 to May 2017), I coordinated an audiovisual workshop with young Mapuche in Curarrehue, which resulted in the creation of a short documentary[13]. To navigate the challenges of mistrust and mitigate any potential biases stemming from my identity as a white Chilean woman, I employed participant-generated audiovisual records to gain insight into socio-environmental conflicts and interpersonal relationships that shape people's everyday lives in Curarrehue. According to Pink (2007), a collaborative approach to visual ethnography involves a partnership between the researcher and research participants, and the resulting outcome is negotiated to ensure that it reflects their shared perspectives.

Although the workshop was intended for five youths in the community, only one person, Pablo, actively participated in the workshop, involving his family in the process. Pablo

12 *Koyantün* is a Mapuche parliament led by traditional authorities who gather to resolve conflicts and establish political alliances.

13 Available in: https://www.youtube.com/watch?v=om6SNr9cCag (Accessed 11 July 2023)

was 17 years old at the time, and he dedicated himself to making hip-hop. His enthusiasm for participating in the workshop was not only to document his community's struggles but also to record video clips of his songs. He was the son of Ely, a Mapuche leader and *Werkén* of the Lof Trankura, who also became enthusiastic about the workshop. Together, we determined whom to interview and the topics to address with everyone.

One of the interviewees was Juana, mother of Ely and grandmother of Pablo, who is a recognized *huertera* (women farmer) of Curarrehue. Another interviewee was Anita, a *huertera* and cook who is a well-known Mapuche leader of the territory. We even interviewed Raquel, the woman who had suspicions about the intentions of my investigative work. She is also a well-known Mapuche leader, who defends the biocultural heritage. All of them, including Ely, appear in the short documentary. In total, we conducted 15 semi-structured interviews with community and environmentalist leaders of Curarrehue.

During the second period of fieldwork (December 2017-August 2018), my research assistant and I visited Pablo, his family, and individuals interviewed to present the teaser of the short documentary we were working on. After the teaser was approved, we launched a short documentary at an event organized by the Museo el Castillo de Niebla in Valdivia. Additionally, I participated in the radio program *Abuelo Barbaverde* at Radio Universidad Austral de Chile to disseminate the documentary and my own research project.

Picture 7: *Audiovisual Workshop, Curarrehue 2017*

Focus Group

For the 3rd sub-question, I was interested in experiences of social unrest and resistance of community leaders. During my first ethnographic fieldwork in Panguipulli, I participated in various meetings, events, and demonstrations to support the *Comunidad Newén de Tránguil* (hereafter: Comunidad), a political organization created to defend the territory from the SHP Tranquil. While meetings were held to expose the illegalities committed by the company –the use of more than 8 km of the river, its diversion over a span of 200 mts, the occupation of 120 mts of land owned by the Mapuche Quillempán family, and its construction within a protected area designated for tourist interest– to regional and local authorities, the events and demonstrations aimed at denouncing the murder of Macarena Valdés, a member of the Comunidad who died under strange circumstances.

During this period, my friends and acquaintances expressed their desire to organize a workshop to inform them of what SHPs are and what kind of impacts they produce. Unfortunately, I no longer had time to support the development of this activity, but I promised to co-organize it during the second period of fieldwork. To do so, I contacted friends who were members of the *Red por la Defensa de los Territorios*, an environmentalist organization, and the Parlamento. We designed, coordinated, and implemented a workshop on January 4, 2019, in which 20 people participated. Most of the participants were representatives of Mapuche communities (9), followed by representatives of environmentalist organizations (7) and PhD researchers (4), including myself. The workshop focused on the 'life cycle of SHPs,' a conceptual tool we used to address the main topics we considered relevant to discussion with people from Curarrehue and Panguipulli. The workshop was audio recorded with the permission of participants and transcribed afterwards.

First, we aimed to understand how information is disseminated within a community. We asked the participants: who reached out to the community? Is it a consultant, the company itself, or a state agency? Who convenes these meetings and what occurs during them? We wanted to capture the initial process through which communities become informed, whether through official channels or by noticing the arrival of machines and workers. The second stage of the workshop focused on the SHP projects' entrance into public life, which involved their consideration (or not) within the SEA. Finally, we examined what occurred when a project was launched or rejected in both scenarios. Our primary aim was to understand the impact of such a project on communities. In doing so, we explored issues such as social fragmentation, potential problems that arise among individuals, and any relevant experiences and stories that participants wanted to share.

As a result of this workshop, three of the participants and I wrote a non-academic text that was shared among the rest of the participants and presented in the X International Meeting of the WATERLAT-GOBACIT Network 2019.

Picture 8. *Workshop about the social impacts of SHPs, Panguipulli 2019*

Interviews

In the first draft of the research proposal, I had planned to conduct various interviews because I considered it the main method to collect data. However, in the course of the research I realized that some research participants, particularly community leaders, either felt uncomfortable with this format or ended up talking about specific topics that they assumed were of interest to me. Even though the participants agreed to let me use my voice recorder when I put it on the table, the atmosphere immediately became tense, and we shifted from a relaxed and friendly setting to an excessively formal and distant one. In addition, when transcribing the interviews, I noticed that the data collected did not provide as detailed information as I had gathered during informal conversations.

Consequently, after conducting 27 interviews with government officials, community and environmentalist leaders, and academics, I focused on designing and implementing other data-gathering strategies, as described above, which proved to be more useful in capturing relevant aspects of the socio-environmental conflicts triggered by SHPs in Mapuche territories.

Data management and analysis

My fieldwork experiences and interactions with the people I engaged with during this process in both Curarrehue and Panguipulli prompted me to reflect on the political role that scholars can undertake in advancing towards collaboratively engaged research with local actors. This entails acknowledging differences without romanticizing them or pressuring people to discuss topics that they are not at ease with. Instead, it involves encouraging meaningful dialogue about the issues that they deem most significant (Kirsch, 2010). Accordingly, I attempted to establish respectful common ground in order to comprehend and make sense of the diverse narratives surrounding hydropower conflicts in my research area.

In this regard, all data gathered through collaborative activities, particularly the visual and SHPs workshops, were co-managed with research participants, who were provided not only with the results of the work but also with the raw material.

The analysis of ethnographically collected data was also of an interpretative nature, encompassing the perspectives of individuals at various levels and my own interpretations, which not necessarily aligned with those raised by my research participants. This iterative process was utilized throughout the project to refine the themes and narratives conveyed by the analysis. In doing so, I participated in seminars, discussion groups, and workshops with supervisors, colleagues, and research participants during fieldwork to discuss preliminary results. Additionally, I complemented the ethnographic data with a comprehensive analysis of secondary sources, including government archives, newspaper articles, and media materials, to provide additional information about the hydropower trajectory in Chile over the last century.

CHAPTER 3

Worlding hydropower: river realities in the Chilean Patagonia

This chapter has been published as:

Maite Hernando-Arrese and Manuel Tironi (2019) "Worlding hydropower: river realities in the Chilean Patagonia" Tapuya: Latin American Science, Technology and Society, 2:1, 295-309,
DOI: 10.1080/25729861.2019.1675955.

Introduction: hydropower realities

In August 2010, only days after having been named CEO for HidroAysén – a large hydropower complex to be built in the Chilean Patagonia – Daniel Fernández gave an interview for a local newspaper. "You have an enormous range of possibilities," he responded when asked about how the project was accounting for its environmental externalities. For Fernández the ecological nature of the project was sustained on a balance between multiple conditions and demands, or what he termed the model of 'sustainable development.' He explained:

> Chile has defined *sustainable development* [as the model to follow], in which you promote *development and growth* but establishing restriction and defining an *environmental authority* (The Clinic, 2010. Emphasis added)

For Fernández, then, HidroAysén was a project predicated upon three different techno-political registers – namely, the 'green' agenda of sustainability, the logic of market-based economic optimization, and the national project led by the state as the authority in charge of national development and regulation.

This chapter is precisely about this multiplicity: the various horizons of meaning and action in which the HidroAysén project responded to and was part of, or for short, the realities to which the project was accountable to. Specifically, we argue that the reality of HidroAysén as both an infrastructural and a political project was sustained by different historical lineages and apparatuses for evaluating performance and establishing truth. In brief, in each of these horizons, the project had a different existence, and while these multiple existences managed to cohabit, they did so in divergence.

Inheriting from and discussing within the so-called ontological turn in STS, we propose the notion of 'hydropower world' as an analytics to understand the multiple realities of HidroAysén. Using interviews and archival material, we reconstruct the entangled histories of the project, paying particular attention to the diverse disputes that punctured the life of HidroAysén – from the first plans for a large hydro- complex in the early 1970s to the massive demonstrations against HidroAysén in 2011 and then its final revocation. We argue that these hydropower worlds, in the case of HidroAysén, materialized in three differentiated yet not entirely independent modes of organizing existence: the National Hydropower World, the Market Hydropower World, and the Sustainable Hydropower World.

The HidroAysén case has sparked an engaging debate within the social sciences, with most of the research focusing on the discursive disputes among actors. In this chapter,

however, we turn away from paradigmatic actors as the main object of concern, to propose an ontological approach in which the constitution of different hydropower realities frontstages the analytical endeavor. Our contribution is to show how these three hydropower worlds give rise to new relations and arrangements among heterogeneous agents, which are entangled in policy interfaces (Arce, 2003) wherein multiple suppositions about the nature of water, the role of the state, and the imperatives of energy production unfold. So rather than focusing on the interpretive flexibility in which actors engage, we are interested in how different realities, constituted through socio-material genealogies, come into being.

The chapter is structured as follows. First, we present the historical trajectory of the plan to build a hydropower complex in the Baker and Pascua rivers in the Chilean Patagonia, including a brief revision of the main academic discussions in STS, geography, and sociology provoked by the HidroAysén case. We then turn to the STS and anthropological literature on ontology to propose the notion of hydropower worlds – and to explain how an ontological approach may enrich debates around HidroAysén in particular and infrastructural politics in general. Then we move on to describe the three hydropower worlds – the *National*, the *Market*, and the *Sustainable* hydropower worlds – that have emerged from and give shape to HidroAysén in juxtaposed ways. In the conclusions we reflect on the possibilities as well as the challenges posed by an ontological sensibility to hydropower development.

HidroAysén: a political ecology

The origins of HidroAysén extend back to 1972 when the government of Salvador Allende conducted the first feasibility study to build a hydroelectric power complex in the Baker and Pascua rivers, in the Aysén Region in the Chilean Patagonia (Varas et al., 2013). The energy capacity of Patagonia was highly attractive for the developmental agenda of the country, which was not undermined by the coup in 1973. New prospecting studies were carried out during Pinochet's dictatorship, now framed within a more ambitious project: to create a large industrial complex for mineral extraction, alongside a new city (Martinic, 1980).

Though this project never came to fruition, it revived in the late 1990s when new studies revealed that the building of four dams could produce approximately 2.000 Mw. In 2004, the electric company Endesa together with Colbún S.A., another large energy corporation, constituted the public limited company Centrales Hidroeléctricas de Aysén S.A., or HidroAysén, and proposed to build five dams on the Baker and Pascua rivers to generate 2,750 MW and the world's longest transmission line (2,250 km) (Figure 4).

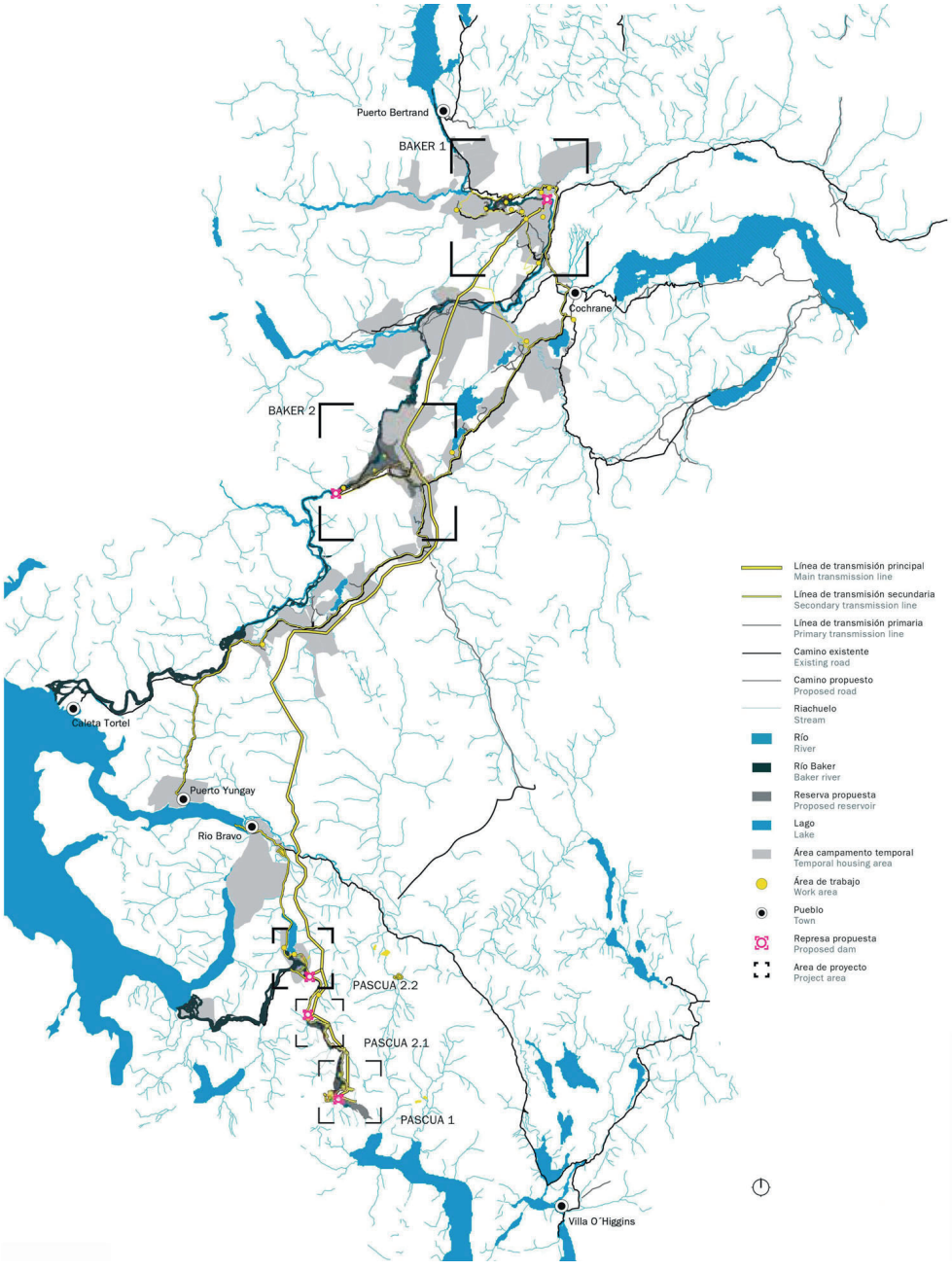


Figure 4. *HidroAysén Project. Source: Berrizbeitia and Folch (2015:2).*

The plan was approved by the SEA in 2011, unleashing the largest social mobilization in post-Pinochet times: demonstrations against the project were held not only in several Chilean cities, but also in Paris, Oslo, and Buenos Aires. In Santiago alone, four massive mobilizations were organized in May 2011, bringing together more than 40,000 people (Schaeffer, 2017). Three years later the Ministers Committee, the highest administrative authority of the SEA, rejected the project and revoked the previously granted environmental permits. Despite the efforts of HidroAysén to persevere, in 2017 the holding reported that the project was no longer economically feasible due to the changes in the electricity market, announcing that they would return the non-consumptive water use rights to the state.

The HidroAysén case became an immediate object of analysis for researchers in sociology, geography, and STS. Discussions grouped in three main components of the conflict. First, and following a political ecology perspective, a central point of research and debate was the socio-ecological impacts of HidroAysén in local communities and the underlying power relations sustaining them. Here, the tensions between development discourses and the emergence of social mobilization in the context of extractive capitalism in Latin America became a key axis of analysis to understand social vulnerability and political disputes around HidroAysén (Latta, 2011; Romero and Sasso, 2014).

Second, an emerging body of research coming from STS focused on the complex politics of knowledge production around HidroAysén. Particularly important was to understand how expertise was construed, articulated, and tensioned by scientists, consultants, public officials, environmentalists, and politicians (Barandiarán, 2018; Broitman and Kreimer, 2018). At stake here were the frictions that HidroAysén rendered visible between the national system of scientific production on the one hand, and the marketization of environmental impact assessments (EIAs) on the other, with the consequences of "preserving a neoliberal logic that undermined the credibility of the scientists" (Tironi and Barandiarán, 2014:322– 323).

Finally, scholarship coming from sociology and political science brought attention to the content, form, and capacities of social mobilizations against HidroAysén. An important object of inquiry was the *Patagonia Sin Represas* (PSR) campaign, led by the *Consejo de Defensa de la Patagonia* (CDP), and their multi-scalar associative capacities to bring together local rural communities and national-level urban actors (Silva, 2016). Instrumental in these alliances – and in their political success – was the discursive elaboration of Patagonia as an exceptionally pristine environment in need of care and protection (Borgias and Braun, 2017; Schaeffer and Smits, 2015).

This body of research offers critical perspectives on the political ecology of HidroAysén impacts and conflicts, as well as on the knowledge dynamics at play in the intersection between socio-territorial projects, late industrialism, and science. However, it also leaves crucial questions unanswered. Importantly, stressing the *discursive* nature of conflict and knowledge conceals the practices, histories, and mechanisms by which basic assumptions about energy have sedimented in Chile – or the processes by which hydropower *worlds* come into being. The subsequent correlation of specific discourses with specific actors (i.e., environmentalists as correlated with environmental discourse) makes it more challenging to identify the position of the conflict within worlds that cut-across particular actors, temporalities, or situations.

Hydropower worlds: thinking energy ontologically

Following an ontological sensibility within STS and anthropology (Law, 2004; Mol, 2002), in this chapter, we argue that hydropower development is a process in which different *worlds* are brought into being and intersect – worlds that are predicated upon different and sometimes clashing modes of establishing the parameters of existence.

Broadly speaking, ontology engages with the question of what things *are*, and hence is different from the most common epistemological question of the social sciences – namely, how we can *know* things. For many, the distinction is pragmatically irrelevant (Hemmings, 2012), conservative (Woolgar and Lezaun, 2015) and even colonial (Todd, 2016), but in the context of HidroAysén and hydropower at large, it offers productive insights.

Though ontology can be mistaken with social constructionism, a fragile yet crucial difference distinguishes both approaches. Constructionism assumes that reality lies beyond 'culture' or epistemological particularism, that is, that collectives *access* reality through social categories and imaginaries. Ontological approaches, in contrast, engage realities not as 'perceptions' on what already exists, but as realities in and of themselves that include the definition of the evidence of their own existence and the demarcation of what lies outside them.

So rather than engage in establishing the realm of the real as a delimited and fixed out- thereness (Law, 2004), ontological approaches crack open reality as something that social collectives variously constitute by defining the entities that exist in the world (Blaser, 2010; Descola, 2006). Reality, put differently, is not a given but an accomplishment performed through practices, discourses, politics, and materials (Mol, 2002; Pickering, 2017). Ontological explorations are not interested in defining what falls inside the real as

a universal condition, but in understanding how realities exist in multiplicity. Inheriting from William James' pluriverses (1909) and Isabelle Stengers' cosmopolitics (2005), ontological approaches problematize the One-World assumption of an exclusive and positive reality that functions as a background of existence and a universal reference (Escobar, 2015). Instead, they render visible that the world is composed of many worlds (de la Cadena and Blaser, 2018).

This ontological commitment has already been applied to hydropower. STS scholars have suggested that hydroelectricity infrastructures are different realities depending on the practices upon which they are brought into being. Dams, for example, are at the same time technologies for colonial rule and incubators for the Anopheles mosquito (Mitchell, 2002); they are matters of concern for rice growers in the Mekong River, and also for Cambodian electricity modelers and international environmental activists (Jensen, 2017), each collective rehearsing divergent versions of the river, the dam, and effects of their entwinements.

While these ontological approaches to hydropower highlight the multiple realities in which hydropower exists, in this chapter we are also interested in bringing to the fore those contextual elements against which, however ambiguously, hydropower sediments as a reality. Hydropower, we suggest, is an ontological choreography (Thompson, 2005) constituted by processes of continuity and assemblage, as well as difference and divergence (de la Cadena, forthcoming).

Following these cues, in this chapter we borrow from Tsing (2010) and her concept of *worlding*. In her words, worlding is "the always experimental, partial, and often quite wrong, attribution of worldlike characteristics to scenes of social encounter" (2010:54). Worlding is a soft form of holism that emerges in practice to situate objects and situations in a larger web of connections within which they come into being and relation (Otto and Bubandt, 2010). Worlding, therefore, helps us to conceptualize hydropower as embedded in a myriad of worlds wherein different realities of water, energy, and the state encounter one another, not always peacefully.

Methods: following a (failed) dam

This research is based on a qualitative study of 17 in-depth interviews with government officials, HidroAysén managers, NGOs representatives, and representatives of civil society organizations. These interviews were conducted in Santiago and Aysén, between May-August of 2012. Timely interviews were carried out amid the conflict. So, while more than seven years have passed since this fieldwork, interviews captured

what Callon (1998) calls 'hot situations,' or moments in which "everything becomes controversial" and that "indicate the absence of a stabilized knowledge base" (1998:260). Hence in these 'hot situations,' actors are prone to voice their positions and concerns more transparently. Moreover, two years later the project was canceled. Our object of inquiry, in a way, disappeared. Thus, while more interviews could have been conducted in subsequent years, they would have apprehended a very different situation and hence modified our analytical apparatus.

To identify and reconstruct the three worlds here developed, interviews were complemented with a range of archival sources – including government archives and reports, newspaper articles, and media material. This material provided additional information about the hydropower trajectory in the country over the last century.

In what follows, we present three hydropower worlds that are defined at the crossroads of diverse world-making projects. By identifying these worlds, we do not attempt to diagram a sequential ordering of hydropower 'paradigms,' but to show that hydropower is not a singular modern project but, instead, a multiplicity of hydropower realities that become together in tension.

Hydropower worlds

National hydropower world

Hydroelectricity has played an important role in the country's energy matrix since the late nineteenth century. Although at the outset private companies controlled this sector, this radically changed in the 1930s. At that time, a group of engineers of the University of Chile, driven by the epic of social progress and national industrialism, strongly recommended the control by the state of strategic monopolistic industries, such as the generation and distribution of electricity. This techno-statist sensibility is at the heart of what we term the National Hydropower World.

The imaginary of development/underdevelopment is the background against which this world is made into being. And importantly, in this version of reality the transition from underdevelopment to development is the responsibility of the state. "[The] control of electric energy supply means control over the economic and social life of the country" as stated in the mid-1930s by the Instituto de Ingenieros de Chile (IICh), it cannot "be in power of others than the State itself" (Harnecker 2012, 10–11). In 1943, the National Energy Company (Endesa) was created to develop and manage electricity

infrastructures. Between 1944 and 1963, Endesa built at least eight hydroelectric plants in the country.

The notion of the State as both an enforcer of development and an arbiter defining what development means has endured as a worlding force in electricity planning in Chile – actually throughout the trajectory of the HidroAysén project. For example, opponents to the project invoked the State as they demanded more transparency and decentralization in decision-making. The lack of accountability in the overall process was not contested by resorting to grassroots movements or Indigenous rights, as it has been documented in other extractivist conflicts in Latin America (De Castro et al., 2016), but by summoning the State in the articulation of a properly 'common commons.' As put by the CDP's Executive Secretary:

> *The state must be proactive and must plan as happens in other countries, where state companies are those engaged in the [energy] distribution and development, thinking on the common good, or it is the state who has the rules of the game and invites private companies to develop such projects.*
> *(Interview 12, June 14, 2012)*

For environmentalists, the conflict over HidroAysén did not point to the onto-epistemological limitations of the liberal state, but to the incapacity of political and technical cadres of *enforcing it* – the same incapacity denounced by private investors. Indeed, HidroAysén investors blamed the State's lack of conviction and leadership – instead of turning to the structural inefficiency of the state which is the usual liberal critique. As with environmentalists, the demand was for more state, not less. As a former Operation Manager of HidroAysén argued:

> *The state should not act as a mere spectator of what private companies do, but it should create definitions regarding the energy matrix, costs, emissions, and generate effective conditions to ensure that development reaches a greater number of people.*
> *(Interview 11, June 21, 2012)*

The State, as a very specific reality – and reality arbiter – is dependent on a particular way of defining the being of nature: nature as a *resource* ready to be tapped to lift Chile into prosperity. This ontological definition was congealed in the initial design of Chile's state-based electricity plan. The conditions offered by the Chilean geography – high mountains, steep slopes, and heavy-flow rivers – create 'energy sites' that must be exploited, otherwise "water will be wasted into the sea" (Endesa 1956:73). The idea of maximizing the uses of water is not just related to notions of rationality and

management but to the epics of a relentless advancement of humankind into progress. As put in a technical report of Endesa in 1944:

> *People measure their progress by the electric potential they use. Man needs to multiply the creative force of his work. That is why he scratches the earth's crust, penetrates into the depth of the earth, tearing off coal and oil. Man seeks life in dead, petrified, and liquefied worlds […] When men conquer electricity, the peoples move towards progress. […] Chile has one of the greatest hydroelectric riches in the world. Its strange geography rewards the sacrifices it demands to be conquered.*
> *(Endesa 1944:3)*

Rivers, therefore, are passive elements upon which 'man' erects civilization out of 'dead worlds.' At work here are ontological definitions of what separates life from death, progress from backwardness, and society from nature – and not just perspectives on specific objects. This National Hydropower World did not vanish with the neoliberalization of Chile's electricity regime but proved extremely resilient. Anxieties about water being 'wasted into the sea' in detriment of the country's development remained strong and were echoed in the debate around the HidroAysén project across political lines. "It's necessary to protect water for the needs of people," explained the leader of a regionalist movement that had been working against HidroAysén, "but the rest [unutilized water] we shall use it, or will we continue to let the water from the rivers be wasted, be thrown away into the sea?".

The National Hydropower World is very much present even today, three years after the definitive cancellation of HidroAysén. Its failure has ignited intense discussions about the need for a long-term national strategy for energy security and decarbonization. Workshops, committees, and taskforces proliferated, being Energía 2050 – a multi-stake- holder process for long-term energy planning led by the Ministry of Energy – the most relevant initiative. Interestingly, while Energía 2050 moved from the grammar of 'mankind,' 'progress,' and 'conquering' of the first electricity plans of the 1930s to the late industrial parlance of 'sustainability,' 'community' and 'renewable energy,' the premise that water is an abundant and cheap resource whose possibilities of extraction must be exploited is still very much present. "In a country where there is good potential for dammed hydroelectricity, the possibilities of its use should be explored as much as possible" (Ministerio de Energía 2015, 73), warns us the Energía 2050 final report.

Market hydropower world

During Pinochet's military regime, a neoliberal revolution reshaped hydropower development and the energy sector more broadly. A Chicago-trained group of monetarist economists – known in Chile as the Chicago Boys – were requested to

secretly work in an economic program for refunding Chile's economy. Driven by a radical Hayek-inspired vision of economic and social change, the Chicago Boys wrote a book entitled *El Ladrillo* (The Brick), in which the dismantling of public-owned companies such as Endesa was strongly recommended to liberalize energy supply and to attract private-sector investment (Biglaiser 2002). This market-ruled orientation lies at the root of what we term the *Market Hydropower World*, which stands on particular ideas about the deregulation and reconfiguration of the State and the commodification of nature.

During the early 1980s, drastic reforms were introduced to liberalize the electric sector, being the most relevant the Water Code (1981) and the Electric Law (1982). The former allowed the creation of private property rights over water (water use rights), while the latter led to the unbundling of electricity generation, transmission, and supply, with the objective of encouraging free competition. These reforms, which shaped what is amply recognized as the most aggressive neoliberal water and energy regimes in the world (Budds, 2009a, 2009b), are HidroAysén's conditions of possibility, both operationally and ontologically. "Our environmental assessment system," indicates a representative from the *Asociación Gremial de Generadoras de Chile* (AGG) – the Association of Electricity Generators of Chile – "has to be agile and efficient to privilege private investment projects." This quote concisely summarizes the world in, and around which HidroAysén makes sense: the project is only feasible technically, politically, and ethically in a world in which energy planning is left to market exchanges and water can be abstracted from the land and traded as a commodity.

Interestingly, however, while this version of reality clashed in several ways with the developmentalist ontology already described, it managed to persevere under the figure of the State as *umpire*. As Barandiarán (2018) has argued on the neoliberalization of Chile's environmental regulation, "[T]he umpire state neatly summarizes the neoliberal ideal of the state as responsible for organizing everything," writes Barandiarán, "where the state guarantees individual freedom not through civil liberties or public welfare but instead by policing the rules for markets to operate, as allowed by the subsidiary principle" (2018:192). As put by the Vice President of HidroAysén:

> *Are there any deficiencies in the system? There are. Do you have to correct them? Yes, let's correct them quickly so that the rules of the game are clear to the investors, and they can decide [where it is better to invest] (…) I do notice that there is a lack of clarity of the rules of the game and planning.*
> *(Interview 3, May 29, 2012)*

In the world issued forth by HidroAysén, water is an abstracted resource, and the state is the guarantor that the 'rules of the game' set to render water intervenable by market

parties to generate electricity are enforced and sanctioned. Key in this version of reality is the liberal demarcation between technique and ideology. Indeed, the impartiality of the umpire state is conditioned upon its technical ability. Specifically, *evidence* – or the lack thereof – as a condition for legitimate intervention proved critical in the articulation of the Market Hydropower World. This assumption enacts a stark differentiation between those that, equipped with technical evidence, are able to participate properly in the HidroAysén debate, and those that, lacking scientifically validated knowledge, are incapacitated to do so. "The environmental assessment system has learned to rationalize the discussion [on HidroAysén], which is annoying for an opposing group with a more ideological position," explains the representative of AGG. These 'more ideological' groups, on the contrary, mobilize emotions, a kind of knowledge not suited for a robust discussion. As eloquently explained by HidroAysén's communication director:

> *Look, I don't think that communities or just anyone can comment on whether the bathymetry of the Pascua River is accurate or not … It seems to me that in reality, the public generates opinions based on emotion instead of the technical rigor required by a project … If public opinion ends up deciding this type of projects, what happens with the scientific community? What is the value of science then? Because it's my understanding that the scientific method is a confirmable method, that is verifiable, etc. That has hypotheses. So, how can I, from emotionality, question the scientific method? I think there's a big risk as a society if we open that door.*
> *(Interview 10, May 29, 2012)*

In summary, the Market Hydropower World is articulated in and through several onto-epistemological assumptions about what rivers are, what is the role of the state in the composition of a commons, and how legitimated evidence looks like. Importantly, this version of HidroAysén reality was severely questioned over the conflict but did not perish. Take again, for example, Energía 2050. While the document swiftly indicates that 'market solutions' do not "always provide the decisions that lead to preserve the common good" and that "the Chilean society expects from the State a planning and management role," it also expresses that the responsibility of the State is to define "a solid and consistent *market-oriented strategy*" (Ministerio de Energía 2015). During the presidential electoral campaign of 2009, Sebastián Piñera stated:

> *If I become president, I will favor the construction of dams, because Chile needs more energy, but we will demand energy companies to take care of the environment, nature, and the way of life of the people of Aysén.*
> *(Cámara de Diputados 2012:65)*[14]

14 Available at: https://www.camara.cl/pdf.aspx?prmid=3120&prmtipo=SOBRETABLA (accessed 10 July 2019).

The Market Hydropower World put differently, was accommodated amidst new discourses in which, as the result of HidroAysén conflict, environmental protection, public participation, and equity were re-instantiated as a fundamental axis for energy planning in Chile.

Sustainable hydropower world

As attested by Energía 2050, imperatives around community-building, ecological balance, and climate change have permeated energy discourse and action in Chile and elsewhere. *Greenness* (Thévenot et al., 2000) has emerged worldwide as a new mode of justification, and alongside this regime of worth, a complex repertory of assumptions about the reality of nature, knowledge, and politics has congealed. In the case of HidroAysén, this regime demonstrated worlding capacities by adding to the debate crucial ontological articulations. This is what we call the Sustainable Hydropower World, an onto-epistemological regime that cuts across actors and positions in the HidroAysén conflict, and that both disputed and enforced the National and Market hydropower worlds also at play.

Central to this world was a particular enactment of Patagonia, as *exceptionality*. While all actors agreed that the Patagonia, against pastoral fantasies of purity, was an intervened territory, a sense of distinctiveness and uniqueness was retained. "I'm not naïve, I perfectly know about the fires [that have historically been utilized to clear the land for cattle]," told us about an activist from a local environmental NGO, distancing himself from any romanticized vision of the territory, "but in relative terms," he nuanced, "there is undoubtedly a pristinity and an endemic biodiversity richness, which is a treasure."

Specification is a political gesture inseparable from the mobilization of difference and universality (Choy, 2011). We add that the specification of the Aysén region as unique territory entailed a worlding gesture. While the National Hydropower World brought water into being as a public resource to be tapped for national development, and the Market Hydropower World as a private commodity circulating through markets, in the Sustainable Hydropower World water is constituted as a condition for life: the exceptionality of the Aysén region is rendered possible by the abundance of water as a vital element for human and non-human life. As environmentalists argued, the water of the Baker and Pascua rivers is "feeding the sea and the oceans" creating a large trophic diversity in those estuaries where both rivers meet the Pacific Ocean.[15]

Important here is the shift from the enactment of water as an element that can be exploited to a version of water in which it needs to flow. The imperative of preventing

15 Available at: http://www.chilesustentable.net/wp-content/uploads/2016/01/Critica-a-la-Hidroelectricidad-y-Propuestas-Ciudadanas-Enero-2016.pdf(accessed 10 July 2018).

water being 'wasted into the sea' is replaced by the confirmation that the hydric cycle from the Andes Mountains to the sea cannot be interrupted without incommensurable impacts. "There is a whole cycle of life that is produced in that zone which is going to be altered," explained to us the founder of PSR, "thus, [it is important] to understand the complexity that implies to interrupt the flow of a river."

The existence of water as a vital element came alongside a particular definition of politics and the state. Instead of bringing politics into being as a function of the state either as an engine of development or an umpire of market regulations, in the Sustainable Hydropower World politics is distributed among diverse actors and is defined as a form of *stewardship of the commons:* the responsibility of securing a space for long-term collective conviviality. Interestingly, this manifestation of politics was enacted in the HidroAysén conflict through two boundary objects, *renewable energy*, and *scientific knowledge*, which while mobilized differently by different collectives, pointed to the instantiation of the same reality.

Renewable energy was appropriated divergently during the conflict, but always as a horizon of what a project *should be*. For example, the constitution of the HidroAysén as a sustainable project was crucial for developers. "This is a renewable energy project," highlighted an executive from HidroAysén. "[I]t's sustainable in its design and it's [Chile's] most efficient project regarding energy generated and the flooded surface." Opponents to the project contested this framing by resisting the development of HidroAysén in the name of renewable energy. "If HidroAysén is authorized, the deployment of non-conventional renewable sources is over in Chile for the next 15 years, because the project collapses the market," as put by an environmentalist.

But sustainability is not just an ethical horizon. It is first and foremost a technical intervention. Hence the Sustainable Hydropower World rested upon – and brought forward – scientific knowledge, and not just as a tactical problem-solving tool, but as a background against which reality was tested and confirmed. This was made clear in the debate around baseline data.

The confection, quality, and availability of baseline data were issues that for the Sustainable Hydropower World determined the limits and possibilities of the debate. The conflict gradually evolved into a dispute over who was able to provide objective information to develop baseline studies, and thereby, who should be responsible for producing publicly credible knowledge (Barandiarán, 2015). For example, while both parties argued that it was the state who should be responsible for gathering baseline data and monitor whether or not the project could cause any impact, both promoters and opponents criticized the state officials for being unable to understand, let alone

process complex social, ecological, and geological data. However, when independent scientific expertise was given, it was fiercely discredited. Developers often invalidated expert criticism mobilized by opponents arguing that they were based on emotion rather than technical rigor. In turn, academic and scientific consultants hired by HidroAysén were severely questioned by environmentalists. Any data presented by HidroAysén researchers were deemed insufficient, biased, or simply sloppy. For example, to show their commitment to ecological conservation developers gave baseline data on the population of *huemules* (Patagonian deer), but environmentalists were unimpressed. As a representative of the CDP pointed out, "Most of the observations were made on a helicopter, but how will they be able to see a *huemul* from a helicopter?"

The result was an atmosphere of generalized skepticism or *sustainable agnosticism*: all attempts to enact a sustainable reality found doubt and disbelief. The category of sustainability as a technical aim and ethical background, together with the mobilization of technoscience as a way to confirm the objectivity of sustainability, draw the contours of an entire world in which reality was experienced and practiced in very particular ways.

Conclusion

By accounting for the histories, stories, and events that have shaped the HidroAysén project and conflict, in this chapter we have attempted to disentangle the messy threads through which hydropower has been socially and materially crafted. Instead of treating hydropower as a project that is real in a univocal way, we have followed the multiple worlds with, in, and through which HidroAysén became real. In doing so, we have presented three different – yet not entirely independent – hydropower worlds. In these, different versions of water, energy, and nature, as well as diverse visions of progress encounter each other in not fully peaceful ways.

In tracing the different worldings, we attempt to articulate new analytics to face ever- growing conflicts around hydropower. The possibility of a more just and diverse hydropower development in Chile and elsewhere requires the capacity to recognize that what is being mobilized, harmed, or challenged when collectives disagree are whole worlds. The recognition of the ontological nature of these disputes, we claim, is the first step not to solve conflicts, but to imagine more sustainable futures in a changing planet.

In this sense, it seems crucial to recognize that the three worlds we have described here are not alone, nor are they harmless. As we write these conclusions, Mapuche communities are mobilizing against the development of mini-hydros in southern Chile – insofar as in whichever world these projects are 'real,' they violently clash with

Indigenous life projects. There are, then, other worlds – non-western worlds – for which the three hydropower realities we have described are in divergence. This chapter is hence not intended to define a closed archive of hydropower realities, but to broaden the spectrum of worlds within which water, land, justice, and knowledge become lively components of multiple existences.

CHAPTER 4

The social life of rivers and the hydropower conflicts in *Wallmapu*

This chapter has been published as:

Maite Hernando-Arrese (2017) "La vida social de los ríos y los conflictos hidroeléctricos en el *Wallmapu*". En *A contracorriente. Agua y conflicto en América Latina*. Vila-Benites y Bonelli (Eds.) Abya Yala, Ecuador: Quito. 137-157.

Translated by Michelle Castro

Introduction

The sociotechnical transition towards renewable energy development, promoted as part of the policy to mitigate and adapt to global climate change, produces a series of repercussions at the local level. In the Chilean case, particularly in the central-southern region of the country, the Ministry of Energy outlined plans to construct more than 100 small hydropower projects (SHPs) in the next two years. This development has sparked tensions, as most of these dams were planned to be constructed in areas within the ancestral territory of the Mapuche[16] people, the *Wallmapu*, where several organizations have openly expressed their opposition to these projects.

The government as well as the private sector argue that SHPs are crucial for decarbonizing the energy matrix and that they have a low socio-environmental impact. However, the explosive growth of SHPs poses a threat to Mapuche communities and their livelihoods.

In the region of La Araucanía, various Mapuche organizations have summoned the Minister of Energy for his statements regarding the construction of 53 hydroelectric projects in their territories, as this violates the process of 'Free, Prior, and Informed Consent,' as established by the 169 Convention, which was ratified by the Chilean government in 2008. In the region of Los Ríos, opposition to several hydropower projects (such as Central Neltume and Central Rucatayo) has led Mapuche organizations to sue the Chilean State in international human rights courts.

The lack of territorial planning regarding SHPs, the limited or nonexistent supervision by the government, and the lack of information provided to the communities, have generated a high level of distrust toward the state. This has resulted in the widespread rejection of the development model promoted by these projects.

To comprehend the scope and nature of these conflicts, this chapter addresses the ontological differences related to water. On the one hand, the Chilean government and electricity companies advocate for an extractivist development model in which water and rivers are regarded as strategic resources for the generation of electricity. On the other hand, Mapuche organizations from Curarrehue and Panguipulli promote

16 'Mapuche' is the name of the ancestral inhabitants of southern Chile and Argentina (*Wallmapu*, the Mapuche country), which means means 'people' (che) of the 'land' (mapu) in their own language, Mapudungún. According to the latest National Socioeconomic Characterization Survey [*Encuesta de Caracterización Socioeconómica Nacional* (CASEN)], 7.6% of the national population identifies as Mapuche. Although they have traditionally inhabited between the Biobío Region and the Los Lagos regions, due to the military occupation of their territories by the Chilean State, since the mid-19th century, they have migrated to the capital, Santiago, where approximately 30% of the national Mapuche population currently resides. In this chapter, the term 'Mapuche' is used both in singular and plural, respecting the usage employed by the Mapuche people themselves. According to Marimán (2012), the component 'che' renders the word plural, making it redundant to say 'Mapuches.'

a development model based on the Good Living or *Küme mongen*, wherein the inhabitants, through the revival of Mapuche knowledge and practices, define how they want to live in their territories. This implies a complex web of relationships in which nature is not subordinated to humankind. Rather, the network consists of reciprocal relations between humans and non-humans.

The first part of this chapter provides a brief description of the global context in which NCREs have emerged and their implications in Chile. Subsequently, the economic and political framework that has fostered hydroelectric development in the country is presented, along with examples of resistance from Mapuche organizations. Following this, the explosive increase in SHPs (encouraged by the State under an extractivist development scheme) in areas that were declared biosphere reserves by UNESCO and where Mapuche communities engage in various tourism-related activities, is critically examined. Next, the ontological conflict that arises due to contrasting positions among the state, private sector, and Mapuche communities regarding water is explored. Finally, and connected to the aforementioned, the fifth part of this chapter delves into the social life of rivers from two perspectives: one that considers them inert matter and another that appreciates them as vibrant matter.

Climate change and the promotion of NCREs

Over the last decades, a consensus has been reached among various academic, political, and social actors, indicating that human activities have influenced climate change on this planet. To address this issue, two international forums, the Intergovernmental Panel on Climate Change (IPCC) and the United Nations Framework Convention on Climate Change (UNFCCC), were established with the objective of generating, evaluating, and disseminating scientific information to design strategies to confront this phenomenon. Moreover, the global significance of climate change has led some scholars (Crutzen, 2006; Steffen et al., 2007; Zalasiewicz et al., 2008) to propose the onset of a new geological era, the Anthropocene[17], in which human activities have irreversibly transformed terrestrial ecosystems. It has been suggested that the tipping point that initiated this trend was the Industrial Revolution, a period in which the intensive exploitation of coal, oil, and gas gave rise to 'fossil fuel societies,' embodying the process of Western modernization (Urry, 2014:4).

17 Some authors argue that this concept, on the one hand, allows for a critical rethinking of the dichotomous and hierarchical relationship between nature/humanity, which has been a foundational pillar of modernity (Haraway et al., 2015). However, on the other hand, humanity continues to play a central role, both in the generation of the problem and in providing solutions. In its place, the concept of Capitalocene (Haraway, 2015) has been suggested to specify that the transformations we are witnessing today do not solely emerge from the Industrial Revolution nor depend solely on isolated human actions. Instead, they are shaped by the way in which humans and non-humans mutually affect each other under the capitalist mode of production.

The IPCC and UNFCCC have indicated that strategies to address climate change must take place along two central axes. On the one hand, there is a need to 'mitigate' climate effects by reducing the sources of greenhouse gas emissions through energy savings. On the other hand, an 'adaptation' process must be initiated through a 'sociotechnical turn,' focusing on technological innovation. One of the primary measures to address along both axes is the diversification of energy matrices. This diversification could be accomplished through the gradual incorporation of NCRE projects.

In the case of Chile, the Center for Innovation and Promotion of Sustainable Energies (CIFES by its Spanish acronym) was created in 2009 after several reforms aimed at incorporating the phenomenon of climate change into the national political agenda (Blanco and Fuenzalida, 2013). The main objective of this center is to create a network of power-generating companies and actors related to financing (banks, private investors, and public investment funds) to promote the development of NCRE projects. The creation of the CIFES emerged as a strategy in response to the commitment made by the governments of Sebastián Piñera and Michelle Bachelet at the Conference of the Parties (COP). They set a goal for the NCRE to represent 25% of the energy matrix by 2025. This objective is also central to the new energy policy created by the government in 2015 (Energía, 2050), which focuses on ensuring energy security and sustainable economic growth.

Notably, the country's energy matrix is highly dependent on rainfall variations and the import of fossil fuels; over 62% of the total primary energy supply comes from abroad (Sohr, 2012). The incorporation of NCREs into the electric system has doubled in the last three years, reaching 11.4% of the total in 2015 (CIFES, 2015). However, the increase of renewable energy projects has not been accompanied by adequate territorial planning of energy infrastructures, nor has there been decision-making process in which communities residing in the surrounding areas could participate in a meaningful way (Tecklin et al., 2011). In this context, the 'sociotechnical turn' emerges as a 'neoliberal counterrevolution,' oriented towards taking advantage of the current social and ecological instability (Nelson 2015), paving the way for a new cycle of capital accumulation (Harris 2010), popularly known as 'green growth' or 'green economy.' Consequently, technological advancement in energy generation with lower greenhouse gas emissions is not necessarily good in itself, considering the benefits that carbon capture has generated for capitalism at the expense of local communities. (Braun, 2015; Harris, 2010).

Neoliberalism, water, and hydropower conflicts

Chile ranks seventh worldwide in the classification of 'economic freedom,'[18] and it is the only Latin American country considered 'free' in purely economic terms. The annual Gross Domestic Product (GDP) per capita is approximately US$25,000; however, there is an inequitable distribution of wealth, with over 50% of the population earning less than US$5,400, while the top 1% earns approximately US$269,000 per year (Durán and Kremerman, 2015). As some authors have pointed out (Ffrench-Davis, 2007; Harvey, 2007; Taylor, 2006), this situation is largely explained by the accelerated privatization of public goods and natural resources, and the reduction of state regulatory power during the Pinochet dictatorship (1973-1990). During this period, a group of economists following Milton Friedman's theories led a counter-revolutionary process aimed at reducing the regulatory role of the state, reversing the nationalization of assets through privatization, expanding private exploitation of natural resources, facilitating foreign direct investment, and promoting greater trade freedom (Harvey, 2007).

Regarding water resources, the Water Code was promulgated in 1981, establishing that water is a national public resource but grants individuals, mostly private industries, the right to exploit it. This policy framework allowed the accumulation of water rights[19] in the hands of a few companies closely linked to the military government, benefitting from the free and perpetual allocation of these rights without usage obligations or transferability restrictions (Hernando and Blanco, 2016). With the return of democracy, a long debate began in order to reform the Water Code, which was finally implemented in 2005. The revision of the Water Code arose in response to the intervention of the Anti-Monopoly Commission of the Court of Defense of Free Competition in 2004, which was alarmed by the high concentration of water rights without productive use and resolve not granting new rights until a new reform was undertaken. Consequently, in the 2005 version of the Water Code, a patent fee was established for those who owned water rights but were not using them. The goal was to prevent private speculation, hoarding, and monopoly over water rights. This facilitated the entrance of new actors, primarily in the electricity market (Bauer, 2015).

18 This classification, created by The Heritage Foundation, is based on qualitative and quantitative factors grouped into four categories: 1) rule of law (property rights, absence of corruption); 2) limited government (fiscal freedom, government spending); 3) regulatory efficiency (trade freedom, labor freedom, monetary freedom); and 4) open markets (freedom of trade, freedom of investment, economic freedom). Considering these factors, each country is ranked on a scale of 1 to 100. For more information, see: www.heritage.org. (Access date: March 2, 2016).

19 There are two types of water use rights, consumptive and non-consumptive, which can be exchanged in the water market. Consumptive use rights (for consumption) are mainly held by mining, forestry, and agribusiness companies, while non-consumptive rights (not for consumption) have been accumulated by hydroelectric companies and speculative enterprises.

Currently, non-consumptive water rights are mainly concentrated in the hands of three major corporations: Colbún, AES Gener, and Endesa Chile, accounting for 40% of the total constituted rights. On the other hand, hydropower represents approximately 40% of the country's energy matrix, with approximately half of the projects located in the pre-Andean and Andean Mountain ranges between the Biobío and the Los Lagos regions, nearly the territories where one-third of the total Mapuche population resides. The localization of hydroelectric projects in Mapuche territory became particularly emblematic after the construction of the Ralco hydroelectric plant in the Biobío region in the early 1990s. Following an extensive struggle with Mapuche communities, the electricity company Endesa reached an agreement that resulted in the displacement of approximately one hundred people and the flooding of more than 3,000 hectares, including cemeteries and sacred sites (Aylwin, 2002; Azocar et al., 2005). The two primary opponents of the project, Nicolasa, and Berta Quintremán, became a symbol marking the beginning of the social struggle against the extractivist development model imposed by the State and the private sector. The Quintremán sisters were spokespersons for the organization *Mapu Domuche Newén* (Women with the Earth's Force) that filed an international petition with the Inter-American Commission on Human Rights of the Organization of American States (OAS) against the Chilean state in 2002 for failing to ensure judicial protection due to their Indigenous status, for violating their right to life, and for not guaranteeing the protection of their families, personal integrity, freedom of conscience, and religion.

The Ralco conflict motivated many Mapuche leaders to establish their own organizations with the aim of reinventing their collective identity, voicing their demands (primarily the recovery of usurped territory), and confronting marginalization in decision-making processes concerning matters that directly affect them. In this regard, the 'Indigenous rise' (Bengoa, 2000) should be understood not as a nostalgic process of reclaiming ancestral customs and roots, but as a political movement that, on the one hand, addresses the crisis of the neoliberal system and modernity in general and, on the other hand, is oriented towards the conditions of justice and equity for Indigenous peoples.

Small hydroelectric plants (SHPs): neo-extractivism of 'renewable' water resources in areas of interest for conservation and tourism

The construction of SHPs has been presented by the Chilean state and electricity companies as a panacea to realize the diversification of the energy matrix and to deal with climate change and the socio-environmental conflicts that arise in response to the rejection of other electricity generation projects (Sohr, 2012). Nevertheless, in recent years, various sectors have begun to debate the increase of projects submitted to the SEA. The current government's '100 Minihydros Plan,' to be developed by 2018 presented during the Minihydro Latin American Fair in 2015, has raised concerns among Mapuche communities in the South of the country. There are currently eighty-three mini-hydro plants in operation, and this figure is expected to have been increased to 155 plants by 2018. Currently, according to the APEMEC, there are 130 mini hydro plants operating in the country.

One of the main concerns is that despite Chile's ratification of the ILO 169 Convention in 2008, the evaluation of this type of project does not require citizen participation, nor an Indigenous consultation process. The ILO 169 Convention stipulates that Indigenous peoples must be consulted beforehand and be in good faith regarding the development of projects that may directly affect them (Articles 6, 15, and 17).

The development of SHPs has emerged as a new paradigm for the exploitation of water resources, justified by the urgency of generating mitigation and adaptation strategies to address climate change. However, local communities are not adequately involved in the design, planning, or benefits of such projects. This new extractivist model, or neo-extractivism, has been predominantly promoted by progressive left-wing governments in Latin America over the past few decades. Unlike previous practices, the state now assumes a more active role in controlling extractive economies through reforms and subsidies that prioritize connections with global markets without internalizing social or environmental costs (Gudynas, 2009).

Additionally, during the project localization process, the absence of proper territorial planning becomes evident, leading to a series of contradictions, such as the placement of SHPs facilities in areas internationally recognized for their biodiversity. In southern Chile, some projects are planned to be located in rivers and estuaries within UNESCO-designated biosphere reserves, as is the case for the Añihuarraqui (9 MW) and Doña Alicia (6.3 MW) projects in the Reserva de ls Biósfera Araucarias (RBA), in the La Araucanía region, and the Central Neltume project (490 MW) in the Reserva de la Biósfera de los Bosques Templados Lluviosos de los Andes Australes (RBATLAA), in the Los Ríos

region.[20] Mapuche communities, environmental organizations, and project opponents have urged both UNESCO and national authorities to reconsider, discuss, and assess the compatibility of carrying out energy projects in these areas.

> *[...] the process of expanding the Araucaria Biosphere Reserve and its subsequent nomination to UNESCO reflects the broad consensus and institutional support from the Chilean State, which would be deeply affected by the decision of an investor external to the region. [This is] a situation that should be brought to the attention of UNESCO, but [it is] also a matter that public entities, which have strived to expand social agreements and strengthen public institutions, must reflect upon.*
> *(PAC-Ministerio del Medio Ambiente, 2015).*

It should be noted that in the early 1990s, after seventeen years of dictatorship, the new democratic government committed to initiating a 'policy of a new deal' with the Mapuche people. The growing demand of Mapuche communities for the recovery of their territory and effective or binding political participation mechanisms that would allow them to halt the development of various projects affecting their quality of life (De la Maza, 2016) prompted the government to develop new policies aimed at increasing access to education and healthcare and fostering economic development in rural Mapuche localities. Consequently, the State, the private sector, and some NGOs promoted the development of Indigenous tourism with a dual purpose: to address the high poverty rates and to strengthen Mapuche identity and culture. In this sense, the recognition of a collective identity simultaneously entailed representing the rural Mapuche people as disadvantaged individuals and, therefore, their subordination to the 'national interest,' meaning their productive integration into economic development.

Through various strategies, notably the '*Orígenes* Program' developed by the State and the Inter-American Development Bank (2001-2011), a multicultural governance process with neoliberal characteristics began shaping the political agenda. This process featured positive discrimination for obtaining public subsidies, support from development intervention experts, and recognition of the specificities of the Mapuche people to effectively integrate them into market-based economic strategies (Krell, 2012:2). However, in the process of recognizing and strengthening collective identity and promoting entrepreneurship, primarily through tourism, new social actors have emerged who defend their territories, livelihoods, and identity through their connection

20 Although this project does not fall into the category of a small or medium-sized power plant, it is of great interest because it presents itself as a run-of-the-river hydropower plant, despite utilizing Lake Neltume as a natural reservoir, thus raising the lake's water level. Furthermore, this project is developed by Endesa, the same electric company that carried out the Ralco project, and in 2015, they decided to withdraw from the Central Neltume project to improve relations with the community. Concerning the Doña Alicia project, under pressure from Mapuche communities, environmental agencies of the State ordered the suspension of environmental permits in May 2016. However, in June of the same year, the Environmental Court ruled to nullify this.

to global markets and networks (Krell, 2012:1). In this regard, tourism has been creatively embraced by local communities, and constitutes a central argument against the threat of extractive projects in their territories.

Nature/culture: The threat to Ngenko

Current debates in social theory have emphasized the dynamic mobility, and constant change of 'the social,' highlighting its recursiveness to originate multiple and fluid spaces (Mol and Law, 1994), where human dominance over nature does not necessarily prevail. Latour points out that we must abandon the conception of nature as the gathering of all things 'non-social' because such opposition does not exist in practice (2005:160). On the other hand, Blaser and De la Cadena call for situating the nature/culture dichotomy within a particular ontology (modern), which is just one of the many ways of 'being' (2009:6).

Before delving into the ontologies of water, it is necessary to clarify what I mean by 'ontology,' since this term is often used with various connotations. By ontology, I refer to the understanding and assertions of reality that we construct based on our everyday practices and interactions, involving not only humans, but also non-humans (Blaser, 2009). Thus, we can no longer speak of the existence of a singular reality or ontology, but rather of the emergence of multiple realities and ontologies stemming from these practices and interactions. Through ontological discussions, notions of objectivity have been challenged, giving rise to different ways of defining what belongs to the real and stablish the conditions or possibilities with which we coexist (Mol, 1999).

Within the Mapuche cosmovision[21], landscapes are inhabited by powerful entities known as *Ngen*, which form part of a native ethnoecology and serve as the foundation for the balance between humans, non-humans, and nature, preventing the exploitation and misuse of natural resources as well as their contamination (Grebe, 1994:47). Mapuche people must seek permission to use resources protected by the *Ngen*; otherwise, they may face negative consequences, often involving natural disasters (Herrmann, 2006:655).

> *"The earthquake of 1960, we experienced it in our area, and through my experience, I know how the hills transformed and the earth opened up, which terrifies me. I witnessed*

21 I have chosen to use the word cosmovision and not ontology in the case of the Mapuche due to the widespread use that this word has in academia (Caniuqueo, 2011; Marimán et al., 2006) and popular fields. However, my use is analogous to that of ontology, and in that sense, it does not refer to a perspective regarding a transcendental reality, but rather to the idea that what people think and feel about their world is aligned with the way in which this world is materially.

> *how the hills collapsed, and I fear that ENDESA's projects may disturb the land. [...] I don't want the Rehue (palenque) [a vertical wooden altar] to be disturbed because it could put us in danger and result in punishment; we might fall ill, or perhaps some punishment may come from Gnechen (God). For the ancient ones left the palenque there; it was born there, and that cannot be taken away [...] By disturbing the palenque, they are interfering with our religion, with the beliefs I have known since birth, which is why I don't want them to come and destroy or change all of that [...] if they lift or move the palenque, the Ngen of the lake, who is the king of the water, might leave (PAC-Ministerio del Medio Ambiente, 2011).*

The control that a *Ngen* exerts over the elements is based on, as Bonelli argues, a relationship of extreme interdependence, as the elements protected by *Ngen* would cease to exist in its absence, just as the *Ngen* depends on them for its own existence (2013:415). Within the Mapuche cosmovision, the idea of one person dominating another person or the places inhabited by the *Ngen* is inconceivable, as this would disrupt the ideals of equality, reciprocity, and solidarity among community members (Bacigalupo, 1997:179). For Mapuche people, water is considered alive because it flows, sings in the morning, has names, connects the human world with the non-human world (Skewes et al., 2011:49). The materiality of the river, that is, the role the river plays in Mapuche cosmovision and social life, challenges our Western conceptions of what we define as subject and object since, from this perspective, the river is an entity full of agency rather than an inert object to which only meanings are assigned (Di Giminiani, 2015:494). Thus, the world is not composed of passive and domesticable objects (other-than-human) and initially dominating subjects (human), but rather of materialities that constantly engage in a network of relationships that change over time (Bennett, 2004; Haraway, 2015; Kirksey and Helmreich, 2010).

For Mapuche people, the land, *Mapu,* is not the same as for the *Winka*. [22] For the Mapuche, the land is a unity with all its goods and wealth (air, soil, water, and subsoil); the Mapuche cosmovision does not divide the land, the subsoil, waters, plants, animals, and their products, as they are all part of the Mapuche territory (Sánchez Curihuentro, 2001:34).

The development of SHPs in southern Chile gave rise to an ontological conflict regarding water, involving at least two different ways of defining and relating to it. On the one hand, as previously indicated, water holds great importance for Mapuche

22 *Winka* is the way in which the Mapuche refer to others who do not belong to their ethnic group. However, it also has a negative connotation as it is used to refer to thieves, murderers, usurpers, rapists, and foreigners.

people[23], as it is an abundant resource in their territory that has historically determined human settlements, productive practices, and social relations between humans and non-humans. According to the Mapuche cosmovision, water is renewed thanks to the existence of *Ngenko*[24], as long as human beings request permission to use it, conduct *Ngillatún* ceremonies, and respect the site where the *Ngen* lives.

On the other hand, the Chilean State operates under the Water Code that considers water both a social and an economic good and, in this sense, an input or inert matter that can be deterritorialized and reterritorialized according to the interests of those who hold usage rights[25].

Although for the Chilean State and the electricity companies, the social and environmental impact associated with SHPs development may be considered less significant than those of large dams, in Mapuche territory these projects would significantly alter the daily life and traditions of the communities, as well as fragment native forests and riparian ecosystems, threatening endangered endemic species (Haughney, 2012). As a sign of its commitment for political shift toward Indigenous peoples and the environment, the Chilean Government has ratified the ILO 169 Convention and has requested UNESCO to declare the RBA and RBBTLAA in regions of La Araucanía and Los Ríos[26], respectively. Nevertheless, in practice, it approves the development of projects in favor of private companies without the free, prior, and informed consent of the communities, and, in some cases, it even restricts the possibility of citizen participation in making observations.

23 The work of Neira et al. (2012) presents a series of categories and meanings that the Mapuche inhabitants of Boroa-Filu-Lawen attribute to the ecological spaces within their territory. Through a participatory methodology, they discussed fourteen spaces, nine of which were described based on their connection with water: "This has immense importance in the Mapuche culture, as evidenced by the incorporation of the morpheme "ko" in five of the spaces, which in Mapudungun means water. Among these spaces are: *menoko* (swampy site with a spring), *trayenko* (flowing water, waterfall, or small stream), *fotrako* ('marsh' or 'muddy ground'), *chayako* ('hollow with a spring'), and *wiñoko* ('place where a river or estuary turns). Additionally, the *mallin* ('flooded place') and *lewfu* ('river') were mentioned as spaces identified by their relation to water" (pp. 317-318).

24 *Ko* (or Co) means "water" in Mapudungun, thus, the *Ngenko* is the "owner and guardian of water."

25 According to Deleuze and Guattari (1993), deterritorialization: "[...] is clearly understood when the State appropriates the territory of local groups [...] The territory has become desert land, but a celestial Foreigner comes to re-found the territory or reterritorialize the land" (p. 87). In this sense, reterritorialization corresponds to new assemblages of territory, posed as a "new future land" (p. 90).

26 For more information see: http://portal.UNESCO.org/geogra- phy / es / ev.php-url_id = 11434 & url_do = do_topic & url_section = 201.html. Consultation: March 21, 2016.

The social life of rivers

In their journey from the Andes Mountains to the Pacific Ocean, rivers interact continuously, intermittently, or occasionally with a wide range of heterogeneous elements –humans, non-humans, organic, inorganic, technological, or natural – so that when they flow, rivers are not "just the water that runs through their channels; they are also the environment that exists, grows, lives, and depends on them" (PAC-Ministerio del Medio Ambiente 2016). The balance between humans and non-humans is central to Mapuche People, who, through various narratives and practices, seek to convey the importance of maintaining horizontal relationships between individuals, communities, and nature (Boerger and González, 2008:45). In their cosmovision, their individual and collective actions are governed by a set of norms (*az mapu*) aimed at generating harmony between the inner self and all the forces surrounding individuals within their natural and cosmic environments (Sánchez Curihuentro, 2001).

However, under the current energy security policy promoted by the Chilean State, rivers are defined solely as a key resource for the country, primarily because of their energy potential, allowing them to follow their natural course means that the river water is 'lost' in the sea. [27] Within this ontology, rivers are mere passive objects of an autonomous and external reality to social relations (Skewes et al., 2011:43) and they are valued only to the extent that their exploitation generates foreign exchange for the country's 'progress'. Máximo Pacheco, in his role as Minister of Energy, stated that:

> *Chile must continue to develop hydroelectric projects [...] [The] impact produced by the lack of investment in adequate infrastructure for the sector affects the growth of the economy and makes it more difficult to correct the scourge of poverty (El Economista, 2014).*

From 1994, following the promulgation of Law 19.300, the former National Commission for the Environment and the Ministry of the Environment established that projects or activities likely to cause environmental impact[28] should undergo the SEA of the Ministry of the Environment (MMA, by its Spanish acronym). Depending on the potential impacts, projects should be presented as Environmental Impact Declarations (DIA, by its Spanish acronym) or EIA, although none guarantee binding participation. In DIAs,

27 Sebastián Piñera, President of Chile during the period 2010-2014 and 2018-2022, pointed out on a public account that "84% of the water from the rivers is lost in the sea."

28 If the project generates at least one of the following effects, it must be submitted to SEIA through an EIA; otherwise, it must be presented as a DIA. These criteria are as follow: a) risk to public health; b) significant adverse effects on the quantity and quality of renewable natural resources; c) resettlement of human communities or significant alteration of the ways of life and customs of human groups; d) proximity to populations, resources, and protected areas susceptible to being affected; e) significant alteration, in terms of magnitude or duration, of the landscape or tourist value of an area; and f) alteration of cultural heritage.

citizen participation is only considered if two citizen organizations with legal personality or at least ten directly affected individuals submit a written request within ten days after the project is published in the official gazette. This has proven to be an inefficient mechanism of information for rural communities (Hernando and Blanco, 2016). In EIAs, the participation period is long (60 days), and the SEA establishes mechanisms (informational meetings and technical support) to ensure informed community participation in the qualification process. Given the characteristics of SHPs projects, they mainly enter the SEA as DIAs, in which the impacts generated outside their 'area of influence' are excluded.

> *The holder [company presenting the project] does not refer to the socio-cultural and human impact that the establishment of this type of project could have on the Mapuche communities of the area and only mentions them in terms of being located outside the project's intended area of influence. It does not acknowledge that these communities have been ancestrally mobilizing beyond the boundaries of the current lands they occupy and that their culture conceives the forest and river spaces as part of their territory, where they routinely engage in activities such as gathering, fishing, recreation, and most importantly, express their culture and spirituality. Natural spaces are an extension of their lives for them [...] This type of project represents a new way of encroaching upon the will of the Mapuche people and poses a serious threat to essential resources for life: the Co (water), the Mapu (land), and everything that is sustained by them: the forest, animals, human beings, and life as a whole*
> *(PAC-Ministerio del Medio Ambiente, 2011).*

Considering the social lives of rivers and viewing them as agents allows us to comprehend the multiple realities of which they are part, extending beyond the normative and institutional spheres that govern them. Rivers, particularly their banks, serve as spaces where a significant part of the social, emotional, and everyday lives of rural, peasant, and Indigenous communities unfolds. Consequently, non-human others play a central role, not as inert matter but as a vibrant matter (Bennett, 2004) that permeates through various dimensions of the daily life of communities settled in riparian areas.

> *The rivers have always represented, for the Mapuche people, corridors of life, and in the past, they were pathways to travel to other places, to meet other communities, because visiting each other is very important for the Mapuche. The rivers and streams give life to sacred herbs, which are, in essence, our medicine. The rivers nourish the forest, and the forest nourishes the Mapuche*
> *(PAC-Ministerio del Medio Ambiente, 2011).*

In this context of accumulation by dispossession, the struggle of the Mapuche people revolves around defending their way of life, which arises from practices and alliances – both ancient and new – aimed at reinventing their collective being (Guattari, 2008). In doing so, ancestral Mapuche knowledge is evoked to overcome the dichotomy between culture and nature and the predominance of the former over the latter -a characteristic of 'fossil fuel societies.' However, this ancestral knowledge does not remain unchanged over time, but is updated and transformed through new local experiences (Deleuze and Guattari, 2004).

Conclusion

Energy is a determinant aspect in shaping societies and their organization. Fossil fuels marked an important stage, particularly for Western societies, which, through the extensive extraction and use of coal, oil, and gas, propelled a development model founded on the division between culture and nature. However, in recent years, this model has faced profound criticism because scientific evidence shows that anthropogenic activities have caused irreversible damage to terrestrial ecosystems, leading to a series of international agreements to rectify this situation. Among the measures taken, there has been an urgent need to decarbonize energy matrices by gradually incorporating NCREs.

Given Chile's geographical conditions, hydroelectric power production through the construction of SHPs has emerged as a panacea to fulfill international commitments. Through various reforms, successive governments have activated the productive use of water rights that were in the hands of private individuals and hydroelectric companies, without questioning the timing or conditions (during the military dictatorship) under which they were granted. Additionally, the pressure to comply the 20/25 goal has resulted in projects being located without adequate territorial planning, leading to conflicts with rural Mapuche communities in the Wallmapu, which are particularly affected by the new energy security policy.

Through various mechanisms, these communities have organized a resistance movement that has led to the withdrawal of some projects (Central Doña Alicia and Central Neltume) from the environmental evaluation processes. The arguments put forward, in most cases, are related to the impacts of this new form of extractivism on Mapuche cosmovision and livelihoods that are now strongly linked to the development of tourism initiatives (camping, cabins, restaurants, etc.). Such initiatives would be threatened by the visual impacts of high-voltage power lines and the interventions of the power plants in watercourses.

Rivers, the protagonists of these conflicts, are the protagonist of ontological conflicts. On the one hand, they represent a key resource for electricity production, and regulatory frameworks grant individuals the right to use them productively. On the other hand, for Mapuche people, rivers not only mean flowing water, but also the life that flourishes on their banks. Rivers also serve as a way to connect with other worlds. Moreover, the strategies developed by the State appear to be contradictory, as while it promotes the development of SHPs in Mapuche territory, it requests these same areas to be declared sites of significant conservation value and enter agreements that establish greater (binding) participation of Indigenous communities in decision-making processes. However, in practice, the projects are designed, located, and approved without appropriate studies that account for the social and environmental impacts they generate, and without incorporating the communities participatively in their evaluation or in the economic benefits that they would generate.

Under the current long-term energy security policy in Chile, rivers are still perceived as elements of a separate inert nature that can be exploited by humans. They are seen solely as a water flow that, if not utilized, would be lost into the sea, as if humans and non-humans did not depend on that flow for their existence.

CHAPTER 5

The micropolitical life of energy projects: A collaborative exploration of injustice and resistance to small hydropower projects in the Wallmapu, Southern Chile

This chapter has been published as:

Maite Hernando-Arrese and Elisabet Dueholm Rasch (2022) The micropolitical life of energy projects: A collaborative exploration of injustice and resistance to small hydropower projects in the Wallmapu, Southern Chile, Energy Research & Social Science, Volume 83. https://doi.org/10.1016/j.erss.2021.102332.

Introduction

Since the early 1990s, hydropower developments have become the center of socio-environmental conflicts in Latin America, particularly because such developments have often implied the involuntary resettlement of local communities, like in the case of the Uruguay dam in Brazil, the Chixoy dam in Guatemala, the Peñol-Guatapé dam in Colombia, and the Ralco dam in Chile (Gutman, 1994; Orellana, 2005). Although hydropower has been heralded as clean, renewable energy, local communities have mobilized around issues of environmental justice and degradation, as well as around issues of participation related to the construction of hydropower dams. Communities assert that the state does not safeguard Indigenous peoples' right to participate in decision-making processes regarding the transition towards renewable energy (Orellana, 2005; Zárate-Toledo et al., 2019; Martínez, 2020). Hence, conflicts over hydropower are not only about what is considered renewable energy and its possible environmental impacts, but also about power, participation, and decision-making. This raises questions about what a just transition towards renewable energy entails. In this chapter, we focus on the key role that community leaders often play in these conflicts, which have the power to provoke, on the one hand, cathartic processes within communities that resist development projects, and to bring about hope for social change and a just energy transition on the other (Dufy et al., 2019)

Research on the social and environmental effects of large hydropower dams on Indigenous communities in Latin America has generated a rich literature that explores the connections between hydropower development and environmental justice (Carruthers and Rodríguez, 2009; Latta, 2007; Latta and Wittman, 2010; Schlosberg et al., 2010), water justice (Boelens et al., 2011; Boelens, 2009), social movement strategies (Schaeffer, 2017, Gutiérrez, 2019) and environmental politics (Fearnside, 1999, 2001). It was not until recently, however, that scholars started to study the socio-ecological impacts related to the SHPs boom, focusing on environmental issues such as deforestation, habitat fragmentation, post-construction alteration to flow regimes, and the flooding of terrestrial habitats (Anderson et al., 2006; Couto and Olden, 2018; Lange et al., 2018). A small number of studies have investigated social, economic, and political issues related to hydropower development, such as the erosion of community cohesion, lack of information, limited access to natural resources, and lack of recognition of Indigenous knowledge and practices (Almeida, 2014; Kelly, 2019). These studies often focus on energy transition scenarios and unravel issues of power and politics at the macro level, but often leave questions about how community leaders navigate the boom of SHPs in their territories unanswered and, on a broader level, leave the consequences of energy transition policies untouched. This chapter aims to understand how community leaders navigate social unrest, resistance, and ideas about energy development related

to SHPs. In so doing, we seek to contribute to an emerging body of literature on the micropolitics of renewable energy contestations (Dunlap, 2018; Lakhanpal, 2019; Lord, 2016) that seeks to understand how community leaders engage in resistance to energy development to protect their territories.

We explored the role of community leaders in local energy transition processes through two case studies in Chile. Hydropower became part of the country's energy transition scenario in 2015, after hydropower projects started to multiply rapidly. The SHPs featured in this chapter are located in two municipalities in *Wallmapu*, the ancestral territory of the Indigenous Mapuche people. One was in the municipality of Panguipulli (Tranquil project, 2.9 MW) and the other in Curarrehue (Añihuarraqui project, 9 MW) (see Fig. 5).

The remainder of this chapter is organized as follows. First, we discuss the transition to renewable energy in Indigenous Mapuche territories and provide a background discussion on SHPs. Next, we discuss our theoretical framework on micropolitical ecology and hope. Following the Methods section, we present the findings. In so doing, we first focus on the process of knowing and communicating about SHPs as experienced by community leaders, and second, we explore how communities negotiate with hydropower companies and what happens when community leaders either resist or participate in decision-making processes. Finally, we explore changes in community politics and how community leaders experience and reflect on broader social transformations associated with the development of SHPs. The chapter concludes with a discussion and conclusion.

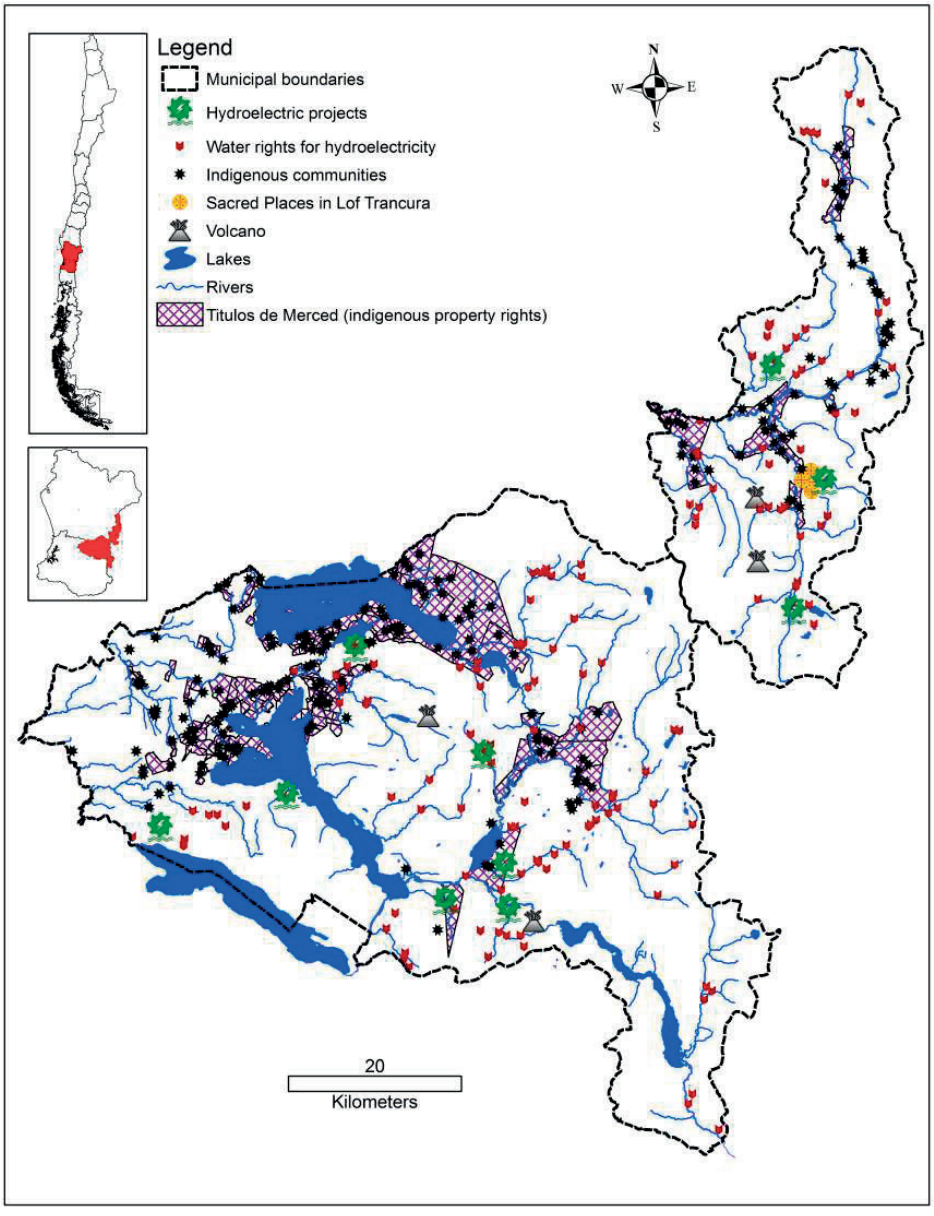


Figure 5. *Map of study areas.*

The transition to renewable energy and hydropower conflicts in Indigenous territories

Since the 1980s, several judicial reforms have deregulated and privatized the energy sector in most Latin American countries after decades of control by state-owned monopolies (Fischer and Serra, 2000; Ocampo and Martin, 2003). Gradually, the role of the state transformed from being an investor and operator to being a subsidiary of transnational corporations. As part of this process, non-consumptive water rights for hydropower development were massively allocated to private companies after the enactment of the Water Code in 1981.[29] In line with this trend, the Chilean state, and the multinational energy corporation Endesa[30] built two hydroelectric dams in the early 2000s, Pangue and Ralco, in the Mapuche Indigenous territories of Alto Bío Bio in the Bío Bio region. The approval of the Ralco Dam (690 Mw) was marked by irregularities (Agostini et., al 2017) and involved the displacement of approximately one hundred Pewenche[31] families when the project flooded more than 3000 ha. By 2009, Alto Bío Bio was declared the poorest county in Chile, with 44.5 percent of the population living below the poverty line (Palomino-Schalscha, 2012).

The irregularities around the Ralco Dam were a turning point in how hydropower development initiatives were managed in Chile. In addition, it sparked massive demonstrations, environmental campaigns, and legal activism against Endesa's hydropower dams, such as Central Neltume (490 MW) in *Wallmapu*[32] and HidroAysén (2,750 Mw) in Patagonia. These protests were successful, because they succeeded not only in stopping the construction of both projects, but also in influencing a paradigm shift in Chilean energy policy, stepping away from building large dams (>400 MW), and moving towards the construction of small hydropower dams.

During President Michelle Bachelet's second term (2014–2018), the government presented a long-term energy policy, in which private investment in renewable energy initiatives was strongly encouraged. This proposal was supported by the multilateral development banks. In 2014, the Ministry of Energy presented the '100 Minihydros Plan.' This plan featured a list of projects, mainly located in Mapuche territory between the Bío Bio and Los Lagos Regions, meant to be prioritized by public institutions with environmental competencies. The government and private sector have promoted these projects as the best sustainable alternative to large hydropower dams (Kelly,

29 For a comprehensive account of the Water Code and its consequences see Bauer (1995, 2004), and Budds (2013). To understand the specific impacts of the water code for Indigenous peoples see Budds (2009b).

30 Endesa was a state-owned electric company that started to be privatized during the last years of the Pinochet dictatorship.

31 The Pewenche are a subgroup of the Mapuche.

32 *Wallmapu* is the mapudungun (mapuche language) name given to the territory of the Mapuche people that span southern Chile and Argentina between the Atlantic and Pacific oceans.

2019; Kelly et al., 2017). The idea that SHPs are 'small' and therefore do not generate significant socio-ecological impacts, dominates this discourse. Seventy-nine percent of the SHPs were concentrated between the Bío Bio and Los Lagos Regions. Mapuche communities assert that some of these projects are located on sites of cultural and spiritual significance (Kelly, 2019), and scholars and activists argue that most of these projects have been approved without the free, prior, and informed consent of Mapuche communities (Kelly, 2019; Kelly et al., 2017).

Policymakers often pay little attention to the impacts of SHPs because they assume that these projects are environmentally friendly and cause no harm to local communities (Kelly, 2019). For the same reason, they are frequently regarded as 'green,' and thus support the transition towards renewable energy. It has been stressed that these projects are the best alternative to large hydropower projects (Kelly, 2019; Premalatha et al., 2014) because they 'only' temporarily divert water from the river. However, as Couto and Olden (2018) have shown, the operation mode of SHPs can include water reservoirs or diversion structures that cause significant alterations to the natural flows of rivers. (Kelly et al., 2017) also convincingly argued that there is a lack of knowledge on the cumulative social and environmental impacts of SHPs.

Another assumption underpinning the turn towards SHPs is that they do not cause the same level of environmental conflict as large hydropower dams. However, as documented by Lakhanpal (2016), the development of the Kukke (24 MW) small hydropower dam in the Western Ghats of Karnataka and Maharashtra, was resisted by local people who argued that the project would flood their lands, jeopardize their livelihoods, and cause conflicts within communities. Yaka (2017) on her turn, shows how women activists in the Eastern Black Sea region of Turkey resist the development of both large and SHPs because they consider the river as part of their social, cultural, and biological existence. Latin American Indigenous peoples also stress the social and cultural meaning that they attach to rivers in their resistance towards SHPs (Almeida, 2019; Kelly, 2019)

Notwithstanding the above issues and the distrust that civil society holds towards public institutions leading the energy transition (Vallejos-Romero et al., 2020), Chilean authorities continue to promote SHPs as less invasive than large hydropower dams, and as an eco-friendly solution to enhance people's livelihoods (Gutiérrez et al., 2019; Premalatha et al., 2014). Consequently, SHPs are approved either with or without proper consultation, ignoring community leaders' demands for power, autonomy, and self-determination. As pointed out by the former Ministry of Energy, Máximo Pacheco, during the inauguration act of the Pulelfu SHP in 2015: "The formula of having SHPs is more harmonious, eco-friendly and easier for companies to implement (…) more harmonious with the surrounding communities."

Hope and/in micropolitics

In this chapter, we analyze how community leaders navigate the social impacts and conflicts produced by SHPs by using a micropolitical ecology approach. Such an approach allows for analyzing social fragmentation processes provoked by the different expectations and positions of community members towards development projects (Rasch and Köhne, 2017) and, consequently, how ideas about what a just energy transition entails are contested and negotiated at a local level.

Micropolitical ecology is an approach that developed when political ecology scholars started to apply an actor-oriented ethnographic methodology to study the micropolitics of socio-environmental conflicts, namely, the intra-community disagreements about development projects imposed either by the state or by private companies (Horowitz, 2008, 2011). Inspired by this approach, we explore the multiple dimensions of the conflicts provoked by the development of SHPs within Mapuche communities, between Mapuche communities and the state, and between Mapuche communities and private companies. Such an approach allows for considering socio-environmental conflicts in all their complexities, going beyond a simple dichotomy between communities and companies. In this regard, we highlight how injustices and asymmetric power relations involved in the construction of SHPs may jeopardize a just energy transition that aims to achieve a low carbon society and contribute to equity and fairness for people whose livelihoods may be affected at the same time (Sovacool, 2021; McCauley et al., 2019)

We specifically address how community leaders bring about hope as well as avenues for social change and a just transition towards renewable energy within their communities and beyond. That is, we seek to take seriously into account 'the sparks of hope' amid the sorrow and anguish caused by socio-environmental conflicts (Duffy et al., 2019; Anderson, 2017). Though we acknowledge that micropolitics is not synonymous with resistance (Anderson, 2017), we do believe that socio-environmental conflicts have the power to provoke cathartic processes within communities that resist development projects, motivating them to create or engage with virtuous actions to defend their place. We propose to add 'hope' as a central ingredient to the micropolitical analysis of resistance to capture how community leaders navigate and make plans for the future. Hope is rooted in a desire for social change and as such is what holds dreams and practices together and motivates community leaders to work on development alternatives amidst conflict and despair.

Such an approach also opens avenues for looking into, in the words of Escobar (2008): "The creation of a novel sense of belonging linked to the political construction of a collective life project," (pp. 68). In this vein, we embrace community leaders' endeavors

to defend their territories through the creation or strengthening of alternative development paths based on local knowledge and practices. Following Guattari (2008), we understand these paths as "molecular domains of sensibility, intelligence and desire" in which community leaders mobilize affective relations of care and solidarity to demonstrate the incompatibility of their ways of life with energy projects imposed on them from the outside. In doing so, community leaders act on a territorial scale, organizing different activities that contribute to generating social cohesion and encourage social inclusion. We understand social cohesion as the unity and harmony of communal existence (Venturini and Latour, 2009) that emerges alongside differences, controversies, and fractures that develop while navigating local differences concerning energy issues.

To sum up, we add two intimately related elements to the analysis of socio-environmental conflicts: the role of community leaders in these conflicts and how they ignite sparks of hope to develop new ways into a just energy future. This is particularly relevant in Latin America, where during the past decade human rights defenders and community leaders have been massively under threat, at risk, or killed for defending their territories and promoting human rights (Global Witness, 2020).

Methods

This chapter is based on ethnographic fieldwork in the municipalities Curarrehue and Panguipulli (September 2016 to March 2017 and November 2018 to February 2019). by the first author (Maite Hernando) and a research assistant (Javiera Naranjo). The first author is a Chilean researcher who has worked with Mapuche communities for over ten years. She lived in a Mapuche community in Panguipulli during these periods, and she constantly traveled to meet community leaders and participate in meetings and demonstrations. The two case studies were chosen because: 1) they were relatively close to one another; 2) they were well-known for community leaders' opposition to SHPs projects; 3) key informants in both communities were willing to participate in the research; and 4) community leaders of both cases know and trust each another. The substantive reason for selecting these cases was the different participatory experiences of community leaders with SHPs. While in Curarrehue the community participated in the first *Consulta Indígena* in the Araucanía region, the project in Panguipulli was quickly approved without proper consultation processes.

The research is rooted in a constructivist research paradigm (Lecompte and Schensul, 2013), meaning that there is a close collaboration between the researchers and the research participants while enabling the latter to tell their stories (Crabtree and Miller,

1999). As such, we have invited research participants to describe their views on their own reality, enabling us to better understand their actions (Kvale, 2007). Such an approach does not allow for generalizations in terms of numbers, but it does allow for a better understanding of, in our case, the dynamics of micropolitics and hope for a just energy future. Such an approach also allowed for a participatory and collaborative research design. This means that we aimed to include local communities as collaborators in the research with the purpose of bridging theory and practice to advance a more activist anthropology (Lecompte and Schensul, 2013; Crabtree and Miller, 1999). Following Kirsch (2010), we consider doing collaborative engaged research as the only way of doing ethically sound research on issues that involve unequal power relations. In addition, it is also the only way of gaining trust in, and getting access to, such research settings.

In violent social contexts, ethnographers might be mistaken for spies, which puts at risk the development of their research (Sluka, 1990). The same goes for doing research in the Wallmapu. Doubts and suspicions concerning the purpose of research were based on previous experiences of what community leaders call 'academic extractivism', a practice through which outsider scholars 'extract' the knowledge of local people for their own benefit (Icaza, 2018). To prevent such academic extractivism, Mapuche leaders of Panguipulli hand us over a document entitled: 'Co-Investigation Protocol: Panguipulli Territory' during fieldwork. This document proposed five ethical principles: 1) Mapuche communities and the inhabitants of the territories are not 'objects' but 'subjects' of research; 2) Research projects are co-investigations from the moment that they start; 3) Research projects should overcome academic extractivism; 4) Collaboration and networking replace competitiveness and academic capitalism; and 5) Knowledge of the 21st century is democratic, decentralized, and territorial. In addition, the document defined a set of requirements such as informing the community about the study by organizing meetings, rather than individually; permanent communication with community members during the research process; transparency about the funding sources; delivery of the data, findings, and results in a format accessible and understandable by everyone[33]. Along these lines, some ethical concerns such as anonymity and informed consent of research participants were constantly discussed, rather than 'check boxed' at one moment in time. All community leaders preferred not to be anonymized, but to be acknowledged for their participation and actions in publications about the research.

33 Most of the information of one of the case studies, Añihuarraqui, was collaboratively collected for a short documentary entitled "I armed myself! Seeds and women companionship in the *Wallmapu*," available on YouTube: https://www.youtube.com/watch?v=om6SNr9cCag https://www.youtube.com/watch?v=om6SNr9cCag

The eleven spokespersons of Mapuche communities and environmental organizations (six men and five women) that participated in this study all mobilized against hydropower developments. Conversing with people in favor of these projects, could have caused mistrust and reduced chances of building rapport with key informants from the affected communities. As we aim to better understand why community leaders might resist renewable energy projects and the role they play in mediating between communities and companies, we took the methodological decision to only work with community leaders opposing SHPs projects. The claims that we make, therefore, are not about the communities, but exclusively about community leaders. Such a focus might be considered as limited, as community leaders do not represent all voices of the communities involved in the research. At the same time, a focus on community leaders produces new insights, we hope, about the possible role of community leaders in realizing a just energy transition. These community leaders might tend to romanticize the time before the projects; however, we think that a collaborative project should (also) give importance to storytelling and peoples' self-representation.

Our research methods included participant observation, unstructured and semi-structured interviews, informal conversations, audiovisual interviews recordings, and a one-day workshop. In addition, we gathered legal documents, institutional and media reports, and literature about both cases. In the case of Tránguil (in Panguipulli), the first author participated in several meetings and demonstrations to demand justice for Macarena Valdés, a Mapuche woman who died in the context of the resistance against the SHP Tranquil. During the second fieldwork in 2019, we organized a workshop to discuss the social impacts of SHPs in La Araucanía and Los Ríos Regions together with some Mapuche and environmental leaders of the Parlamento and the Red por la Defensa de los Territorios (RDT). The topics discussed during this activity were collectively proposed and agreed upon in a meeting realized two weeks before the workshop took place. The workshop was audio recorded with the permission of participants and transcribed afterwards.

It was not possible to interview hydropower company staff. In the case of the Añihuarraqui project, it was not clear which company administrated the project because it was sold, and it was impossible to find information about the transactions. The company owner of the Tranquil project did not answer our calls and e-mails. We assume that this was because of the ongoing conflict with the Comunidad Newén de Tránguil.

Data from field notes, interviews, video recordings and secondary sources were managed by the first author and collectively discussed and analyzed in an iterative dialogue with the second author (Elisabet Rasch) during the writing process. The data were collected without prior coding. This allowed for our analytical framework to be rooted in the

fieldwork findings, the ideas of community leaders, and to conduct a thematic analysis. All data were reviewed, and on this basis the main themes were established. As such, there has been an on-going analysis to refine the themes and the story the analysis tells (Braun and Clarke, 2006)

The political life of SHPs in the Wallmapu

In this section we examine the three dimensions of the political life of SHPs that were established during the workshops with community leaders: 1) access to information, 2) participation in decision-making processes, and 3) changes in community politics and lived experiences of community leaders. In each of these dimensions, along with identifying micropolitical tensions that affect community leaders, we explore how they ignite sparks of hope in their communities amidst cathartic processes.

Access to information

"When the company came with its project, it caught us by surprise, we did not even know what a hydroelectric power plant was." Ely, a Mapuche social worker from Curarrehue, and spokesperson of the Environmental and Cultural Council Lof Trankura (hereafter: Lof Trankura) recalls when and how she first heard about the SHP Añihuarraqui and the company GDT Negocios. Some people of the Mapuche community Camilo Coñoequir-Lloftonekul, one of the three communities that would probably be directly affected by the project, had requested her support. They considered her as one of the few people they could trust and who would understand the information about the project. Ely grew up in Pocolpén, an area close to the community, so everyone knew her and her family. Back then she was working in the municipality of Curarrehue, which involved a lot of fieldwork activities in the community.

The lack of information about the hydropower project voiced by Ely is typical for hydropower developments in Curarrehue. People opposing the project here perceived the lack of information as a strategy that was intentionally used to disempower the community. In informal conversations, community leaders would often mention that the company's presence in the community had triggered feelings of distrust. For instance, the worst thing for Anita, a Mapuche defender, "[…] is that we have to go out and look for information by ourselves, and people find out about the project belatedly, when everything is already negotiated."

At the same time, people that supported the project were invited to attend an information meeting where they reached an agreement with the company to exchange their lands and receive a small amount of money (US 600). According to Ely, these

negotiations caused tensions among community members who used to make such decisions collectively: "Half of the community agreed with the project, and then the community was divided when the rest, who did not negotiate with the company, decided to cut off those who did so from the community for some years." Slowly, the company started to become present within the community and cause frictions at the local level, complicating a simple dichotomy between 'the community' and 'the company.'

People in Curarrehue mainly opposed the hydropower plant because of the foreseen lack of water and the threat to their Nguillatuwe, a sacred place for ceremonies. Curarrehue had suffered droughts for years – it is debated for how long.[34] In summertime, inhabitants of the community could only obtain water by way of a tank truck. The once-mighty *Trankura* and *Maichín* rivers have not flooded in 10 years, reducing the stream of other rivers such as the *Pichi-Trankura*. According to Ely, "it is on this river, and 200 m from a site of cultural significance, where the company wants to place the hydroelectric power project Añihuarraqui." It is "not only the Eltün or the Nguillatuwe that are sites of cultural significance," Simón the werkén of the Lof Trankura explained, "[…] but the land, the forest, the waterfalls, the mountains, the river, and everything alive around us."

In Panguipulli, the process evolved in another way. Here, community leaders were completely unaware of the expansion of small hydropower initiatives in their territory. According to Pedro, a former guerrilla and member of a local environmental organization, they were still celebrating that they had successfully stopped the Central Neltume project, a hydroelectric power dam of 490 MW that would have flooded a ceremonial and sacred site, when they heard that the Tranquil project was under construction. Julia, the Lonko (chief) of the Comunidad Newén de Tránguil, was the first to denounce the company RP Global in October 2015 for invading 8 ha of her land. By then, the construction of the power plant had already started. When she observed the trucks passing by to the construction site, she recalled that a few years before —when she was opposing the Central Neltume project —some people had told her that if that dam would not be built, several SHPs would be put up instead. "I knew about these projects, and although my sisters told me I was crazy, I kept my position without signing any papers," she stated during the workshop. Signing documents is a very delicate issue in the *Wallmapu*. Many Mapuche people lost their lands because of signing fraudulent documents. Not signing papers, thus, can be considered an act of resistance towards the company.

34 While experts have pointed out that water shortages started around 2010 because of climate change, some Mapuche communities stated that it started during the 1990s because of the replacement of the native forest by exotic forest plantation monocultures. 2016 and 2017, when ethnographic fieldwork was carried out, were particularly dry years.

After being violently threatened by her brother and brother-in-law, who both worked for the company, Julia and her female family members decided to ask Rubén, an environmental engineer who had recently settled in Tránguil, to help them to sue the company. They accused the company of taking over their land, causing environmental damage to the river, and of having omitted the existence of an Indigenous community in their carta de pertinencia —a formal letter in which the company must describe the project and ask regional authorities whether it should undergo an environmental assessment. These were the main reasons for people in Tránguil to oppose the hydropower plant.

When the authorities did not respond to their letters and emails, the opponents to the project decided to actively organize themselves in the Comunidad Newén de Tránguil (hereafter: Comunidad). Rubén was appointed as its spokesperson because, as an environmental engineer, he was experienced in dealing with legal and technical reports. It should be noted, however, that some members of the community did not agree with the appointment of Rubén, as they considered him an outsider with somewhat radical ideas. The Comunidad organized a peaceful roadblock, demanding the immediate presence of the local authorities. A few days later, as Ruben recalls, the "regional public officers of different ministries went up to the mountain to listen to us, and the company was inspected for the first time." However, and despite having been fined for diverting about sixteen watercourses and cutting down ancient native forests, the generator company, RP Global, continued the construction of the hydropower plant generator and the engine room. The electric transmission company, SAESA, started the replacement of single-phase cables for three-phase cables in the pylons that had already been installed decades ago along the road to Tránguil only a few meters away from Rubén's house.

After the roadblock, violence intensified. Community members were threatened and intimidated by company workers and proponents of the project. As Rubén's property owner explained in an interview with the local media:

> *"A few days after the roadblock, two men and neighbors that work for the company RP Global came to my house to demand that I kick Rubén off of my property because he was revolutionizing the people a lot, and, as they told me, there were many people who wanted to harm him and his family."*
> *(Puelche Comunicaciones 2021).*

The day after this threat, Rubén's wife, Macarena Valdés, was found dead. Her 11-year-old son found her hanging from a beam of her house, supposedly after having committed suicide. However, her family declared that she had been killed. Their suspicions were confirmed the day after, when workers of SAESA, backed by the semi-military Chilean

police, attempted to replace the power cable in Tranquil. This first attempt was prevented by Rubén's friends and family – Rubén was not at home that day. Macarena's death intimidated several members of the communities that supported the family, who wanted to dissociate themselves from Rubén because they feared reprisals. Consequently, a few weeks later the company came back and achieved its goal, and the project began to operate in November 2016.

Both case studies show that it is difficult to obtain information about energy projects. Combined with a lack of trust in the Chilean government and private companies, and growing tensions within communities, this exacerbates inhabitants' suspicions of foul play by companies and authorities. In both cases, community leaders challenged the lack of participatory mechanisms by way of creating new community organizations, the Lof Trankura and the Comunidad, and engaging with a wide range of actors that supported them in achieving their goals. Both organizations not only resist the development model imposed by the Chilean state, but also show alternative paths for restoring hope and social cohesion in the communities.

Participation, non-participation, and negotiation

The second dimension in which micropolitical relations became reconfigured in the two communities is participation in decision-making processes. Experiences of participation are very dissimilar in both cases because the law establishes that only the projects larger than 3 MW –like the Añihuarraqui project– are subject to environmental evaluation and citizen participation processes because it is assumed that this installed capacity has greater impacts.

In Curarrehue, people of the Camilo Coñoequir Lloftonekul community, and members of the Lof Trankura —created by Mapuche and non-Mapuche opponents to the hydropower project— were summoned to participate in an *Consulta Indígena* process organized by national authorities and the company. The company, GTD Negocios S.A, organized a first meeting in Curarrehue due to the important levels of conflict in this community. They invited the sitting mayor of the town who, as Ely recalls, communicated to the people that it was better not to oppose the project since both the country and the municipality would benefit from it.

However, conflicts between opponents of the project from the community and the company continued. The SEA of the La Araucanía Region offered support to the company to carry out an *Consulta Indígena* to resolve the existing tensions. This is a mechanism based 169 Convention —ratified by the Chilean state in 2008— that must be carried out when a company submits an EIA of a project that could affect Indigenous communities. There was an important level of expectation among community leaders

that this would become a turning point in the history of Indigenous communities in the country. However, they were also skeptical because the Chilean state has always been reluctant to grant constitutional recognition to Indigenous peoples and consequently has determined that 169 Convention and the *Consulta Indígena* are non-binding (Bauer, 2018; Carter, 2010). Therefore, it is not possible to ban an investment project in Indigenous territories based on the outcome of such a consultation. As Ely pointed out:

> *"The Indigenous consultation and the citizen participation process was a strategy to force us to say that the company complied with everything the law says. The Indigenous consultation is consultative in nature, which means that it is non-binding, therefore, it does not consider whether you reject a project. We unanimously rejected the project, but the company went ahead with it anyway (…) if we say no, it does not matter."*

During the consultation process, the company proposed a series of measures related to mitigation, repair, or financial compensation. In so doing, the company followed a paternalistic logic of dependence. Because of the intervention of the company, the communities would be lifted out of poverty (Peralta, 2015), was the reasoning. According to Simón, the representative of GTD Negocios approached the community by offering money, ping-pong tables, televisions, and the improvement of the social headquarters. Such paternalistic rationality reflects the assumption that Indigenous people must be educated to ensure the country's progress and development. Community leaders point out that there is a radical difference between the way Indigenous people relate to nature and the way the company does, what some authors have called ontological conflicts (De la Cadena and Blaser, 2018). According to Ely, there was a long discussion to decide whether to participate or not in the consultation process and finally:

> *"We thought that participating would allow us to defend the territory, so we decided to do it. We had to review long evaluation reports and look at each of the mitigation measures. But the company tried to trick us into a bad deal. For example, since they planned to cut down ancient trees, the reforestation proposal was to replace them with a green painted wall of chipboard."*

For Mapuche community leaders, this mitigation measure illustrates a radically different cosmovision, implying the encroachment on forest reserves, as well as on their right to self-determination. As Simón pointed out in a public speech: "We are aware that everything around us, rivers, forest, mountains, has life, has a Ngen and a Newén (force)." This ontological position was widely embraced by ecologists who were opposing the development of other hydropower projects such as the SHP Puesco-Momolluco in Curarrehue.

The Añihuarraqui project was finally approved. However, it has not been built yet, thanks to —according to community members — the strong resistance that the project faces. During fieldwork, there were rumors that the company decided to sell the project to a national company, Cristalería Chile, which was developing a recycling project with the support of the Municipality, but hitherto there has been no official communication about it.

In Panguipulli the process went more smoothly for the company. In 2012 it quickly obtained the approval of its project through a Carta de Pertinencia, and consequently, citizen participation was not encouraged by the government. Rubén sarcastically explains that through this procedure the company must present a:

> *"4- or 5-page report, declaring that they will generate no impact and, therefore, ask the director of the environmental assessment service (SEA) if it is really necessary for this eco-friendly, transparent, and plenty of angel's company to submit their project to the SEA."*

The director of the SEA decided to approve the Carta de Pertinencia of the project in less than a week, deeming it unnecessary for the company to submit its project to environmental assessment. However, the company only showed up two years after it had received the approval. "At that time," Rubén recalls, "We knew that by law there is a two-year term to object to the project," referring to the legally established time to reject a project.

In 2016 the project was almost ready. The Comunidad requested help from an experienced organization: the Parlamento. As Jorge, the Werkén of the Parlamento, explained during several informal conversations, the purpose of creating the organization was to support different Mapuche communities that defend their territories against hydroelectric projects such as Central Neltume and Central Trayenko. In doing so, they sought support from national and international environmental and human rights NGOs, and established alliances with a wide network of Indigenous organizations. This social movement led by the Parlamento reached its goal and the companies finally withdrew their projects. This was also related to changes in the energy market and energy policies, as we will discuss in the next section.

In alliance with the Parlamento, the Comunidad organized a roadblock, demanding to meet with regional authorities in Tránguil. RP Global was also invited to attend these meetings but never reacted to the invitation. It was in this context of incipient organizing that Macarena was murdered. Rubén, however, continued participating in meetings where community members requested to clarify two aspects of the hydropower

project. First, why the company did not submit an EIA considering that the project was not only located on Indigenous Mapuche territory but also in a conservation area of tourist interest protected by state law; and second, why the road to Tránguil—where the power line passes— that was for neighborhood use only, stepped into the hands of the state. The communication with authorities was abruptly ended when the semi-military Chilean police shielded company workers as they replaced the cables of the power line, ignoring the agreement between regional authorities and the community not to continue these constructions as long as the dialogue would last.

In sum, formal procedures for participation in decision-making processes about SHPs depend on the installed capacity in megawatts of a project and are of consultative nature only. Community leaders play a leading role in contesting decision-making processes. They demand to be taken seriously by government officials. In doing so, they create new organizations, as well as alliances with (inter)national Indigenous and environmental organizations. Although they achieved their goals, the lack of constitutional recognition and possibilities for self-determination have prevented Mapuche peoples from exercising political power. Nonetheless, the current political context of Chile, where a new constitution is being drafted by a popularly elected body that includes reserved seats for Indigenous peoples, sparks some hope for a plurinational state.

Changes in community politics and lived experiences of community leaders

Both in Curarrehue and Panguipulli, SHPs have produced local processes of social fragmentation and violence. Community leaders cope with these impacts in their personal lives, but also face the challenge of restoring social cohesion within their communities. Although community leaders perceive this as an exhausting mission, they also highlight the support they have received from different people and networks that showed them 'sparks of hope' in the form of alternative paths of development that diverge from neoliberalism.

Conflicts in Curarrehue started when half of the community members agreed to negotiate with the company in exchange for land and money, and the other half did not. Tensions increased after residents in a community had decided that people who accepted to give their land within that community to the company in exchange for another piece of land of the same size outside the community, would be cut off, or 'suspended' from the community. Most of the people in Curarrehue depend economically on state subsidies and loans. By suspending their official status as a member of the community, those who negotiated with the company would not be allowed to receive this aid from the state. This marked a 'before' and an 'after' in the community for Ely:

"Before 2012 community life in the Lof was nice. There was a lot of collaboration between neighbors because we are almost all from the same family. However, due to the intervention of this project in our territory and its economic offers, this relation changed radically. We have become enemies; we have lost closeness and trust in each other and that has been terrible. The change has been enormous."

In an informal conversation with Ely's sister, she told that nowadays the bus trip to the city is silent and that people avoid looking at each other. Although we did not conduct fieldwork in the time before the project, community leaders usually remembered that time with nostalgia for the close-knit community they perceived they were. Even though the hydropower dam has not been constructed, social relations have been broken. This reduces the chances of successfully confronting power structures that reinforce and maintain global injustice, oppression, and violence (Wieviorka, 2009).

Paradoxically, this conflict has also contributed to expanding and strengthening collaborative networks at a local and national level. For instance, the opponents of SHPs organized a yearly kayak race and musical festival in Curarrehue. For about six years, 2,000–3,000 people gathered in *Puesco*, a sacred place located at the foothills of the Rucapillán, to participate in a massive music event. However, in 2019 the Lof Trankura proposed to discontinue the festival because it started to divide the people that were all against the hydropower developments; while some of them supported the event, others considered that it transforms a site of great spiritual value, including its non-human inhabitants, into a tourist attraction.

Facing a divided community, Anita, Ely, and other women from Curarrehue that are part of the political organizations *Guardianas del Territorio* and *Feria Wualüng* have worked hard to repair the social fabric by encouraging and guiding the creation of territorial organizations, such as the *Consejo de Lonkos de Curarrehue* and the *Parlamento Territorial Mapuche de Curarrehue*. Imagining other forms of development was a major step in doing so. As Anita explained:

"Our main aim has been to encourage different development initiatives based on local knowledge that allow people to stay in the territory and live and work with their families. I think that as long as people know and understand the land they live on, we can be autonomous in decision making."

All the above-mentioned organizations foster new ways of conceiving development and hope for another future through the recovery of Mapuche ancestral knowledge and practices. These organizations have organized themselves for the defense of life, representing a moral plea to defend the commons against enclosure and destruction

by private interests, as well as a strong mechanism for social cohesion at the local level. By rising for the defense of life, opponents to the hydropower project have brought together new alliances involving members of Indigenous communities and activists who confront hegemonic forms of democracy and stand, among other things, for human and non-human rights and territorial autonomy. This has created tensions within, but also alliances across, communities.

In Panguipulli the process of social fragmentation was more dramatic. Conflicts within the community arose when a small group of women found out that some men were negotiating with the company and had fraudulently made some women from the community sign in favor of the project. Julia recalls that some men of the community had told their mothers, wives, and sisters to sign a document for getting wooden looms and food supplies. This document authorized the company to operate on their property. When Julia and her sisters confronted these men, including one of their brothers who worked for the company, they responded violently. As Julia recalled: "They told us that they were going to come to burn down our houses, that they were going to burn us like rats, and even my own brother threatened me with a chainsaw."

The death of Macarena changed the course of the struggle in the community. The resistance against the company and the hydropower project continued but lost its strength when the project started to operate. At the same time, Rubén started a national and international campaign for justice for Macarena. While some community members doubted the supposed suicide and argued that Macarena had been killed, others said that Macarena had been depressed. Some people even blamed Rubén, deepening the conflicts within the community. As Bea, a Werkén of the Parlamento pointed out during a workshop:

> *"When conflicts reach that level of intensity, there is very little we can do to cohere that community again, it was damaged forever, and we have not enough strength nor time to heal these tremendous wounds that remain in the community."*

The company started its operations in November 2016, while the Comunidad filed a legal complaint against it for taking over 8 ha of their land. At the time of drafting this chapter, this judicial process remains unsolved. Simultaneously, Rubén and the members of the Red de Justicia para Macarena Valdés organized several events to raise money to hire a trusted forensic expert to conduct a second autopsy. After a year and a half, the results confirmed that Macarena was already dead when her body was hung, and therefore the participation of third parties could not be ruled out. To date, the people responsible for her death have not been found.

While some conflicts are deepened, in other spaces new collaborations emerge. In Panguipulli for instance, the Comunidad expanded and strengthened its networks. At the local level, the community allied with other Mapuche communities that have organized an annual cultural kayak tour in Liquiñe and Neltume since 2013, with the purpose of showing the cultural relevance of rivers for Mapuche people. Led by a Wampo —a one-piece hand-carved boat from a tree trunk— kayakers paddle down the Cua Cua River towards Tránguil and the Neltume Lake. Once there, they can participate in Mapuche ceremonies and dialogues about the history of resistance of the Mapuche communities against hydropower projects. Gradually, this activity has become part of the cultural tourism agenda, gaining popularity and local sponsors.

Both in Curarrehue and Panguipulli, community leaders participate in networks for territorial autonomy, self-government, and food sovereignty that have promoted and consolidated a community-based economy based on short value chains, allowing community members to sell their products (food, woodcraft, wool clothing, etc.) locally and at a fair price. These initiatives, particularly summer local fairs led by women, are popular among young people because here they can meet and share with people from other places and participate in cultural and sport activities. These are all examples of proposals developed by, as Bea aptly put it, "ourselves, both Mapuche and non Mapuche living in this territory." Community leaders' struggles are not only about resisting hydropower projects, but also about opening avenues for imagining the future and development in alternative ways. In so doing, they construct networks that cross the boundaries of communities, from the local level to national organizations and back again, and at the same time navigate tensions between opponents and proponents of SHPs within the communities.

Discussion and conclusion

In this chapter we examined why Mapuche communities continue to resist small-scale hydropower initiatives that are presented as eco-friendly solutions to generate hydropower in the context of the energy transition towards renewable energy. Going beyond grand narratives of neoliberal dispossession and imposed energy security policies in Indigenous territories, this chapter focused on the role that community leaders might play in the realization of a just energy transition. By way of unraveling the micropolitics of the conflicts provoked by small hydropower initiatives, we showed that such micropolitical processes also produce 'sparks of hope' (Anderson, 2017). We demonstrated that realizing an energy transition that is also 'just' in terms of participation and recognition of Indigenous peoples is complex and multilayered. Through a collaborative ethnography, we investigated these micropolitical tensions

in three different dimensions of the political life of SHPs, which we will briefly discuss below.

First, we examined community leaders' limited access to information about small hydropower initiatives. Though both cases show that the arrival of energy companies in Mapuche territories creates and exacerbates the process of dispossession, social fragmentation, and rural violence, they also point at the key role community leaders play when a cathartic process occurs. Second, we discussed the processes of participation and negotiation that are organized to reach agreements between the companies and the communities on the mitigation measures of the projects. In this regard, both the state and the companies reproduce a paternalistic logic that dismisses local knowledge and communities' right to self-determination. Nevertheless, community leaders persist in resisting hydropower projects, arguing that they restrict their access to water and impose a modern logic of water that understand it exclusively as a commodity. Finally, we discussed how SHPs have sharpened and deepened the process of social fragmentation within Mapuche communities. A crucial issue here is that instead of safeguarding the rights of Indigenous peoples, the state protects law and order and private investment (Richards, 2016), disregarding community leaders' allegations of usurpation and violence. This has, however, not withheld community leaders from becoming involved in territorial organizing and engaging in different networks. Community leaders, thus, are not powerless victims in the face of unjust energy transition scenarios; they find ways to make their struggle visible and to construct new political and collective life projects, based on their practices and knowledge.

As communities are not monolithic wholes, different perspectives about hydropower projects persist, often resulting in loss of trust or violent conflicts. While for some community leaders renewable energy projects represented a new wave of capitalist expansion in their territories, others argued that it was not the renewable projects themselves, but rather the asymmetric power relations inherent to them that were the problem. Such issues of power and vulnerability that affect both local communities and employees of energy companies are often neglected in the energy transition literature (Sovacool, 2021; Szeman, 2013) whereas as they do shape ideas about what a just energy transition could look like. Our two cases contribute to this literature by demonstrating how the construction of SHPs in Indigenous territories is driven by a top-down paternalistic logic that fails to ameliorate environmental concerns and enable greater social justice (Szeman, 2013), and has instead led to social fragmentation, mistrust, and violence. This hampers an inclusive just transition towards renewable energy and feeds opposition towards projects that are framed as 'green' and 'sustainable.' It can, thus, not be assumed that energy projects will have no or fewer adverse impacts just for being small scale (Kelly, 2019).

The current climate crisis intensifies conflicts over water and particularly affects the rural poor and Indigenous peoples, among other marginalized groups. In this sense, collaborative ethnographic research with these groups opens avenues for understanding specific viewpoints about socio-ecological issues related to hydropower and other types of water infrastructure and can as such contribute to a just energy transition. Community leaders' struggle, as shown in this chapter, is not only a struggle over land and water control, but also an endeavor to empower others to create alternative development paths based on their own place-based conceptions of wellbeing. Amidst the anguish caused by the imposition of top-down energy development policies, the hope that community leaders mobilize generates new social relations and practices that, despite their capacity to enhance people's wellbeing, often remain overlooked.

CHAPTER 6

Hope Movements and the Defense of Life in Socio-Environmental Conflicts in Mapuche Territory

This chapter is based on a paper accepted for publication:

Maite Hernando-Arrese and Elisabet Dueholm Rasch (accepted, forthcoming 2023) Los Movimientos de Esperanza y la Defensa de la Vida en Conflictos Socioambientales en el Territorio Mapuche. Chungará Revista de Antropología Chilena.

Translated by Michelle Castro

Introduction

This chapter focuses on the political role of hope in the utopian reconfiguration of social reality. In particular, we examine the struggle for the defense of life sustained by both Mapuche and non-Mapuche movements and organizations in resistance to hydropower projects in *Wallmapu*, the territory that the Mapuche people have culturally, geographically, and historically inhabited. Drawing on two case studies of 'development conflicts' related to the construction of SHPs in the municipalities of Curarrehue and Panguipulli, this chapter describes and analyzes the social practices that produce and maintain hope amidst apocalypse and despair.

According to Lempert (2018:202), we live in a time marked by an apocalyptic rhetoric, covering everything from the inevitability of climate change to global financial collapse. This plays a central role in theorizing Indigenous futures. As stated by Lempert, this is not only relevant for Indigenous peoples, but also offers valuable proposals for collectively confronting global challenges. On the other hand, Haraway (2016) points out that today there is still a 'comic faith' in the techno-apocalypse, that is, in the technological solutions promising to save humanity from the planetary environmental crisis they themselves created. In this chapter, we ask: How can the contemporary rhetoric of apocalypse, chaos, and uncertainty offer a vision to address, for instance, the global ecological crisis? Could the experiences of those who have lived through the apocalypse demonstrate that there is hope after all? What is the role of hope in political life?

Inspired by Casals and Chiuminatto (2019) and Tsing (2015), we propose that defending life involves mobilizing hope for a paradigm shift that restores the profound notion of community and renews our connection with nature. Thus, this study contributes to the literature on hope movements (Amsler, 2016; Dinerstein and Deneulin, 2012; Dinerstein, 2015) from the perspective of micropolitical ecology (Balderson, 2022; Horowitz, 2008, 2011; Rolnik and Guattari, 2008; Guattari, 2008; Rasch and Köhne, 2017). This approach not only focuses on synergy within local communities, but also pays attention to the tensions and frictions that arise between communities and the state, the community, and companies, and among community members (Horowitz, 2008, 2011). Moreover, this approach allowed us to examine the subjective and emotional dimensions of the struggle, as individuals perceive themselves differently depending on their experiences (Balderson, 2022; Poma and Gravante, 2013, 2019).

In this chapter, we define hope movements as a heterogeneous network of individuals and organizations that promotes social transformation, redefining the notion of community and the relationship between society and nature. According to Rolnik and Guattari (2008), these actions are likely to be replicated by masses fighting for

human dignity. Thus, hope movements' struggles constitute simultaneously a form of counter-hegemonic resistance and a process of re-existence (Leff, 2014) that challenges oppressive colonial hierarchies and narratives based on the idea of 'Indigenous lack,' proposing alternative futures (Carlson and Frazer, 2020:8). Unlike social movements, we consider that these movements are not only composed of those who have been on the same side in a socio-environmental conflict (Diani, 1992), but also include individuals who have not taken a specific position but do contribute to collective and cooperative actions within their communities through their practices and knowledge.

In this chapter, we seek to provide a perspective on these processes through an analysis of hope movements in Chile that engage with the Mapuche struggle against SHPS and the defense of life. The Chilean government has assigned a central role to SHPs in the transition towards renewable energy. One of the initiatives led by the Ministry of Energy was the '100 Minihydros Plan,' which aimed to install around hundred SHPs (below 20 MW) between the Maule and Los Lagos regions. However, several environmental and Indigenous organizations rejected the plan due to the lack of a free, prior, and informed consultation process regarding the projects on the agenda (Cuadra, 2021).

Resistance to hydropower projects is rooted in the relation that Mapuche has with nature, a relation that centralizes the principle of reciprocity between humans and the elements that constitute their environment. In Mapuche cosmovision, both humans and non-humans originate from the same energy source (Neira et al., 2012). This relation is strategically mobilized in the political arena to, in the words of Butler et al. (1992), performatively invoke an identity to politically resist marginalization and the imposition of an extractivist regime that abstracts water from its socio-ecological context, turning it into a commodity (Linton, 2010). In this context, water has become a central emblem of the defense of territory and the struggle for hope, led by social movements emerging in hydropower conflicts.

It is important to note that the water management model in Chile is a radical example of water commodification (Prieto, 2022). This model originated during the military dictatorship of Pinochet through the Water Code of 1981, which states that water is a public property, but the state grants private individuals the rights to use water, which are negotiated with minimal government regulation (Budds, 2020).

This chapter is organized as follows. First, we present our theoretical framework of the apocalyptic turn and hope movements from a micropolitical perspective. Second, we briefly outline our ethnographic and collaborative research approach. Next, we present the results of our research. Finally, we discuss the importance of hope movements in processes of social transformation.

The micropolitical ecology of hope movements

"Reality without a real possibility is not complete…
Concrete utopia stands on the horizon of every reality."
(Bloch 1995:223).

Narratives about the global socio-ecological crisis have taken a decisive 'apocalyptic turn' in the social sciences (Lynch, 2012). Some authors (Latour et al., 2018; Haraway, 2016) point out that the dominant modern discourse suggests that the apocalypse has already occurred, and that we are living in a post-apocalyptic era marked by indifference towards the global ecological crisis and social injustices.

As an analytical category, the apocalypse is useful for describing how relationships between species and places are disrupted by various human activities that might cause extinction of species (Latour et al., 2018). Thus, the apocalypse contributes to examining dramatic events that radically transform the lives of humans and non-humans, ending the world as we know it and evoking strong emotions of anxiety, sadness, and despair among the population (Hickman, 2020; Sangervo et al., 2022). According to Haraway (2016), the idea that the apocalypse is happening is not new, as Indigenous peoples worldwide have experienced the genocide of their people and devastation of their homes for centuries. However, still following Haraway, after mourning the irreversible loss of people, ecosystems, and species, people and places also resurge with a renewed energy. This energy is mobilized by hope, understood not as a chimera but as a concrete and final scenario that can be achieved politically (Bloch, 1995).

Hope is also a central theme in the study of the role of emotions in the emergence of social protests. On the one hand, emotions are an explanatory factor for the origin and scope of social movements as well as their continuity or decline (Jasper, 1998). On the other hand, emotions guide actions and agency in different ways (Barbalet, 1998; Kleres and Wettergren, 2017) since they "open and close new political horizons" (Balderson, 2022). For instance, fear can motivate or inhibit actions such as rage, guilt, and hope (Kleres and Wettergren, 2017). Balderson's work (2022) on mining in Perú shows how hope and fear "act as a mutually reinforcing emotional dynamic" in conflict (Balderson, 2022:10).

Kleres and Wettergren (2017) link hope with the perception of agency that projects 'the self' into the future. Hope can help people find courage to overcome fear and apathy (Wlodarczyk et al., 2017) and inspire action that, in turn, produces more hope (Kleres and Wettergren, 2017). Poma and Gravante (2013, 2019) argued that the personal bonds

created during experiences of struggle give rise to new political and social projects empowering individuals. Thus, hope is also produced by social organization.

In the context of resistance to the expansion of capitalist frontiers, the hope that mobilizes minorities, is the inspiration to transform broad sectors of society (Rolnik and Guattari, 2006:94). Thus, hope emerges as a political strategy that challenges colonial narratives that position modern scientific knowledge as the only possible and correct one, allowing other forms of knowledge to emerge and produce collective subjectivities that inspire new Indigenous futures (Carlson and Frazer, 2020; Leff, 2014).

Dinerstein and Deneulin (2012:587) argue that the concept of social movements does not fully capture the criticism of development and actions for radical social change and the establishment of new forms of collective living for the 'good life' that actors on the ground engage in by reviving their ancestral practices and knowledge. Inspired by post-development perspectives and the Zapatista movement, these authors proposed the term 'hope movements' to refer to movements characterized by: i) their opposition to the existing economic model and its materialist, consumerist, and exploitative nature; ii) their utopian impulse for social transformation; iii) their redefinition of 'development' and their search for alternative forms of development; and iv) their (relative) autonomy from state power (Dinerstein and Deneulin 2012:21).

However, Dinerstein and Deneulin's analysis of Latin American social movements is rather limited, describing them as a monolithic movement, exercising leadership from the margins, mistrusting the state, and refusing to participate in invited spaces (p. 88). By contrast, other authors have showed that social movements are not monolithic voices and are not exempt from internal tensions and divisions (Rousseau and Hudon, 2017; Marsiaj, 2006). For example, Fernando Pairicán, a Mapuche historian and academic, argues that the Mapuche movement has followed not only a 'rupturist path' for self-determination and territorial autonomy, similar to the trajectories described by Dinerstein and Deneulin, but has also opted for a 'political path.' On one hand, the rupturist path is expressed in territory recoveries and occupations, sabotage actions against the forestry industry, and political violence as instruments of collective action. On the other hand, the political path is characterized by mobilization within institutional channels (political parties, municipalities, legislative bodies, etc.) to promote spaces of autonomy and constitutional recognition (Pairicán, 2014:22).

According to Amsler (2016), hope movements are counterhegemonic movements formed by people who fight for radical transformation through the creation of new epistemological frameworks. In this process, hope movements propose a dual exercise of 'pedagogizing the political' and 'politicizing the pedagogical,' recognizing

that epistemological practices and pedagogical-political projects (e.g., Paulo Freire's pedagogy of liberation) are struggles for decolonization and the transformation of a state of domination and cultural and epistemic devastation. These movements partially overlap with what is known as the defense of territory in Latin America, a term that covers a loosely connected network of grassroots initiatives organized against large-scale extractive projects such as hydropower dams and mining (Rasch, 2021; Ilmer, 2018)

Along these lines, it is essential to explore not only the principles on which hope movements are based but also the divergent positions that exist within them. With this objective, we propose using the micropolitical ecology approach to analyze the political role of hope in the conflicts caused by the development of hydropower projects in Mapuche territory and to understand the kinship and solidarity bonds that emerge amidst chaos and despair (Anderson, 2017; Solnit, 2009).

Collaborative ethnography in violent contexts

This chapter is based on ethnographic fieldwork conducted in the municipalities of Curarrehue and Panguipulli (See Fig. 5) by the first author, a Chilean researcher who has been conducting research on hydropower conflicts in Mapuche territory since 2010. During the fieldwork periods from August 2016 to May 2017, and December 2017 to August 2018, she lived in a Mapuche community in the Panguipulli municipality, from where she traveled to other territories.

This research was designed through a close collaboration of the researcher with the participants to ensure that they could narrated their own stories (Crabtree and Miller, 1999). We believe that collaborative and engaged research is the only way to move towards ethically sound research on issues where unequal power relations exist (Kirsch, 2010). Building trust and camaraderie with local actors, who are the main affected and excluded parties (Casillas and Peña, 2020), is crucial to accessing these research environments.

To prevent extractivist academic investigations, leaders from Panguipulli, part of the *Bosque Modelo* initiative, shared a document entitled 'Co-Investigation Protocol: Panguipulli Territory,' prepared in August 2018, with the first author. Based on this document, the following research criteria were proposed: cocreation (incorporating territorial actors from the early stages of the investigative process), ideal counterparts (establishing a permanent collaborative relation with a local actor), shared and explicit expectations, transparency in funding, information feedback (results are shared in a consensus format), and consent, which must be free, prior, informed, and in good faith

throughout research. Using this protocol, we allowed for flexibility to accommodate unexpected encounters and situations during fieldwork (Pleyers, 2023).

Depending on the degree of closeness, availability of time, and interest of the research participants, the methods included participant observation in various spaces for conversation and mobilization, unstructured interviews and informal conversations with leaders, semi-structured interviews with local authorities, and audiovisual recordings and focus group organized and developed collaboratively with leaders. In addition, legal documents, institutional and press reports, as well as literature on both cases were gathered. For instance, in the case of Tránguil, the first author participated in meetings and demonstrations to demand justice for Macarena Valdés, a member of the *Comunidad Newen de Tránguil*, whose body was found in strange circumstances after receiving threats from hydropower company employees.

During the second fieldwork in 2019, the first author organized a focus group to address the social impacts of SHPs in the La Araucanía and Los Ríos regions, along with leaders and members of the Mapuche *Parlamento Koz Koz* and the *Red de Defensa de los Territorios* (RDT, by its Spanish acronym). The topics discussed during this activity were proposed and collectively agreed upon before conducting the focus group, which was recorded in audio form and later transcribed with participants' permission.

As our objective was to better understand why community leaders oppose hydropower projects and the role they play in mediating between communities, the state, and companies, we made the methodological decision to work only with those who oppose these types of projects. Additionally, in the context of this research, conversing with people in favor of SHPs could have caused distrust and reduced the chances of establishing a relationship with key informants in the affected communities. Therefore, our conclusions do not represent the communities, but rather represent specific voices from resistance organizations against renewable energy hydropower projects.

Field notes, interviews, video recordings, and secondary sources were handled by the first author and subsequently discussed and analyzed collectively in an iterative dialogue with research participants and the second author (and supervisor) during fieldwork and the writing process. Data were collected without prior coding. This allowed our analytical framework to be based on fieldwork findings and the ideas of the community leaders. All data were reviewed, and based on this, the main themes were established following a thematic analysis (Braun and Clarck, 2006). As such, there has been an ongoing analysis to refine the themes and stories presented below.

Regarding the study areas, it should be noted that they are dominated by multifunctional farms that combine subsistence forestry, the production of vegetables and cereals (mainly for self-consumption), and small-scale livestock (Benra et. al., 2019). Large estates are concentrated in the headwaters of important hydrographic basins and consequently hold water rights (Benra et al., 2019). In this scenario, caring for water is the main slogan for those who oppose hydropower projects and lead hope movements.

In Curarrehue, 66.5% of the population identifies as Mapuche (INE, 2017). In this municipality, the Añihuarraqui estuary, a tributary of the Trankura River (See Fig. 2), also known as *Pichi Trankura,* is located. Añihuerraqui, on the other hand, was the name used by the GDT Negocios and Enhol-España companies for their 9 MW SHP project on the Añihuarraqui River. A critical aspect of this project is that it would be located within a spiritual territorial complex consisting of a *Nguillatuwe* and an *Eltün* situated on the banks of the Pichi Trankura River and surrounded by the *Peñewe* and *Pünowemanke* hills (Huliñir-Curío, 2018). Although the project was approved in 2015, it has not yet been constructed because of the resistance of local communities.

Panguipulli is a mountainous municipality dominated by temperate rainforests, lakes, and volcanic landscapes. Currently, 43.9% of the population of Panguipulli self-identifies as Mapuche (INE, 2017). Among the mountain ranges of Panguipulli lies Tránguil, a small locality that stretches along the banks of the homonymous river, corresponding to a territory under the title of *Merced* of the Pedro Quilempán Community. Tranquil, on the other hand, is the name given by the Austrian-Chilean company RP Global Chile to its 2.9 MW SHP project built on forest land in Tránguil. While some men in the community began working for the company, a group of women reported that the project had been built on their property, and on top of an Indigenous cemetery. As a result, the community was divided, and the conflict gained strength when the SAESA company began installing the transmission line.

From the apocalypse to hope in the resistance and territorial defense movements of Wallmapu

The apocalypse: Resistance, repression, and criminalization

> *"On several occasions, Pedro would tell me that he was obsessed with the apocalypse before delving into discussions about peak oil, the proliferation of military bases in*

the Andes, the water war, and even quantum physics. Subsequently, he would often declare that the capitalist system was collapsing, and that the world was falling apart."
(First author's field notes, March 2017)

In August 2016, when the fieldwork began, Mapuche leaders in Panguipulli expressed emotions that moved between anger and despondency. The recent death of Macarena Valdés at that time expanded the existing mobilization beyond resistance to a specific hydropower project, revealing the indolence of authorities towards injustices affecting Mapuche community members. The fear that the militarization of Mapuche territories would spread to Panguipulli was a recurring topic in various meetings of Mapuche leaders.

It is worth noting that the Los Ríos region shares a border with the La Araucanía region, and the Panguipulli municipality is located precisely on the border between these two regions. While the focus of the conflict between the Chilean State and Mapuche organizations is in the northern zone of the Araucanía region, it has gradually extended southward, where territorial organizations have carried out acts of sabotage and attacks against companies and individuals. In the context of the conflict over the construction of the SHP Tranquil, Rubén Collío stated that in *Carabineros* of Liquiñe:

"A complaint was filed against me, alleging that I had supposedly threatened to burn a company's truck, but that's nothing more than an excuse to [justify taking measures to] protect the company and militarize our territory."

After the roadblock on August 1, 2016, when leaders expressed their rejection of the project, 13 people from various territorial organizations and social communicators were formally charged for public disturbances in the *Juzgado de Letras y Garantía* of Panguipulli. In response to this accusation, Pedro, a leader of the *Red de Organizaciones Ambientales* and president of the *Bosque Modelo* initiative, said:

"(…) they are using the same methods as in La Araucanía: criminalizing, repressing, mistreating, hitting, sowing division, chaos, fear, a real escalation of violence. But it's not us, the inhabitants, who are doing this; it's the state and some companies that believe everything can be turned into money, including hydropower companies. Instead of creating a new pacification of La Araucanía (...) it's the Chilean State and the companies that need to be pacified, to learn how to talk and dialogue."

Criminalizing protests has led to stigmatization and prejudice against the Mapuche people and social leaders, not only in Chile but throughout Latin America (Delina, 2020; Middeldorp and Le Billon, 2019; Rasch, 2017). At times, there is an unjustified and

disproportionate use of force during police operations, even towards children (Vásquez et al., 2022). However, in Curarrehue and Panguipulli, such operations are scarce or non-existent, and spokespersons consistently call for dialogue to avoid violence against communities. In this regard, Rubén Collío stated:

> *"We will not allow them to bring their war to this peaceful area. Panguipulli has peacefully resisted many [of their] attempts to install dams, with intelligence, which scares them. They fear our conviction [and] our strength. That is why they killed La Negra [(Macarena Valdés)], because they wanted to bring their war here to somehow justify their violence. They want to militarize this area. Is that what they want? We won't allow it."*

Criminalization has had other implications, such as the division between the 'good Mapuche' and the 'bad Mapuche' (Nahuelpan, 2012), which reproduces the distinction between the 'permitted Indian' and the 'forbidden Indian' (Rivera Cusicanqui, 1987), established by neoliberal multiculturalism (Hale, 2002). While the former group engages in dialogue, negotiation, and compliance with the norms set by the elite and state, the latter group asserts territorial autonomy and self-determination. This dichotomy has been addressed by historian Fernando Pairicán (2014) in his analysis of the political and rupturist paths of the contemporary Mapuche movement (1990-2014).

The distinction between the 'good Mapuche' and the 'bad Mapuche' not only perpetuates racism from the state and elites toward the Mapuche people but also, at a micropolitical level, creates divisions within the Mapuche community between those who seek recognition as 'good' to access state and private benefits and investment and those who have no interest in seeking such recognition. This division and rivalry also emerged for certain investment projects. For example, in Panguipulli, not only Rubén but also several members of the resistance communities were called *Chascones*, a derogatory term used by those in favor of the SHP Tranquil. Conversely, those against the project labeled the supporters as *Yanaconas*, an adjective typically used to describe Mapuche individuals serving the interests of extraterritorial agents, symbolizing the betrayal of their people. According to Ely:

> *"There is a before and after the project. Previously, coexistence in the lof (Mapuche Community) was beautiful; we are all family members. After that, it was shattered by the intervention of companies trying to settle in the territory. This intervention is related to economic offers to gain people's consent, which has led to the division of the territory. We have become enemies. Trust has been lost and that has been terrible."*

In most cases, the challenge of restoring community ties is undertaken by social leaders who promote dialogue and knowledge exchange and, at times, mediate conflicts among members of the same community. However, the fragmentation of social fabric that occurs in conflicts triggered by extraterritorial investment projects is often irreparable. Bea, *Werkén* of the Parlamento, points out that:

> *"(...) when conflicts reach that level, there is very little we can do to reestablish cohesion in that community. The community remains damaged forever (...). When they use those division strategies, it leaves a significant wound that, unfortunately, […] the processes we carry out... sometimes we don't have the strength or time to heal those tremendous wounds that remain in the community."*

In summary, the apocalypse within the community become manifest, on one hand, as ecological devastation linked to the capitalist mode of production, and on the other hand, as social fragmentation, and radical changes in the daily lives of its inhabitants, marking a before and after following the implementation of investment projects.

Hope

Protests against SHP projects have not only resulted in criminalization but have also become a space where people who, though scattered in the territories, can share ideas of working collectively to recover *Küme mongen* and protect *Itrofill mongen* (biodiversity). Through the revival of ancient *Kimün* (knowledge), a hopeful political strategy is developed to rebuild the relation between society and nature through the revitalization of Mapuche practices and crafts. According to Bea:

> *"Nowadays, everyone talks about good living, about* küme mongen*, and that is good because in some way it's a recognition that there is a different way, an alternative to what we have been led to believe is the only one: capitalism, based on extractivism."*

Mapuche and peasant women have played a pivotal role not only in resisting hydropower projects, exemplified by the renowned sisters Berta and Nicolasa Quintremán,[35] but also in fostering hope through movements primarily driven by *Huerteras* (female gardeners), who uphold the conservation and dissemination of ancestral seeds. Their main motivation to participate in political organizations or to create new collectivities, stems from their commitment to defending water resources.

In Curarrehue, for instance, women were united under the *Guardianas del Territorio*. According to Eli:

35 Mapuche women from the Ralco Lepoy community, located in the Alto Bíobio municipality, who fiercely opposed the construction of the Ralco Hydropower Power Plant by the Endesa company in the 1990s.

"It was difficult in the territory for us to raise our heads a little bit and say: in reality, they have tried to pull the wool over our eyes, and we have not even noticed, or we have acted like nothing was happening, and it is time that we begin to do something to defend this wonderful thing that we all have: the hills, the rivers, the trees, the people, and the orchards."

According to Castells (2015), fear is a paralyzing and intimidating emotion that nurtures and perpetuates the dynamics of hegemonic power. In contrast, anger and indignation can overcome fear, transforming it into hope for a better future (Kleres and Wettergren, 2017). In our two case studies, when oppositional groups came together to face the threat posed by SHPs projects, they were able to overcome initial distress and inaction, giving rise to new collective forces to protect their territories.

Hope, as defined by Castells (2015), becomes a fundamental driving force motivating actions aimed at achieving specific objectives related to social transformation. Although this process of change may seem challenging and at times unattainable, members of diverse collectives maintain their motivation through simple daily actions. According to Juana, a member of Lof Trankura, many missionaries, mainly Jehovah's witnesses, arrive in the territory with the idea of delivering a message of hope, to which she responds:

"Do you see what I have here? This is paradise. You must go elsewhere. Go and tell them that they must plant, that they have to take care of the water, they don't have to sell the water, water is not for sale (...) go elsewhere. I say, I know what I have to do."

The conviction with which Juana works in her garden is a source of inspiration for visitors, local residents, and members of other communities, even for individuals who have not taken part in the resistance against hydroelectric projects. In conflict-ridden territories, the defense of the territory emerges as a hopeful response to despair caused by violence and injustice. This defense draws strength from the belief in alternative forms of knowledge and practices that contribute to the collective well-being of both humans and non-humans, challenging colonial narratives that perpetuate racist violence.

After the death of Macarena Valdés, Bea said:

"(…) at her funeral, what was most emphasized was that all this suffering had to give us impulse. It had to give us strength to continue, and I believe that this is the call, that a death cannot be in vain, so much pain so we don't keep fighting. It's our decision to keep fighting."

This sentiment was echoed by Rubén in his public statement on January 19, 2018, when he disclosed the results of the second autopsy performed on Macarena Valdés. Forensic experts verified that given scientific evidence, the involvement of third parties cannot be ruled out. Given these facts, Rubén declares that:

> *"Life is not rosy. Life is multicolored. Life is beautiful. They only tried to make us go through the darkest part. What they don't know, what they never imagined, is that the most beautiful things occur in the dark. The most intimate caresses are in dark. The most heartfelt kisses are given with eyes closed, and even the most profound tranquility, the maternal womb, is also in darkness. Today, from darkness, we rise up with more force because black is from newen (strength). Black was from newen, and today we rise up with more force than before to shout that we want justice. We demand justice (...) We do not want your violence here. We don't want your war. Let them take it away. Let them fight alone."*

Unlike other Mapuche territories, where the state of constitutional exception[36] currently prevails in response to arson attacks carried out by radicalized Mapuche groups, in Curarrehue and Panguipulli's political movements consistently advocate for dialogue. However, this call for dialogue differs from traditional working tables where communities are expected to accept terms set by the government. Instead, it aims to promote a horizontal and respectful dialogue in which rejection of investment initiatives is also a possibility.

Hope movements

Hope, as a political strategy, must be capable of materializing into concrete actions and practices that contribute to social transformation; otherwise, it runs the risk of becoming a mere rhetorical promise. According to Bloch (1995), hope distinguishes itself from mere fantasizing because it is rooted in the real possibilities of the world. In this section, we share some specific experiences that demonstrate the mobilizing power of hope in driving social change that contributes, among other things, to the restoration of the social fabric in territories affected by hydropower projects.

In Panguipulli, on the centenary of the *Parlamento Mapuche de Koz Koz* in 1907[37], a gathering was held to articulate existing proposals for autonomy in the territory. The Parlamento was created in this context as a sociopolitical entity for deliberation and

36 The constitutional state of emergency is a mechanism that allows for the normal situation of the rights and freedoms of people guaranteed by the Political Constitution to be modified when there are events that alter public order to protect another greater good (Library of Congress National [BCN], 2020).

37 In the commune of Panguipulli, the Koz Koz Parliament was held in 1907. It was a political body made up of those *longkos* (caciques) whose communities were being victims of assaults, harassment, and murders committed by Chileans and settlers, as well as journalists and Capuchin priests.

decision-making, advocating for Mapuche subjectivity, identity, and the struggle for political autonomy. In addition, environmental organizations, such as the *Frente Ambientalista de Panguipulli*, emphasized the idea that this territory is a Reserve of Water and Life,[38] and thus, the State should ensure its conservation. According to Francisco, the *Werkén* of Parlamento:

> *"Here we have fought a tough battle. We have been fighting for ten years against the mega-power plants that did not install as they wanted, and that fight was given by Mapuche and non-Mapuche alike (…) The Winka is capitalism, the Winka is the State, it is the system, the non-Mapuche are the Katrokinche, and we want to establish relationships from people to people with them."*

One of the main actions undertaken by members of Parlamento was the establishment of the Association. According to Francisco:

> *"The Mapuche movement has its own engine. It has a horizon that we want to build, and we have been doing that in the Parlamento (…). In the Mapuche world, there are many forms of organization, one of which is koyagtun. It is the moment that defines and makes politics."*

The Asociación has chosen a political path to articulate its proposal for territorial autonomy, which has enabled it to receive economic support from the state. In what used to be the old railway station of Panguipulli, the *Espacio Trafkintuwe* was set up, which served as a significant community space for seven years and focused on developing the local economy through the sale of food and artisanal products. Although the space was consumed by a fire in July 2020, the Asociación initiated several initiatives to restore this place and resume the activities that took place there.

The Asociación is part of the *Red de Ferias y Mercados con Identidad* and the *Red de Economías Territoriales de Wallmapu*. These are collective action spaces that emphasize local development based on community-based tourism, promoting access to markets and local fairs for groups engaged in agricultural production, traditional cuisine, handicrafts, and sustainable harvesting. Thanks to funding from the Corporation for the Promotion of Production (CORFO, by its Spanish acronym), the Association implemented the *Huerta Mapuche* project, mainly involving female horticulturists dispersed over the territory. According to Bea:

38 In 2007, UNESCO declared some areas of Panguipulli (approximately 2 million hectares) as Biosphere Reserves in response to a state request, giving rise to the Reserve of the Temperate Rainforests of the Southern Andes.

"The Huerta Mapuche is an experience that arises as an idea from the Parlamento and is carried out through the work and management that we do in Trafkintuwe, with 30 Mapuche vegetable producers (...) with the aim of implementing and enhancing the production model with Mapuche identity to advance the Küme Mongen in our territory."

A similar experience occurred in Curarrehue. In the context of resistance to hydropower initiatives, women have organized the *Red de Ferias Walüng*, which is also part of the *Red de Economías Territoriales de Wallmapu,* an entity focused on ensuring access to local markets and fairs for groups engaged in agricultural production, traditional cuisine, handicrafts, and sustainable harvesting. Established in 2005 by women who are seed curators, this initiative aimed at revitalizing and disseminating ancestral practices to contribute to the local economy and development. According to Anita, one of the pioneers:

"The Red de Ferias Walüng is a community of people who work every day in a more harmonious, balanced, and conscious manner. It started 12 years ago in casual conversations among women sitting around a hearth, where we began sharing what each one was doing (…) and from there, we started organizing a product exhibition among ourselves and arranged a trafkintu."

The *trafkintu*, understood as a form of solidarity economy based on exchange, is what first motivated the creation of the *Red de Ferias Walüng*, which later opened to a broader public. For Ely:

"The Red de Ferias Walüng is a traditional market here in Curarrehue that I always define as a school because we have all learned a lot there. On the one hand, we learn in the cultural field, [and] on the other hand, we learn about how to survive as a community and how small-scale markets are established to allow us to live, but without harming each other."

The women who are part of the *Red de Ferias Walüng* formed another political organization called *Las Guardianas del Territorio*, which, according to Ely, meets every month:

"To discuss the issues related to the territory, not only about the projects that threaten us but also to cultivate good relationships, because all the projects that have come to intervene in the territory have left a mark of division (...) It has been difficult but hopeful, because when we come together with many women, we feel that we are not alone (…)."

In both Panguipulli and Curarrehue, resistance against hydropower projects arises from and/or gives rise to political organizations that promote alternative forms of development based on the rescue and dissemination of Mapuche knowledge. Thus, resistance transforms into a struggle for 're-existence,' which is nothing else than the reclamation of the right to be-in-the-world, following the traditional way of existence (Leff 2014:47). In other words, the apocalypse that emerges from conflicts caused by hydropower projects paves the way for hope when social movements manage to articulate political and economic initiatives that, in addition to asserting their knowledge and practices, can include a broad array of actors who share the aspiration to live with dignity.

Discussion and Conclusion

Resistance to hydropower projects in Mapuche territory has been led by social organizations that have articulated their asserts beyond the opposition to this type of infrastructure, in the hope that through the rescue and dissemination of ancestral Mapuche knowledge, they can accomplish social change. In this regard, following Leff (2014), it is worth asking how anti-capitalist resistance struggles transform into 're-existence' struggles that, along with reinventing and reaffirming a new way of being and inhabiting the planet, require new conceptual models and methodologies.

In this chapter, we have employed, on the one hand, the concept of apocalypse to highlight the socio-ecological devastation caused by investment projects in rural territories, and on the other hand, we proposed the concept of hope as a device to analyze collective action beyond mobilization against hydropower projects. While this mobilization emerges in a context marked by apocalyptic rhetoric regarding ecosystem disruption and the violence faced by defenders of the territories, the desire to radically transform social reality persists. This desire is mobilized by *hope movements* that do not necessarily consist of individuals or groups aligned on the same side in social conflicts (Diani, 1992), but rather by those who share a worldview, question matrices of power and existing political horizons, and provide alternatives for cooperative work inspired by human dignity (Deneulin and Dinerstein, 2010; Dinerstein, 2015).

The two case studies addressed in this chapter provide some important insights regarding the role of hope in the political life of territorial organizations that fight for the defense of life and allow us to answer the questions raised in the introduction. First, hope mobilizes individuals and/or groups to become involved, resist, and connect in the present despite the fear and anguish generated by the installation of hydropower projects and police repression in their territories. Second, the connection that emerges

between these individuals and groups is the desire to rescue and disseminate ancestral Mapuche knowledge and practices as an alternative to hegemonic development driven by private companies and state institutions. Finally, the role of hope is to inspire the achievement of a concrete objective, and barriers are not necessarily established *a priori* for people who have not been on the same side during the hydropower conflict nor for state institutions that may eventually contribute to the process of social transformation.

The findings of this chapter open avenues for understanding how kinship and solidarity bonds extended by hope movements are not limited solely to politically homogeneous groups and individuals, but also encompass a diverse set of people who can potentially contribute to social change. In this sense, hope movements are not defined by predetermined barriers to regulate who belongs or can belong to them, which also implies that there is no radical distance from state institutions and even private companies. Addressing the tensions of these negotiations from the perspective of micropolitical ecology is a topic that could be further developed in future research to expand the analysis of the role of affects in political life and the defense of territory.

CHAPTER 7

Discussion and Conclusion

Over the past few decades, we have witnessed a global trend towards the decarbonization of energy matrices. This trend has been primarily driven by governments adhering to international agreements that commit to reducing greenhouse gas emissions and transition towards low-carbon energy sources. In this context, SHPs have gained traction as a win-win solution for diversifying the energy matrix, addressing climate change, and mitigating socio-environmental conflicts that arise due to opposition against large-scale hydropower projects. However, as demonstrated in this thesis, assessing the impact of SHPs based solely on a lower installed capacity in megawatts neglects other important social and ecological consequences.

Considering this, the thesis provides an account of the multilayered nature of hydropower conflicts in southern Chile. Based on the evidence presented in the empirical chapters that comprise this thesis, the idea that hydropower development initiatives, regardless of their size, are the best alternative to address climate change and promote economic growth is challenged (Kelly 2018, 2019). By demonstrating the consequences experienced in areas rich in biodiversity and Indigenous Mapuche territory, such as the usurpation of Indigenous land, the impact on local economies, damage to ceremonial and sacred places, water scarcity, loss of biodiversity, to name just a few impacts, this shows the prevalence of a hegemonic logic within the energy transition. This logic is rooted in an understanding of, and engaging with water and rivers as 'resources' (Linton, 2010; Ballestero, 2019; Yates et al., 2017), overlooking locally rooted river knowledges and relationships (Boelens et al. 2022) that are based on the idea that water is a living entity with its own social life (Bonelli et al. 2016; Skewes et al., 2011; Yates et al., 2017).

By focusing on the experiences of Indigenous communities and environmentalist leaders, this thesis has shown the persistence of such top-down paternalistic dynamics in the realization of the transition towards renewable energy (Howard-Wagner et al. 2018). This logic disregards local knowledge and the right to self-determination of Indigenous communities, thereby reflecting the underlying assumption that Indigenous people must be educated to ensure the country's progress and development (Tuhiwai Smith, 2012). Moreover, still following this logic, negotiation processes become uneven, and companies end up offering inappropriate compensation measures that fail to repair the damage they cause. However, in rural areas, often neglected by the state and characterized by high levels of poverty, companies do find allies who are willing to sacrifice common goods in exchange for employment (even if it is precarious).

To gain an understanding of the experiences of environmentalist and community leaders with SHPs, the central research question that guided this research was formulated as follows*:*

How do Indigenous communities and environmentalist leaders navigate socio-environmental conflicts generated by hydropower development in southern Chile?

This main question was subdivided into 4 sub-questions:

1) What are the different technopolitical registers of hydropower development in Chile?
2) What are the ontological backgrounds of water that hydropower projects encounter in Indigenous Mapuche territory?
3) How do community leaders navigate social unrest, resistance, and ideas regarding energy development related to small hydropower projects?
4) What is the political role of hope in the conflicts caused by hydropower projects in Mapuche territory?

To answer these questions, I conducted 17 months of fieldwork in Curarrehue and Panguipulli, during which I engaged in a range of research activities. These activities encompassed my attendance at various events, demonstrations, meetings, and ceremonies for observational purposes. In addition, in collaboration with research participants, I co-organized an audiovisual workshop and facilitated a focus group on the socio-environmental impacts of SHPs within Mapuche territories. Complementing these efforts, I conducted a total of 27 semi-structured interviews with government officials, community, and environmentalist leaders, as well as academics. Additionally, my research was enriched by secondary data from interviews conducted by Manuel Tironi, archival data obtained from government records and reports, newspaper articles, and other media resources.

The sub-questions were explored across four chapters, following an analytical logic that first frames the phenomenon of hydropower development conflicts within their political and historical background and then examines the experiences of local inhabitants. My findings demonstrate that the technological shift towards renewable energy sources in Chile has not yet contributed, as promised, to a just energy transition for people whose livelihoods are particularly affected by energy projects (Sovacool, 2021; McCauley et al., 2019). Consequently, the notion of SHPs being an eco-friendly solution to enhance local people's livelihoods has come under pressure.

Introducing a critical perspective on a widely supported topic, such as the development of renewable energy, is challenging. Despite recent efforts by scholars to highlight the drawbacks of the energy transition towards renewable energy (Kelly et al., 2017; Kelly, 2019; Lakhanpal, 2019; Sovacool, 2021), policymakers and stakeholders persist in advocating renewable energy projects as a form of sustainable development that will enhance people's well-being and rural development (Kelly 2018). As this thesis

shows, environmentalists and community leaders are not against renewable energy development itself but rather against the emergence of profit behavior that has led energy companies to compete with Indigenous people and local communities over the use of land and its resources.

Hydroelectricity is based on the premise that water is an abundant and cheap 'resource' ready to be exploited before it will be wasted into the sea. This notion enforces a specific relationship with water that abstracts and transforms it into a commodity (Linton, 2010; Ballestero, 2019), disregarding alternative non-Western ways of thinking about and relating to water. However, from a political ontology perspective, these different approaches to water cannot, as they have been until now, be hierarchically ordered, since both are equally valid and worthy of exploration (Blaser, 2013; De la Cadena and Blaser, 2018). With this premise, I embarked on an exploration of the specific relationships that Mapuche people maintain with water.

In this concluding chapter, I discuss how the experiences of Indigenous communities and environmentalist leaders navigating socio-environmental conflicts generated by hydropower can contribute to a just energy transition and more sustainable development in the context of global socio-ecological crisis. First, I outline the main findings from the empirical chapters and discuss their contributions to addressing both the sub-questions and the main question. Second, I present the three main findings of this thesis. This will be followed by a reflection on the theoretical and methodological contributions of this study. Subsequently, I discuss the overall conclusion of this thesis that hope for a better future plays a significant political role in driving social change, motivating community leaders to pursue development alternatives amidst conflict and despair. I will conclude by considering avenues for further exploration of these debates.

7.1 Overview of chapters

In chapter 3, I provide a historical and political backdrop for understanding the socio-environmental conflicts arising from hydropower development in southern Chile. Utilizing secondary data, archival sources, newspaper articles, and media materials, this chapter addresses one of the most emblematic socio-environmentalist conflicts in Chile post-Pinochet: HidroAysén. Additionally, based on interviews conducted timely amid the HidroAysén conflict, chapter 3 captures a 'hot situation' that inspired the shift towards renewable energy in Chile.

This chapter contributes to addressing the central question by facilitating an understanding of the contentious nature of hydropower development. It examines how

environmentalist leaders mobilize and propose solutions in the face of hydropower conflicts and the broader global environmental crisis. Through the analysis of this conflict, the thesis positions the ontological nature of hydropower development, illustrating the different versions of water, energy, and nature, as well as the diverse perspectives on progress found within this context.

In chapter 4, the focus shifts to the different water ontologies that are present in hydropower conflicts within Mapuche territory. Whereas one ontology understands and relates to water as a 'resource,' the other, Mapuche ontology, challenges this notion of water as a commodity. Through archival analysis of government records concerning two hydropower projects located on Mapuche territory, this chapter addresses the second sub-question by illustrating how different meanings and practices attached to water clash during hydropower conflicts within Mapuche territories. This, in turn, enables an understanding of how water conflicts are initiated, how resistance movements arise, and how do Indigenous leaders cope with the challenges posed by hydropower conflicts – three critical aspects of this research project.

In chapter 5, I analyzed the resistance of community leaders to SHPs in Mapuche territories using the micropolitical ecology approach. Drawing on ethnographic fieldwork, I examined the contentious political dynamics that community leaders encountered while resisting the construction of SHP within the context of the renewable energy transition. Beyond the broader narratives of neoliberal dispossession, I focused on the role that community leaders play in realizing a just energy transition by producing 'sparks of hope' amidst the chaos and despair caused by socio-environmental conflicts. Collaboratively developed with community leaders, I utilized a heuristic tool we named the 'micropolitical life of SHPs' to explore three key aspects: 1) access to information, 2) participation in decision-making processes, and 3) changes in community politics. The examination of these three dimensions allowed me to understand the limitations for accessing information, the paternalistic process of negotiation between energy companies and communities, and the (sometimes) irreversible social fragmentation caused or accentuated by the development SPHs.

This chapter demonstrates that despite these challenges, community leaders are not passive victims but agents resisting unjust and even unlawful actions that cause mistrust and conflicts within their communities. Despite the frustration that this can produce, community leaders have the ability to inspire and empower others to create alliances or to participate in collective initiatives that bring about hope. In doing so, environmental leaders create possibilities for transforming their territories. The chapter thus addresses the third sub-question.

In chapter 6, I embarked on a journey following the path of hope to unravel its political role. Adopting a micropolitical ecology approach, I explored the conflicts arising within local communities as they resisted SHPs, along with examining the role of hope within the broader struggle for life encouraged by Indigenous and environmental leaders. Consequently, this chapter answers sub-question four, which seeks to comprehend the political role of hope in the conflicts spurred by hydropower development in Mapuche territories. Through empirical analysis, this chapter makes a substantial contribution to the literature on hope movements from the perspective of micropolitical ecology, as well as to the ongoing debate on the role of emotions and affect in social mobilization. In addition, I discuss methodological challenges related to investigating context shaped by state violence and highlight the significance of advocating for collaborative and engaged research with local actors.

Together, these chapters answer the main question by demonstrating the different ways in which communities and environmentalist leaders navigate socio-environmental conflicts arising from hydropower developments in their territories. Their struggle is not about resisting development itself, but rather against unjust social relationships perpetuated and enforced by neoliberal multicultural integration strategies that have historically marginalized and disempowered them. In the context of a global transition to address the climate crisis, the focus of energy policies should therefore go beyond mere techno-fix solutions; it is crucial to also address the imbalances derived from the concentration of power and wealth that jeopardize our common future. In the next section I present three key dimensions that are important to take into account when thinking about a just energy transition.

7.2 Renewable energy and resistance

In this section, I present three main findings of this thesis that contribute to paving the path toward a just energy transition. First, the ontological nature of conflicts arising from hydropower development suggests that when diverse actors talk about water, energy, and nature they may not necessarily share the same understanding of what water means (chapters 3 and 4). Second, renewable energy development has brought forth similar issues seen in conventional energy development, particularly the disregard for involving local communities in decision-making processes (chapter 5). Third, amid prevailing unequal power dynamics, environmentalist and community leaders do not stand as powerless victims in the face of unjust energy transition scenarios. Instead, they play a pivotal role in empowering others and shaping alternative trajectories toward a more promising future (chapters 5 and 6).

Water ontologies and micropolitics

First, this thesis has shown that conflicts related to SHPs are often rooted in different ontologies of water. These differences are not only established between Indigenous communities and the state or between Indigenous communities and private companies. Also within Indigenous communities there are ontological conflicts related to water and common goods. In this regard, by using a micropolitical ecology approach, this study demonstrated how the process of social fragmentation emerges or intensifies within the context of negotiations with energy companies.

The boom of SHPs has been justified and prompted by governments and private businesses under the premise that this technology is less intrusive and, therefore, an eco-friendly alternative to large hydropower dams. This discourse, however, focuses solely on one single indicator: the installed capacity in megawatts of these projects (Kelly 2019). Nevertheless, the socio-environmental impacts of these projects cannot be minimized, nor ignored, particularly in the light of the consequences experienced in Indigenous territories, as empirically examined in this thesis. Chile is widely recognized for its neoliberal-driven water management policies (Bauer,1995, 2004; Budds, 2009a, 2009b, 2013). However, within this context, other water ontologies come into play. These ontologies question the commodification of water (Linton, 2010) and challenge the imposition of a governance system that considers it merely as a resource ready to be exploited (Boelens et al., 2022).

In this vein, this thesis proposes that conflicts over SHPs can also be observed as ontological conflicts concerning water. These conflicts arise when technical knowledge and capitalist imaginaries seek to impose their assumptions, ignoring that there are alternative, locally grounded knowledges and relationships with water, which are based on the notion that water is a living entity with its own social life. As this thesis demonstrated, the resistance to hydropower projects is not resolved solely by reducing the size of the projects, but by constructing new models of water and energy governance that do not place local knowledge and practices at a lower hierarchical scale.

Scholars (Boelens, 2019; Graeber, 2015; Todd, 2016) have emphasized the need to avoid essentialism when employing these approaches to analyze Indigenous peoples' connections with nature. Boelens et al. (2019) warn about the risks of romanticizing Indigenous people's knowledge and reproducing a dichotomy between it and Western knowledge. This could result in reifying a liberal discourse of integration that pushes for a neoliberal multicultural governance of water. Political and academic discussions should, therefore, address, on the one hand, the persistence of colonial dynamics that reinforce the perception of Mapuche people as exotic 'other,' and on the other hand, the

differences within communities, and how such differences have contributed to state and rural violence (Hall, 2013, Stüdemann, 2018).

Furthermore, in the context of hydropower conflicts rooted in ontological differences, it is important to note that it is not only the state and energy companies that contribute to increasing levels of social fragmentation, mistrust, and violence (Pelayo and Rasch, 2020). As this thesis shows, within Indigenous communities and rural localities, there are individuals who encourage public and private investment despite the socio-environmental impacts these activities can cause. They are willing to bear the costs in exchange for employment and a stable income, even if this implies breaking relationships with their relatives and intimidating them for preventing the advancement of investment projects. This creates opposing sides between those who are in favor of the projects and those who oppose them.

In sum, the existence of different ontologies of water must not be seen solely as differences between Indigenous peoples and Western societies. It is also necessary to pay attention to how these differences unfold within Indigenous communities that have been exposed to colonization processes for centuries.

Marginalization from decision-making

The second main finding of this thesis is that one of the main drivers of conflict arising from SHPs is the absence or inadequacy of participation processes, which are crucial for ensuring a just energy transition. Yet, community and environmental leaders do not stand still. Instead, they create informal instances of political deliberation to develop strategies that enable them to prevent the construction of projects that threaten their livelihoods.

The boom of SHPs has been possible, among other reasons, due to the weak regulatory framework that authorizes projects generating less than 3 MW without comprehensive evaluation (Kelly et al., 2017; Kelly, 2019). In addition, the regulatory framework does not establish mandatory participatory procedures in the decision-making process of these projects, despite the documented socio-environmental impacts highlighted by environmentalists and community leaders. Experiences of participation differ depending on the installed capacity of megawatts of a project. For example, projects generating less than 3 MW must submit a *Carta de Pertinencia* to the SEA. This consists of a voluntary procedure carried out before the potential submission of a project or activity, or its modification. Energy companies provide background information on their projects and request the SEA director to determine whether the project requires further assessment to evaluate its possible impacts. If approved, these projects can proceed without involving any process of citizen participation.

In the case of Tranquil, the energy company promptly obtained project approval through a *Carta de Pertinencia*. The Comunidad asserted that to prevent community opposition, the company waited for two years before starting the construction of the project—the time established by law to raise any objections to a project. Hence, this case illustrates some strategies used by energy companies to marginalize community leaders from the decision-making process, such as restricting their timely access to information. Despite this, environmentalist and community leaders have articulated with other actors beyond their territories and have engaged in solidarity networks that support their struggles. Hence, they are not simply awaiting invitations from the state or the company to engage in dialogues (Haughney, 2012). Instead, they are proactively seeking and establishing avenues for participation. These efforts enable them to bridge the intentional information gap created by electricity companies, allowing the companies to proceed with their projects without addressing opposition (Rojas and Hernando, 2019).

Projects with an installed capacity exceeding 3 MW but lower than 20 MW are subjected to environmental evaluation and citizen participation processes due to their presumed greater socio-environmental impacts. The *Consulta Indígena* is such a citizen participation process. This is an international mechanism of Indigenous participation that, according to Chilean legislation, is non-binding. Consequently, this instrument does not make it possible for communities to ban an investment project, regardless of its impacts. Basically, the *Consulta Indígena* is a process through which the community and the company agree on measures of mitigation, repair, or financial compensation (Bauer, 2018; Carter, 2010).). In doing so, the company follows a paternalistic logic of reparation, which is profoundly rooted in the idea that Indigenous people must be educated to ensure the country's progress and development.

As the case of the Añihuarraqui SHP demonstrates, community leaders contest the negotiation processes, especially when impractical measures, like replacing the old native forest with green-painted chipboard panels, are suggested. As a result, the *Consulta Indígena* is perceived as merely informative rather than a genuine effort to initiate negotiations because it is not linked to the national Constitution (Carter, 2010). According to Cuadra (2015), the *Consulta Indígena* has deliberative limitations and aims to establish a false consensus regarding projects acceptance. It is, therefore, an expression of a neoliberal multicultural governance that accept cultural differences but continues to reproduce and reinforce power relations that subject Indigenous peoples to the dominances of hegemonic powers.

To summarize, the marginalization of minority groups from decision-making processes or the establishment of inadequate spaces that do not lead to binding participation has

not prevented resistance from successfully halting projects affecting local communities' livelihoods. However, within the context of an energy transition that seeks to tackle crucial issues, participation should not solely rely on the mobilization capacity of social leaders but should be provided in a timely and transparent manner by the state.

Mobilizing hope

Thirdly, this study demonstrates the political relevance of emotions in resistance towards the neoliberal multicultural model of national integration. By focusing on emotions, this thesis shows certain political aspects of grassroots struggles against SHPs, particularly how emotions influence the subjectivities of individuals and communities, helping them to confront anguish and despair while envisioning a more promising future. Understanding why people persist in working together for alternative development paths requires taking seriously into account, both theoretically and methodologically, the political role of hope as a driving force for producing social changes.

This thesis shows that, despite the privileged position of energy companies, environmentalists and Indigenous leaders are not powerless victims (Hall, 2013) of an unjust energy transition but that they have resisted the expansion of hydropower development projects in their territories, even succeeding in impeding the construction of some of them (Maher, 2019). While the Tranquil case demonstrates that, contrary to the notion that there is nothing that can be done to halt a project, it is indeed possible to establish connections with experienced organizations that provide guidance for the struggle, the Añihuarraqui case showcases the success of a community in preventing the construction of a hydropower project. Many researchers have emphasized the difficulties experienced by Indigenous groups halting hydropower projects in their territories (for example, Aylwin 2002; Azócar et al. 2005; Romero et al., 2009). However, these cases demonstrate that space still exists for resistance and the forging of alternative trajectories toward a more promising future.

In line with Jasper (1998), a micropolitical ecology perspective on emotions in hydropower conflicts enables us to comprehend the diverse factors that motivate the emergence, continuity, or decline of social movements. In taking emotion seriously as a guide for action and agency (Barbalet, 1998; Kleres and Wettergren, 2017), this study reveals that the vulnerability resulting from being marginalized in decision-making processes is confronted by connecting with other individuals who suffer from the same problems arising from this segregation. Rage and frustration, in this way, open avenues for collective action that encourage communities to move beyond their resistance to development projects. In this context, hope was a central emotion for the people that participated in my research, and therefore key to understand their resistance and how

community leaders generate dialogue and articulate strategies to improve the future of their communities (Lempet, 2018; Wlodarczyk et al., 2017).

As I demonstrate in this thesis, Mapuche people engage in many different forms of resistance, from roadblocks to other creative yet non-violent confrontational protests. Additionally, they promote nuanced forms of resistance, including public seminars, reports, and ceremonies. In this regard, resistance allows dispersed individuals or communities to come together and share their visions, not only concerning territorial conflicts but also for the future they want to live in. Hope, in this context, is mobilized for inspiring social movements to promote their territorial autonomy and self-determination. Amidst the chaos and despair arising from socio-environmental conflicts, kinship and solidarity bonds simultaneously emerge and create new avenues for the future.

In brief, considering emotions beyond rage and resistance will enrich social movements and micropolitical ecology debates and may help to focus on the different experiences through which people see and relate to the world, which give room for understanding reciprocal relationships between humans and non-humans based on the notion of care. By recognizing the importance of emotions for understanding resistance and by adopting a critical stance toward the observational detachment of neopositivism, which encourages researchers to maintain an objective position (England, 1994; Haraway, 1988), researchers can also start to reflect how emotions shape their positionality in the field. In my own case, emotions not only shaped the path of my research (Milner, 2007), making me aware of the importance of having a clear political position on the issues that I investigate, but also my personal life (Fois, 2017), inspiring me to adopt a lifestyle in line with the ideas I advocate for.

7.3 Theoretical and methodological contributions of this study

Building upon the three main findings of this thesis, in this section I reflect on its main theoretical and methodological contributions.

Theoretical contributions

The main theoretical contribution of this thesis lies in combining insights from relational ontological commitments with a micropolitical ecology approach to explore socio-environmental conflicts and the political role that emotions play in them.

First, the relational ontological thinking that inspired this thesis, has enabled me to demonstrate that hydropower conflicts are profoundly rooted in the different meanings

and practices attached to water. The historically hegemonic understanding of water as a resource has prevailed over other ontologies that consider water a living entity. Hence, at the core of these conflicts are ontological disputes about water, inviting us to expand our imagination "of what water can be, of what water might need, and of our human responsibilities within a more-than-human aqueous ecology" (Neimanis, 2014:6).

A relational ontological analysis of water demonstrates that there is, first, more than one single reality and, second, that colonialist thinking has organized (and continues to organize) different perspectives on reality in a hierarchical way, subordinating Indigenous people to modern colonial powers (Blaser, 2009). Within this hierarchy, Indigenous knowledge has been portrayed as 'beliefs' that cannot be considered as 'proper' knowledge (Koenig, 2017; Tuhiwai, 2012; Zárate-Toledo, et al., 2019). While acknowledging the valuable insights of these approaches, I am also aware of their potential risk of generating a romanticized portrait of Indigenous people based on their cosmovision, which can lead us to overlook the power relations that reinforce colonial dynamics that disempower them (Boelens et. al., 2019). In this context, by employing a micropolitical ecology approach, this thesis, while acknowledging the presence of different ontologies, unveils the intra-community disagreements about development projects imposed by the state or/and private companies, which is useful for overcoming romanticized portraits of Indigenous people (Horowitz, 2008, 2011) while highlighting the practical significance of such revelations.

Through a micropolitical ecology analysis of these disagreements, it becomes possible to understand how the socio-environmental conflict and negotiation processes unfolding in this backdrop contribute to exacerbating social fragmentation. This, in turn, leads to the emergence of opposing factions around hydroelectric projects. Following years of colonization and assimilation, within Mapuche communities and rural territories, more broadly, people with opposing views on development coexist. The difference between those opposing and those supporting hydropower projects reinforces the idea of the 'permitted Indian' and the 'forbidden Indian' (Hale, 2002; Rivera Cusicanqui, 1987), or the 'good Mapuche' and 'bad Mapuche' (Nahuelpan, 2012). Analyzed at a micropolitical level, these divisions within the Mapuche community produce irreconcilable rivalries that may culminate in acts of violence. This situation becomes particularly dramatic when it occurs in territories where, in one way or another, everyone shares familial ties.

Second, combining insights from anthropological debates on ontology with a micropolitical ecology approach opens avenues for examining how marginalized groups and communities that resist hydropower projects, create novel political and collective initiatives and the role of hope herein. Through the lens of micropolitical ecology, and rooted in a constructive paradigm, it is possible to reflect on the political roles played by

subjectivity and emotions in resistance against SHPs. During the Chilean social unrest of 2019, 'hope' was raised as a catalyst advocating for constitutional change. Research participants frequently mentioned this concept while explaining their struggle for the defense of life. While telling their stories, they placed particular emphasis on describing their struggle as a call for a profound sense of community rooted in our connection to nature. In this vein, the concept of hope emerges as a driving force in collective action and resistance against hydropower projects and capitalist expansion. Leff (2014) notes its political role in anti-capitalist resistance struggles, enabling a shift from resistance to "re-existence," reclaiming the right to exist in the world. Hope counteracts the paralyzing effect of fear (Castells 2015; Balderson, 2022), playing a fundamental role in social protests, challenging dominant knowledge and inspiring promising futures (Carlson and Frazer, 2020; Leff, 2014).

In sum, by moving beyond the rhetoric of resistance and narratives about the global socio-ecological crisis that have taken an 'apocalyptic turn' in the social sciences (Latour et al. 2018), this study provides a micropolitical analysis of social movements and the role of emotions, particularly hope, in shaping social protests and actions (Amsler, 2016; Deneulin and Dinerstein, 2010). It examines how hope provides agency, motivates actions, and encourages solidarity, amidst chaos and despair (Castells, 2015). On the one hand, a micropolitical ecology approximation to socio-environment conflicts can contribute to expanding narratives of neoliberal dispossession that dominate the political ecology field. It provides a basis for observing the social fragmentation processes that are exacerbated by internal disputes within communities. On the other hand, this approximation contributes to analyzing how these processes could be countered at the local level by strengthening solidarity bonds and establishing an ethic of care through everyday actions. Engaging with emotions, such as hope, contributes to understanding the underlying aspects of these actions and their cathartic capacity for promoting alternative development avenues to address the intricate challenges posed by the socio-environmental crisis created by neoliberalism globalization.

Methodological contributions

In addition to theoretical reflection, this thesis contributes to methodological discussions about positionality. collaborative and engaged research, and emotions in fieldwork.

First, this thesis contributes to a critical reflection about the embeddedness of the researcher in the field, challenging the idea that a researcher must pursue a total objectivity by maintaining observational distance (England, 1994; Haraway 1998). My research has demonstrated the importance of clarifying researchers' positionality in the field, especially in contexts shaped by the state and rural violence. This research has shown that establishing rapport and trust with the communities that we study is crucial

to prevent being mistaken for a spy (Sluka, 1990). Sometimes, this positionality might limit the spaces the researcher can enter or the people they can engage with during fieldwork. By becoming aware of their own positionality, researchers can acknowledge the ways in which fieldwork experiences transform their own life course. This requires empathy and acute sensitivity, encompassing both attentive listening to participants' accounts and recognizing research emotions in the field.

Second, this study has demonstrated the added value of doing collaborative ethnographic research to further explore how community and environmentalist leaders navigate socio-environmental conflicts. Employing ethnographic and collaborative research methods allows for comprehending the significance of conducting ethically sound research by engaging research participants not only in the process of fieldwork but also in the analysis of data. While many scholars encourage involving research participants in the writing process (Kirsch, 2010, 2018), I advocate for creating adaptable arrangements that allow them to contribute to the research according to their individual interests and motivations. If this entails writing, it would be excellent, but if they lack interest in doing it, there is no need to compel them into unfamiliar processes. That said, I consider that the focus of an engaged and collaborative research resides in transforming "the traditional, vertical researcher-researched relationship" (Rasch et al., 2022) and producing agreements that are not a straitjacket, neither for the researcher nor for the research participants.

Finally, this dissertation has contributed to methodological discussions by encouraging a micropolitical engagement with emotions in socio-environmental conflict studies, highlighting how emotions influence the subjectivities of individuals and communities, helping them to confront anguish and despair while envisioning a promising future. By focusing on emotions in fieldwork, we can understand the origin, development, and decline of social movements along with the new political horizons they open. In a context marked by hopelessness in the face of the climate crisis, there is an urgency to multiply the studies that account for other development alternatives that invite us to build a new ethics of care between humans and non-humans.

7.4 Recommendations for future research

The thesis addressed some relevant topics that deserve further exploration in future research. First, the crossroads between the micropolitical ecology approach and emotions, although undoubtedly significant, has not been extensively addressed in the literature and in this thesis. While both approaches focus on grassroots activism, agency, and resistance, the in-depth exploration of emotions as a central component

within the micropolitical ecology approach remains relatively scarce. Various studies have illustrated the role of emotions in environmental and social movements (González-Hidalgo and Zógrafos, 2020; González-Hidalgo, 2021; Jasper, 1998), but the connection between micropolitical ecology approach and emotional dimensions has not been a primary focus.

In addition, socio-environmental conflicts, as demonstrated in this thesis, have the potential to trigger cathartic processes within communities resisting development projects, motivating them to create or engage in virtuous actions to defend their territories. Giving room for successful experiences of alternative development paths pursued by local communities might serve as inspiration for others and multiply creative initiatives amidst the backdrop of the global environmental crisis. This is particularly relevant in Latin America, where over the past decade, human rights defenders and community leaders have been massively threatened or killed for defending their territories and asserting their rights to land and resources. There is a need, therefore, to not only explore resistance and political violence but also to examine the political role of emotions in the trajectory of social movements.

In this vein, alongside the condemnation of injustices perpetrated against Indigenous communities and environmentalist defenders within the context of capitalist expansion in rural territories, it is important to also pay attention to the collective projects that arise and ultimately challenge the imposition of hegemonic development projects. As I was writing these conclusions, I remembered that during my master's studies, a professor invited us to explore and rescue the collective endeavor that the Pinochet's military dictatorship had undermined. Currently, when 50 years have passed since the civic-military coup against the democratic government of Salvador Allende, this reflection has returned to my memory. It is not only relevant to denounce political injustices committed against individuals, but also the dismantling of collective projects, often self-managed, that counteract the individualism and competition underlying the neoliberal model.

In this context, and in line with the topic of this research, it seems opportune to question the conception of the privatization of water imposed by the neoliberal model and encourage future research to explore other modes of water governance. This is even more relevant considering the current implementation of the reform to the Chilean Water Code enacted in April 2022. Through this reform, the priority for human rights to water has been established. However, new spaces for the privatization of organizations that have historically managed rural drinking water in the country have been created. This raises multiple questions that relate to the research topic, such as how can grassroots organizations contribute to alternative modes of water governance under a neoliberal

water management system? Is there room to challenge the dominant ontology of water understood as a resource? How do emotions produced by water scarcity contribute to the political transformation of water management? These questions deserve attention and further study.

Finally, I consider this thesis as a contribution to think critically about the conflicts that underlie the conflict between the Chilean state and the Mapuche people. An in-depth analysis of this conflict requires unraveling the tensions that exist within the Mapuche communities that have been exposed to colonization and assimilation for centuries. Unmasking the differences within Indigenous communities should be further developed in future research to provide deeper insights about social fragmentation processes affecting rural communities in the context of the energy transition.

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Summary

This thesis explores the perseverance of resistance to hydropower development in southern Chile, despite a paradigm shift from large hydropower dams to small hydropower in recent years. Based on a review of secondary sources and 17 months of fieldwork (2016-2019) in the Mapuche Indigenous territories of Curarrehue and Panguipulli, this study examines how do Mapuche community and environmentalist defenders navigate the socio-environmental conflicts that hydropower development generates in their territories on the one hand, and the political role of hope for social change that motivates community leaders to work on development alternatives amidst conflict and despair, on the other.

Globally, small hydro development is embraced by governments and private businesses through generous subsidies and prompt authorization based on the belief that it is an eco-friendly alternative to large dams. However, growing scholarship provides evidence that small hydropower generates considerable social and ecological impacts. Consequently, this thesis questions the taken-for-granted assumption that, by having a lower installed capacity in megawatts, a project with these characteristics produces fewer social or ecological impacts. This implies that the consequences experienced in Indigenous territories should not be minimized or ignored.

The overarching research question of this thesis is: *How do Indigenous communities and environmentalist leaders navigate the socio-environmental conflicts that hydropower development generates in their territories?* The structure of this thesis is organized around four sub-questions that compound four chapters: 1) What are the different technopolitical registers of hydropower development in Chile? 2) What are the ontological backgrounds of water that hydropower projects encounter in Indigenous territories? 3) How do community leaders navigate social unrest, resistance, and ideas regarding energy development related to small hydropower projects? 4) What is the political role of hope in the conflicts caused by hydropower projects in Mapuche territory? These questions follow an analytical logic that frames the phenomenon of hydropower development conflicts within a political and historical background and the experiences of the local inhabitants.

To address these questions, this thesis builds on sciences and technology studies (STS), ontological politics, political ontologies, political ecology, critical and reflexive ethnography, and feminist scholarship for conceptual, theoretical, and methodological guidance. Accordingly, this thesis is divided into two sections. The first, which corresponds to chapters 1 and 2, is based on an extensive literature review and

secondary sources that analyze the historical and political background of hydropower development in Chile and the rise of social movement activism following the STS approach. The second, which corresponds to chapters 3 and 4, is based on empirical data from ethnographic fieldwork, which follows a micropolitical ecology, critical and reflexive ethnography, and social movements approach to understand the social impacts of small hydro development in Indigenous Mapuche territories. In general, research traces how hydropower development is territorialized, and the reasons for opposing them put forward by social movements. In doing so, a collaborative research approach with community leaders, which comprises elements of participatory and visual ethnography, facilitates the examination of small hydropower impacts, regardless of whether the projects have been built.

Resumen

Esta tesis explora la perseverancia de la resistencia al desarrollo de la energía hidroeléctrica en el sur de Chile, a pesar de que durante los últimos años se ha producido un cambio de paradigma que ha impulsado la construcción de pequeñas centrales hidroeléctricas en reemplazo de grandes represas hidroeléctricas. Basado en una revisión de fuentes secundarias y 17 meses de trabajo de campo (2016-2019) en territorio Mapuche, específicamente en las comunas de Curarrehue y Panguipulli. Por un lado, este estudio examina cómo las comunidades Mapuche y los defensores ambientales navegan los conflictos socioambientales generados por el desarrollo de la energía hidroeléctrica en sus territorios, y, por otro lado, analiza el papel político de la esperanza en el cambio social que motiva a los líderes comunitarios a trabajar en alternativas de desarrollo en medio de conflictos y desesperanza.

A nivel mundial, el desarrollo de pequeñas centrales hidroeléctricas es respaldado por gobiernos y empresas privadas a través de generosos subsidios y expeditas autorizaciones, debido a la creencia de que este tipo de tecnología es una alternativa ecológica a las grandes represas. Sin embargo, la creciente investigación proporciona evidencia de que las pequeñas centrales hidroeléctricas generan considerables impactos sociales y ecológicos. En consecuencia, esta tesis cuestiona la suposición de que, al tener una menor capacidad instalada en mega watts, las pequeñas centrales hidroeléctricas producen menos impactos sociales y/o ecológicos. Esto implica que las consecuencias experimentadas en territorio indígenas no deben minimizarse ni ignorarse.

La pregunta de investigación principal de esta tesis es*: ¿Cómo navegan los conflictos socioambientales generados por el desarrollo de la energía hidroeléctrica en sus territorios los/as dirigentes indígenas y ambientalistas?* La estructura de esta tesis se organiza en torno a cuatro sub-preguntas que componen cuatro capítulos: 1) ¿Cuáles son los diferentes registros tecno-políticos del desarrollo de la energía hidroeléctrica en Chile? 2) ¿Qué diferencias ontológicas sobre el agua se encuentran en el desarrollo de la energía hidroeléctrica en territorio indígena? 3) ¿De qué modo los dirigentes indígenas navegan la agitación social, la resistencia y las ideas sobre el desarrollo energético que surgen en el contexto del desarrollo de pequeñas hidroeléctricas? 4) ¿Cuál es el papel político de la esperanza en los conflictos causados por el desarrollo de proyectos hidroeléctricos en el territorio Mapuche? Estas preguntas siguen una lógica analítica que enmarca el fenómeno de los conflictos de desarrollo hidroeléctrico en un contexto político e histórico y en las experiencias de las y los habitantes locales.

Para abordar estas preguntas, esta tesis se basa en los estudios de ciencia y tecnología (STS), políticas ontológicas, ecología política, etnografía crítica y reflexiva, y estudios feministas para orientación conceptual, teórica y metodológica. Esta tesis se divide en dos secciones. La primera, que corresponde a los Capítulos 1 y 2, se basa en una amplia revisión de literatura y fuentes secundarias que analizan el trasfondo histórico y político del desarrollo de la energía hidroeléctrica en Chile y el surgimiento del activismo de movimientos sociales siguiendo el enfoque de STS. La segunda, que corresponde a los Capítulos 3 y 4, se basa en datos empíricos de trabajo de campo etnográfico, que sigue una ecología micropolítica, etnografía crítica y reflexiva, y un enfoque de movimientos sociales para comprender los impactos sociales del desarrollo de pequeñas centrales hidroeléctricas en territorio Mapuche. En general, la investigación rastrea cómo se territorializa el desarrollo de la energía hidroeléctrica y las razones presentadas por los movimientos sociales para oponerse a ellos. Al hacerlo, un enfoque de investigación colaborativo con líderes comunitarios, que incluye elementos de etnografía participativa y visual, facilita el examen de los impactos de las pequeñas hidroeléctricas, independientemente de si los proyectos han sido construidos o no.

About the author

Maite Hernando-Arrese was born in Santiago de Chile in 1983. She obtained a bachelor's degree in Sociology from the Universidad Diego Portales in 2007. During her studies, she investigated a socioenvironmental conflict caused by a technological failure at the main sewage treatment plant of Chile: La Farfana.

In 2010 she moved to Valdivia, Chile, and in 2012 she obtained a master's degree in Rural Development from the Universidad Austral de Chile. During her studies she examined the process of incorporating renewable energies as a public policy in Chile based on the analysis of a case study on a small hydroelectric plant in Mapuche territory. Building on this research trajectory, she submitted a proposal to the Wageningen School of Social Science in 2014 and obtained a doctoral scholarship abroad, funded by the National Research and Development Agency of Chile (ANID). From 2015-2019 she worked on this PhD project at the Sociology of Development and Change and Rural Sociology groups at Wageningen University. In 2018, she got the Junior Research Grant funded by WASS to facilitate the dissemination of her research findings in the territories she engaged with during her PhD. Following three years of work at the Universidad de Aysén in Coyhaique, she successfully completed her PhD. Currently, Maite works as postdoctoral researcher on collaborative water governance alternatives in the context of mega-drought in central-southern Chile, as part of the ANILLO project led by Paola Bolados (Universidad Autónoma de Chile). She is also an associated researcher at the Centro de Estudios Ambientales of the Universidad Austral de Chile.

The research described in this thesis was financially supported by Agencia Nacional de Investigación y Desarrollo de Chile (ANID) (National Research and Development Agency of the Chilean government) and the Wageningen School of Social Sciences (WASS) and the chair groups of Rural Sociology (RSO) and Sociology of Development and Change (SDC).

Financial support from Wageningen University for printing this thesis is gratefully acknowledged.

Design and layout by: ProefschriftMaken | proefschriftmaken.nl

Printed by: ProefschriftMaken on FSC-certified paper.