

**ATMOSPHERIC POLITICS: NEGOTIATING CLIMATE CHANGE IN THE  
BOLIVIAN HIGHLANDS**

by

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## **Abstract**

This dissertation examines the experiences of farmers and herders in the highlands of Bolivia's central Andes, or Altiplano, as they face and respond to climate change and other environmental problems. This work is based on 12 months of fieldwork among Quechua- and Spanish-speaking people in a rural municipality called El Choro, located on the floodplain of the Desaguadero River and just north of Lake Poopó. Bolivia is already suffering impacts from climate change, including shifting precipitation patterns, such as floods and droughts that disrupt agriculture. The government of Evo Morales and the MAS party has positioned itself to be an international leader in the fight against climate change while also continuing to pursue wealth at the hands of high impact extractive industries such as hydrocarbons and minerals. This dissertation, then, is an attempt to take a closer view of one community that is simultaneously beset by the consequences of climate change and water pollution but also is presented with new opportunities for economic development and new investments by the government. I explore how environmental experiences and politics are entangled in different ways and the types of material and spatial linkages that refract politics through the changing environment and vice versa. I trace the spatial politics of climate change and other environmental transformations by focusing in on people's daily experiences with environmental phenomena such as mud, floods, droughts, and lightning strikes. I draw on spatial theories, such as Doreen Massey's conceptualization of space as composed of a multiplicity of intersecting trajectories, and affect theory, especially Baruch Spinoza's notion of bodies affecting other bodies by increasing or decreasing their capacity to act. I use these theories to draw out a conceptualization of what I call atmospheric politics, which emerge in the material interactions of daily life. I argue that atmospheric politics manifest in people's day-to-day negotiations with their changing environments. These negotiations reflect mutual entanglement between people and environments that open to a multiplicity of possibilities, despite the grim futures prognosticated under climate change.

## **Preface**

This dissertation represents original work by Clayton Whitt, who is the sole author and designed, performed, and analyzed all research herein. All photographs appearing in this work were taken by Clayton Whitt. All translations of source materials and transcripts from Spanish to English are by Clayton Whitt. Any errors are the responsibility of Clayton Whitt alone.

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## List of Abbreviations

CEPA – Centro de Ecología y Pueblos Andinos, or Centre for Ecology and Andean Peoples

CONAMAQ – Consejo Nacional de Ayllus y Markas del Qullasuyu, or National Council of Ayllus and Markas of Qullasuyu.

CORIDUP – Coordinadora en Defensa de la Cuenca del Río Desaguadero, los Lagos Uru Uru y Poopó, or Coordinator in Defence of the Desaguadero River, Lake Uru Uru, and Lake Poopó Watershed

CSUTCB – Confederación Sindical Única de Trabajadores Campesinos de Bolivia, or Unique Confederation of Peasant Workers' Unions of Bolivia

LPP – Ley de Participación Popular, or Law of Popular Participation

MAS – Movimiento al Socialism, or Movement Toward Socialism

MNR – Movimiento Nacionalista Revolucionario, or Revolutionary Nationalist Movement

SEDAG – Servicio Departamental de Agricultura y Ganadería, or Departmental Agricultural and Livestock Service

TCO – Tierra Comunitaria de Origen, or Community Homeland

TIPNIS – Territorio Indígena y Parque Nacional Isiboro Sécore, or Isiboro Sécore National Park and Indigenous Territory

UMSA - Universidad Mayor de San Andrés, or Higher University of San Andrés

UTO - Universidad Técnica de Oruro, or Technical University of Oruro



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*For Will Brown*

*1982-1999*

## Chapter 1: Introduction – Atmospheric Politics

On a cool August morning in 2014, while I was doing fieldwork in the village of El Choro, in the Altiplano region of Bolivia's highlands, I heard some welcome news on the radio. Help had arrived for local people. Defensa Civil, the Bolivian government's civil defence agency charged with disaster relief, was set to arrive that morning to deliver aid for *Choreño* farmers who had suffered losses in the previous rainy season's floods. The delivery was scheduled to take place in a couple of hours in front of El Choro's *alcaldía*, or municipal headquarters, in the eponymous municipal capital village. This building was only a few minutes' walk from the adobe room with the thatched roof that I rented for Bs. 80 (80 bolivianos, or US\$11.50) per month for the duration of my 13-months of fieldwork. After breakfast and chores, anxious to learn more about how farmers would be helped after suffering crop losses in the heavy rains and spilled over canals six months before, I bundled against the lingering morning cold and walked down the muddy road to the *alcaldía*.

The dirt soccer field in front of the *alcaldía*, normally near-abandoned on a weekday morning, was bustling with activity. A dozen Toyota minibuses were parked around the field, as were several unfamiliar buses that did not normally service El Choro. People were milling about in small clusters. I greeted some acquaintances and sat down on the edge of a planter box in front of the municipal headquarters. Soon an elderly man named Mateo,<sup>1</sup> whom I knew from the nearby village of Rancho Grande, walked up and greeted me. At 72 years old, Mateo had no

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<sup>1</sup> This is a pseudonym. Nearly all people featured in this work have pseudonyms; the only exceptions, unless otherwise noted, are major public figures like senators, governors, and presidents.

teeth left. He wore an old grey sport coat over his deeply bowed shoulders. We struck up a conversation, which, like so many I had in El Choro over the course of my fieldwork, started with the weather and soon moved to environmental problems. “Don’t you feel cold?” he asked me. “Yes,” I said, “it’s especially cold when it’s windy, isn’t it?” He agreed and said that recently the wind had been so bad in his area that it was ripping the roofs off of houses. He added that it was the southern wind that brought freezing temperatures, while the east and north winds “do nothing.” Mateo went on: “The problem is that we don’t have any trees. There are just a few that they planted here by the *alcaldía*, but they are in bad shape. If there were trees, that would help cut down on the wind a little bit, wouldn’t it?” As our conversation continued, he talked about some of the other struggles that farmers and herders face out in the countryside, known colloquially as the *campo*. He described how water pollution from mines upstream in the Desaguadero River watershed had rendered some of the lands around his village useless, even “desert.” “There are places where nothing grows anymore,” he said, “and some people say that their land isn’t productive anymore, and they leave to make a living elsewhere.” He talked about the mines up around the city of Huanuni, about 30 kilometres east of El Choro, that discharge their trash and mine tailings directly into the watershed. “They still haven’t built a *dique de cola* (tailings dam) to keep all of this mine waste out of the water, even though they should have built one a long time ago, so our water is still polluted,” he told me. He went on: “I’m not against anyone. I don’t want to stop them from making a living, everyone has the right...”

Suddenly our conversation was interrupted by an odd sight: a low-flying jet aircraft, probably only 500 metres above the ground, racing overhead. I thought it might be a military jet, although I could not make out the markings on it. Mateo and I both fell silent as we watched it fly due south. Could that be the president’s jet? I wondered.

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I had arrived in El Choro about ten months prior to start a year of fieldwork on the very theme that Mateo raised in our conversation: how El Choro's farmers were perceiving, experiencing, and managing environmental challenges. This had interested me since my first experience living in El Choro several years earlier. I lived in El Choro as a US Peace Corps volunteer from 2005 to 2007, working on potable water projects with the municipal government. This work mostly had me struggling to drill wells at people's homesteads in the *campo*. We carried on the project for two years but had no success, striking saltwater everywhere we drilled. While I was there, farmers and shepherds talked to me about their environmental concerns and frustrations, explaining their struggles with worsening water pollution related to discharges from upstream mines and sharing their observations of the changing climate. These conversations stuck with me, and I wanted to learn more. I left El Choro in 2007 with the plan of returning as soon as I could to learn more about how *Choreños*, or El Choro residents, were dealing with environmental change.

I returned to begin my field research at the end of 2013. My first visit back to El Choro after my nearly seven-year absence was one of the most joyous occasions I have experienced. Many people remembered me as if I had just been there yesterday and welcomed me back. Still, I had a somewhat awkward transition to make from my previous time as a representative of a problematic US government organization with a particularly turbulent history in Bolivia<sup>2</sup> to a

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<sup>2</sup> The Peace Corps opened a program in Bolivia in the early 1960s, during the initial years after President Kennedy established it. The Bolivia program was expelled in 1971 during a backlash against intense US influence and intervention in Bolivia's economic and political affairs, as well as rumours that the Peace Corps was sterilizing indigenous women, spread in part by the widely viewed 1969 film *Yawar Mallku* (Blood of the Condor). For a detailed history and critique of the activities of the Peace Corps in Bolivia during this time period, see chapter 6 of

researcher working on my PhD at a Canadian university. Most people seemed to accept the change, although I fielded occasional questions about my unsuccessful well-drilling project from years back. Some people even requested that I try and get the project going again, although this was impossible given the lack of fresh subterranean water. I received the blessing of the El Choro municipal council to carry out my work on climate change after presenting my research ideas at one of their meetings. I was fortunate, too, to arrive with the support of the well-respected Oruro-based environmental NGO Centro de Ecología y Pueblos Andinos (CEPA), which provided me with logistical support and with which I collaborated on a couple of small projects. Much as I did during the first time I lived in El Choro, I spoke candidly about my doubts and criticisms of my home country's government and its policies abroad. My presence did meet with some disapproval, most of which came from an influential local leader who took many opportunities to let me know that he did not want me there, such as by publicly suggesting that I was a spy and at one point asking me how much President Obama was paying me to be there. Other local elected officials, however, supported my presence and helped with my research, and my return was mostly a happy one. I found that many people were eager to share with me about their experiences and concerns with the changing environment. I soon learned, however, that in the intervening six years, the environmental picture in El Choro had become more complicated than I had anticipated.

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Geidel 2015. The Peace Corps returned to Bolivia in the early 1990s but was removed again under deteriorating relations between the United States and Bolivia in 2008. I worked there from 2005 to 2007 and was among one of the last groups of volunteers to have service uninterrupted by the closing of the Bolivia program.

After the jet passed, Mateo and I both remarked about how quickly it had flown overhead, and then we picked up our conversation again, although it was on a new tack: Mateo wanted to know everything I could tell him about agriculture in North America. “What kind of cows do you have there?” he asked. I was embarrassed at my lack of knowledge – to my shame I probably know more about agriculture in highland Bolivia than in North America – but I could fill him in on some of the basics about North America’s beef and dairy industries, and at his prompting (and amusement) I finally remembered that North America’s dairy cows were called Holstein, just like in El Choro. Mateo knew that I was originally from the United States, so he asked me which state I was from. When I told him I was born in California, he asked, “Is agriculture mechanized there?” I told him that it mostly is and explained how for many crops a small number of people could work a large amount of land with tractors and machinery. He seemed to be impressed. I wanted to present a more complete picture by telling him about some of the struggles of agriculture in my home state, so I described California’s long drought, which at that point had lasted two years. “The drought is impacting production, and food prices have already gone up,” I said. “Water is everything, right?” Mateo replied. “Without water you can’t do anything.” He went on: “The weather has changed everywhere, hasn’t it? The climate is changing. The climate has changed here and is much worse now.” He went on: “You read the Bible, right?” I told him that I had. “Everything in the Bible is coming to pass, isn’t it? The climate is changing. Science is making things better, with machines for agriculture and everything, but the Bible is coming to pass. Just as it predicted, the climate is changing.” Mateo frowned. “It is all in the Bible.”

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The story that Mateo told me was one I heard frequently in El Choro: the weather is changing. The climate is changing. Conditions for agricultural production are worse now than ever before. I collected dozens of versions of this narrative. Some people described the summers as hotter and the winters as colder. Others described both the summers and winters as hotter than before. Many people told me that the sun felt like it was stronger, and some even told me that it burned them more easily than it did in the past. Many, even most, of the narratives I heard about the experience of climate change included the idea that the annual cycle of weather was all scrambled up now, with different weather phenomena happening at unexpected times or even, as some people described, completely out of season. And while the central Altiplano had been no stranger to water-related disasters in the past, especially droughts and floods, Choreños told me that they were occurring more often now. Indeed, many like Mateo inflected their descriptions of change with apocalyptic statements, saying that their children would never be able to make their livelihoods in the region due to the changing climate.

These changing weather conditions came at a time when surface water in El Choro was less reliable than ever before. Farmers in El Choro relied on irrigation canals for their crops, but this water was polluted from the upstream mines that discharged waste and sediment into the Poopó watershed. On a visit to the mining city of Huanuni, I watched the thick grey water of the Huanuni River flow out of the city toward the flatlands around the Desaguadero River and El Choro. At lower elevations, water in the river takes on unearthly colours when it pools – often a preternatural green or orange – and garbage floats everywhere. Water was clearer in the main channels of the Desaguadero River and its marshes, although it foamed a sudsy white in places of turbulence and a turbid brown in El Choro’s irrigation canals. On one occasion I warmed up a pot of water that I had collected from one of El Choro’s shallow wells, which had long-ago been

contaminated by surface water from the canals. I simply wanted to keep my hands from freezing while washing dishes in the middle of winter. But as the water warmed it emitted a sickening burnt metal smell. I was overcome with nausea. This was water that some people, and all livestock, were drinking.

Environmental transformation, then, was not only encompassed in the different stories of change that people shared with me; it was also a non-discursive, sensory, sensational experience. It occurred, and was sensed, in fragments. Physical manifestations, like the white and yellow crusts of pollutants left on a dried-out part of the marshes on the west side of the Desaguadero River, where a farmer named Guillermo and I crunched around one winter's afternoon, told a story of deep environmental trouble. But how can one unravel the interlacing strands of this story? And if people *feel* climate change, water pollution, and other environmental problems in different ways, what are the consequences? Are such transformations refracted into politics?

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Fifteen minutes or so after my conversation with Mateo, the mayor of El Choro pulled up in the municipal pickup truck, the back of which was brimming with shovels and disassembled wheelbarrows. The official handover of disaster relief materials was to begin. Soon a crowd of people gathered around the mayor as he stood in front of the *alcaldía*. He called the event to order and expressed his regrets that no official representatives from Defensa Civil were there because they were still delivering aid in the nearby municipality of Corque. "So we'll start without them," he said. "First, I want to clarify that it was in early 2014 that the beneficiaries of this aid suffered from flooding and that the project was undertaken by Defensa Civil, first at the departmental level and later at the national level. It is a reality that this project has been delayed a little bit, but nevertheless we now have this humanitarian aid that Defensa Civil is providing

for us.” He listed off the beneficiary communities in the southern half of the municipality, totalling 689 individuals, and then he listed what they would be receiving: 8,382 kilograms of white rice and 6,868 kilograms of noodles to be divided between individuals.<sup>3</sup> 34 wheelbarrows, 100 shovels, and 60 hoes were to be divided between different communities for communal use. Then the mayor admonished the community leaders present: “Everything is paid for already. Not a single cent is to be charged from any beneficiary.” He went on to describe the paperwork that each leader was expected to fill out and return, signed and sealed, and he explained the logistics of the food distribution. Soon leaders were lining up to sign paperwork and remove their community’s share of food sacks from the municipal auditorium, in the back. They entered in groups, leaders and helpers, as their community name was called by a municipal employee. The village’s lone police officer stood by the auditorium door to ensure that no one else entered.

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Climate change, water pollution, and the other disasters facing people in El Choro certainly did not take place in a static space. El Choro was at the intersection of many transformations. Evo Morales had been elected president of Bolivia in 2005 after years of anti-neoliberal protests and insurrections, and his Movimiento al Socialismo (Movement toward Socialism, or MAS) government was directing more investment than ever before to the countryside. There were new programs to support agriculture, education, housing, health, and infrastructure. There was so much money that there were not enough local people to manage it. A new road was under construction, finally connecting El Choro to the highway only 15

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<sup>3</sup> These totals included food distributed to people in the northern half of the municipality as well, who received their aid at a separate event. In the end each individual beneficiary received 6 kilograms of rice and 4.5 kilograms of noodles. The amount was equal per person regardless of the scale of his or her loss in the flood.

kilometres to the east. International consumers had developed a taste for quinoa, creating a market for a product that had long only been eaten in producers' homes.

At the same time, the local schools were shrinking, as more people sent their children north to Oruro or even farther for their education. Sometimes entire families left, leaving empty, melting adobe homes in the countryside. More and more women managed all family affairs and productive activities, including tending their herds and crops, while their husbands worked away, or abroad, some of them never to return. More municipal and local leaders were only part-time residents of the municipality itself, and they often showed up late to meetings, dressed in city clothes. The new road to the highway provided a new smuggling route for drugs, contraband cars, and untaxed consumer goods. The air was thick with the rumble of Diesel trucks moving through the village at night.

It is at the intersections and entanglements of El Choro's different trajectories – social, spatial, political, environmental – that I will do my work, examining the heterogeneity of people's responses to change while they try to make sense of it. I seek to explore the political consequences of environmental change while avoiding the trap of environmental determinism. What emerges from my analysis is a somewhat hazy picture, but life with climate change and environmental change is lived under haze. I call this hazy picture atmospheric politics.

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As the food delivery continued at the *alcaldía*, I wandered around and soon ran into Abel, a middle-aged farmer and evangelical pastor whom I knew from the nearby community of Chaytavi. He told me that he found out just that day that he wasn't on the list of beneficiaries to receive disaster aid, even though he had suffered flood losses. He smiled grimly: "I'm annoyed, I'm disappointed. What else could I be?" "Angry?" I asked. Abel chuckled. After exchanging

some stories about events around the recent Bolivian Independence Day celebrations in early August, I commented to Abel, “This food aid sure took a long time to deliver, didn’t it?” “Yes, this isn’t a good project,” he replied. “I don’t like this project. How long will this food last? A week at the most. And what have we lost in the floods? What if someone lost a whole hectare of forage and then what do they get? Some food later? This isn’t enough. This project needs to try and replace what is lost.” “Yes,” I said, “then it won’t feed them for a week but rather for the whole year.” “Yes,” he replied, “What is this? This is just a distraction. And I’m not just saying that because I’m not on the list! I have been saying that all along.” He continued, explaining that he thought the municipal government needed a bigger vision for advancement, based on bigger projects, rather than leaving each community in charge of its own share of the municipal budget, which left the municipal money fragmented into small projects. “Still, he concluded, “when it comes to receiving food, everyone will come and line up to get it.”

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What follows is a picture of how atmospheric politics emerges in El Choro. I show how environmental experiences and politics are entangled in different ways, the types of material and spatial relationships that refract politics through the changing environment and vice versa. The day-to-day lived experience of climate change and other environmental problems are central to my analysis: the perceptions and conceptions that people bring forward in conversations, meetings, work, parties, and chance fleeting encounters. I explore politics, which I understand to be the ongoing mutual negotiations of people with each other and with the different material bodies of the environment that are implicated in the (sometimes) contested formation of place – what Massey (2005, 151) calls “the question of our living together” – in all sorts of different contexts related to the environmental challenges that the people of El Choro face. As the

following chapters show, I learned a lot about different political issues in the community from my interlocutors, such as disagreements over the direction of the municipal government and the expenditure of resources, but I also looked for the emergence of politics in the negotiations – “the range of means through which accommodation, anyway always provisional, may be reached or not” (Massey 2005, 154) – that arise in spaces small and large, from day-to-day life to open conflicts between different actors, including a tense series of road blockades that I attended. The challenge I set for myself is to explore these emergent politics of the changing climate without portraying the connections between environmental change and politics as deterministic or mechanistic. The conceptual components of what I am calling atmospheric politics will, as I explain below, help me do this. But first I need some kind of base to stand on: what is the broader climate and political context in Bolivia?

### **1.1 Climate Change, Evo Morales, and *Neoextractivismo***

Bolivia has already suffered significant impacts from climate change. Just over the last few years, the country has had a series of punishing weather disasters. In early 2014 the lowland Department of Beni<sup>4</sup> saw heavy flooding that affected 60,000 families, with the loss of at least 60,000 head of cattle and 43,000 hectares of cropland (FAO 2014). In 2015 came the widely reported loss of Lake Poopó in the Andean highlands to drought and poor water management (see Chapter 4). And 2016 saw a widespread drought across the country that caused US\$500 million in losses and a 216% increase in wildfires over the previous year (Cuiza 2016; *La Razón*

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<sup>4</sup> Bolivia is divided up into 9 departments, which are in some ways analogous to Canada’s provinces or the USA’s states. Although historically they were subject to highly centralized control from the national government, in recent years Bolivian departments have attained more autonomy and independent elections for their executives, rather than appointments by the president. See Mayorga Ugarte 2006.

2015). The Bolivian government calculates that between 2004 and 2015 alone, weather-related disasters affected 250 out of the country's 339 municipalities, resulting in over a million hectares of croplands damaged through droughts, floods, freezes, hail, high winds, pests, and diseases, totalling over US\$1 billion in losses (Choque 2015).<sup>5</sup> A recent study published by the development think tank Fundación INESAD in La Paz projected that Bolivia could lose up to 8 percent of its gross domestic product (GDP) throughout the rest of the 21<sup>st</sup> century due to climate change (Andersen and Jemio 2015). In addition, so far the most intensely affected parts of the country are also the poorest and most indigenous municipalities (Andersen and Verner 2009).

For the Andean highlands, climate impacts, both projected and observed, largely take the form of shifts in precipitation. Climate change projections based on general circulation models (GCMs) as well as weather station data show that the early rainy season of September to November (which is critical for planting) is getting more and more dry, while the later part of the rainy season of January to April is getting more wet (Seth et al. 2010). Such observations and projections suggest that annual precipitation is not decreasing but rather is intensifying into a shorter period of the rainy season (Seth et al. 2010; Thibeault, Seth, and Garcia 2010). This will, of course, limit the precipitation's utility for agriculture. Temperature increases hurt agriculture as well in this cold growing region because they bring higher rates of evapotranspiration and thus drier soil (Thibeault, Seth, and Garcia 2010). In addition, overall drought risk is projected to increase in the highlands alongside temperature (Seiler, Hutjes, and Kabat 2013b). This will put strains on highland surface water supplies that will also be shrinking due to rapid glacier retreat

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<sup>5</sup> It should be noted that this report equates all weather-related disasters from that period of time with climate change, but the association between extreme weather and climate change is, of course, not one-to-one. Extreme weather events certainly occurred before the present era of climate change, but the types of phenomena described in the article seem to be increasing in frequency, and this increase *is* associated with climate change.

(Vuille et al. 2008; Rabatel et al. 2013). Indeed, a large proportion of the glaciers in the Andes, particularly those below 5,400 metres of elevation, will likely disappear by 2100 (Rabatel et al. 2013).

These climate change impacts occur in a national political context that has rapidly changed. The 2005 victory of Evo Morales and his Movimiento al Socialismo (Movement Toward Socialism, or MAS) party followed years of social mobilization against privatization and other economic policies associated with *neoliberalismo*. A major flashpoint for this mobilization was the 2000 Cochabamba Water War, when people in the city of Cochabamba successfully revolted against President Hugo Banzer's plan to privatize the city's water supply and put it in the hands of a consortium of mostly foreign companies.<sup>6</sup> The next major flashpoint was the civil unrest and violence of 2003. The year began with Black February, violent anti-tax protests led by the national police that resulted in the deaths of 34 protestors at the hands of the Bolivian army, and ended with Black October, when President Gonzalo (Goni) Sánchez de Lozada was forced to resign in the face of intense protests and blockades against exporting natural gas via Chile under what were seen as terms unfavourable to Bolivia (Gutierrez Aguilar 2014). When President Carlos Mesa also resigned in 2005 after more protests, this time in favour of nationalizing gas, Evo Morales and his MAS party (which had won second place in the 2002 national elections with 21 percent of the vote) won the election with a clear majority and took power for the first time. It is hard to overstate the significance that millions of Bolivians saw in the election of an indigenous Aymara social movement leader to the presidency. I was present in El Choro in 2005

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<sup>6</sup> This was an event so influential in recent Bolivian history that the preamble of the 2009 Bolivian constitution cites it as an inspiration for the construction of a new state (see Chapter 4). For discussion of the Cochabamba Water War see Assies 2003; Dangl 2007; Dwinell and Olivera 2014; Fabricant and Hicks 2013a; Kohl and Farthing 2006; Olivera 2004; Perreault 2006.



when he was elected. The municipality voted overwhelmingly for MAS, and people I spoke with after were overjoyed at the results. As Nancy Postero (2009, 159–60) notes, for many highland indigenous peoples of Bolivia, Evo Morales’s assumption of power represented *pachakuti*, a time of ritual change, or revolution, marking a break with the injustices of the past.

Morales took office promising to distribute the country’s mineral and hydrocarbon wealth more fairly. On May 1, 2006, about three months after his inauguration, he announced what he called the “nationalization” of Bolivian hydrocarbon resources: taxes on oil and gas production were raised and contracts with the foreign multinationals were renegotiated so that the Bolivian state received a larger share of profits from exports, resulting in gas revenues increasing from US\$173 million in 2002 to US\$1.57 billion by 2007 (Harten 2011, 180–81).<sup>7</sup> These higher revenues funded many new initiatives, including pensions for the elderly and stipends for the families of school children (Harten 2011, 181). As I discuss in Chapter 3, Morales also used increased state revenues to invest more in rural areas, including agricultural and infrastructural improvements. These tangible benefits of the Morales and MAS government, now extending into his third term, are instrumental in maintaining his support. In the words of Eduardo, my research collaborator in El Choro and a long-time MAS supporter, who in a phone call to a local radio station exhorted his fellow Choreños to vote for MAS in the 2014 elections, “Evo has made a lot of works, and works enter the eye.” In other words, voters could see the legacy of Evo Morales’s presidency in the improved physical infrastructure around them.

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<sup>7</sup> As Harten (2011; see also Hindery 2013) points out, this was not really a nationalization of gas resources, because the private property of the companies exploiting the gas fields was not expropriated by the state. But nationalization was the word used by the government and media alike to describe the changes that Morales implemented.

Where many critics argue the Morales presidency has delivered less than hoped for, however, is on protecting the environment, and, relatedly, on respecting the rights and autonomy of indigenous peoples. Morales has certainly managed to sound the right notes on these issues in the way he presents himself to the region and the world. Since taking office he has positioned himself as an international advocate for climate change action and has been outspoken in pinpointing the blame for climate change on capitalism and western notions of modernization. In April 2010 the Bolivian government hosted an international summit on climate change and capitalism in Tiquipaya, near the city of Cochabamba, in response to the failure of the Copenhagen climate talks in 2009 (Lindisfarne 2010). In his speech to the summit, Morales declared, “We have two paths: either capitalism dies or Mother Earth dies. Either capitalism lives or Mother Earth lives” (*Democracy Now!* 2010). However, many indigenous activists criticized the Tiquipaya summit for excluding Bolivia’s internal environmental issues from consideration altogether, such as the impact of mining in the highlands. These activists held a parallel meeting, called *Mesa 18* (Table 18, reflecting that the official summit featured 17 official *mesas*, or working groups for discussion and action) to call attention to these issues, including the complicity of the Morales administration, and to demand the expulsion of extractive industries from Bolivia (Aguirre and Cooper 2010; Weinberg 2010).<sup>8</sup> In 2011, indigenous peoples living in the Isiboro Sécure National Park and Indigenous Territory (known by its Spanish initials TIPNIS) resisted a government project to build a highway through their territory, fearful that the new highway would result in deforestation and land invasions (Lorenzo 2011).<sup>9</sup> In response to

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<sup>8</sup> There is a great deal of other literature on the Tiquipaya summit and *Mesa 18*. See Fabricant 2013; Fabricant and Hicks 2013b; Mueller 2012.

<sup>9</sup> For other overviews of the TIPNIS issue, see Fabricant 2012; Hindery 2013.

protests, Morales stated, “Whether they want it or not, we’re going to build this highway” (Luksic 2011). When protestors attempted to march from the lowlands to La Paz, they were met with a violent crackdown at the hands of the national police (Lorenzo 2011).

At issue in these conflicts is the development model that remains at the heart of the Bolivian government’s economic plans, what Eduardo Gudynas (2010) and other critics have labeled as *neoextractivismo*: the continued focus on economic growth through environmentally destructive industries like mining, hydrocarbons, and large-scale monoculture for export, which according to Bolivian researcher/activist Oscar Campanini (2015) made up 90 percent of Bolivia’s exports in 2012. Indeed, Bolivia’s 2009 constitution enshrines some of these contradictions between the Morales administration’s environmental rhetoric and development plans through what Derrick Hindery characterizes as “a paradoxical mix of safeguards for Indigenous peoples and the environment combined with guarantees for the continuation of extractive development on Indigenous lands” (2013, 160). As the people of TIPNIS found, the constitutional guarantee of indigenous consultation is not enough to put the brakes on disruptive projects in sensitive areas. As it is, following the TIPNIS conflict the MAS government did pass the Framework Law of Mother Earth and Integral Development for Living Well in December 2012. While this law ostensibly safeguards the rights of “Mother Earth,” it only calls for adequate regulations and technologies to address the harmful effects of extractive projects, falling short of requiring consent from indigenous groups for projects on their lands (Hindery 2013, 217–18). At the same time, activists who question or oppose plans to expand these industries or engage in other large-scale projects are accused by the Morales administration of opposing “progress,” of supporting the right-wing opposition, or of working on behalf of foreign interests against the Bolivian state (Gandarillas 2016). This debate continues as the Bolivian

government is now pushing forward a two-phase project to dam the Beni River, an Amazon tributary, near Madidi National Park, at a gorge called El Bala. The first phase, called El Chepete, will flood approximately 68,000 hectares of forest and displace 4,000 people (Fundación Solón 2016).<sup>10</sup>

Environmental issues, then, remain contentious in Bolivia. For people in El Choro, an important event in the development of their environmental consciousness came in January 2000, when an oil pipeline jointly owned by Enron, Shell, and the Bolivian government spilled over 29,000 barrels (approximately 4.6 million litres) of oil into the Desaguadero River and contaminated 400,000 hectares of agricultural land throughout the region (Haglund 2008; see also Hindery 2013, 56–58). Between this event and continuing discharges from mines into the Poopó watershed, the environmental issues to which Choreños are most politically attuned relate to water pollution. Although people in El Choro continue to strongly support the MAS government, while I was there I encountered frustration with the government’s unwillingness to rein in the mining companies that pollute the municipality’s irrigation water. As Marino, a former mayor of El Choro, commented at a discussion of the proposed 2014 Mining Law, which irrigators generally opposed because it empowered cooperative miners to expand their operations and use more water: “The current government talks very pretty about protecting the Earth, but these are just words. Look at the case of Huanuni! (a mine upstream from El Choro). It’s a state-owned company, and it is poisoning us!”

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<sup>10</sup> The El Bala project is slated to be massive. When all phases are completed, it will produce 3,600 megawatts. Bolivia’s current peak consumption of power is 1,200 megawatts (L. Mamani 2016). As such, much of the power produced will be destined for export; the project, in other words, is another example of *neoextractivismo*. An excellent source of information, and critique, on the El Bala project as it continues is the Fundación Solón in La Paz – see [fundacionsolon.org](http://fundacionsolon.org).

This, then, is one way of looking at the state of environmental politics in Bolivia today. But for this project I had to find a way to see how environmental politics are lived, day-to-day, in one broadly interconnected Altiplano community. To do so I drew on the tools offered by ethnographic fieldwork and participant observation.

## **1.2 Working in El Choro**

I planned for my time in El Choro to be a loosely structured and open form of anthropological fieldwork, where I could join community members for day-to-day life and general activities, learning through casual conversation and informal interactions where topics like environmental change could emerge, at times through my questions, at other times according to the initiative and interest of my interlocutors. Daily participant observation was be my most important tool, as I intended to learn how environmental problems intersected with people's daily lives and the degree to which people were concerned with and responding to them. As such, I needed to be in the places where these intersections and experiences happened: that meant living in the village for an extended period of time.

My first real week of this work began in early December, 2013. I did not have a place to live, but Eduardo, who had been a municipal leader when I was a Peace Corps volunteer before and was now a private citizen (see Chapter 2), helped me get set up, first giving me temporary quarters in his home and then after a few weeks finding me a room to rent in the family compound of Rufina and Lucas, a couple who served together as elected indigenous authorities, called *jilacatas*. Their family compound was located across a muddy side street from the village's public sports court, where every afternoon kids played basketball or *fulbito*, a form of fast-paced five-on-five mini soccer. I had one of the compound's four rooms, which faced onto a

large courtyard that was completely enclosed in a 1.8 metre sod wall, with a gate made of a piece of corrugated zinc. The courtyard was overgrown with weeds and feral quinoa plants over the summer and was often visited by wandering sheep, dogs, and chickens.

I moved into my new room on Christmas Eve, 2013. Eduardo let me borrow two straw mattresses and a pile of dusty blankets to make a bed and a long narrow table that served as my kitchen counter, dining table, and work space. Over the following weeks I assembled the rest of what I needed for my one-room household: a gas canister and stove, water buckets and jugs, a shelf to store food. I bought an inexpensive single-speed bike in Oruro to serve as my primary means of transportation between village and countryside and to outlying villages like Santa María and Chaytavi that were 10 kilometres away. I was fortunate that my room, while waterless (as was the whole village; for my own supply I brought 30 litres of clean water out from Oruro on each return trip and rationed it carefully), at least had a power outlet and a single fluorescent light, fully functional once Eduardo fixed it. Like all other houses in the village, it had no heat. Its thick adobe walls and thatch roof were effective insulators, but even so, over the winter the interior temperature plunged to only a few degrees above freezing at night. But at least I had reliable cellphone service and spotty 4G coverage from the Entel tower, built a few years prior right in the village.

I took up a routine. The day started early in El Choro, so I tried to match my schedule with the rhythms of people around me, rising most days at 6:00 AM to begin breakfast and chores and to make the three minute bike ride to the nearest public pit latrine. A key part of my early morning hours was the daily Radio Bolivia broadcast from Oruro. This was the primary source of news for the people of El Choro. The radio show focused mostly on local news and announcements, with so much valuable information that I sometimes recorded it and always

listened with my notebook ready. The announcer shared information about upcoming meetings, workshops, parties, and visits by dignitaries and politicians. Sometimes, in a sad tone, he read notices of deaths, funerals, and wakes, or he joyously announced an upcoming wedding in the countryside or in Oruro. He took calls from people who shared late breaking announcements, voiced complaints, or even made accusations of crimes or corruption against municipal politicians or other members of the community. Radio Bolivia was a sounding board and a community calendar, the price of admission being only an inexpensive radio and a cellphone. For me it was an invaluable window into El Choro's activities: while I often heard about upcoming events through my daily conversations, Radio Bolivia filled me in on the details of dozens of events that I ended up attending for my research while also cluing me in to local political debates.

After Radio Bolivia helped me plan my day and week, and assuming I did not have field notes to catch up on or any activity already scheduled, my next step was to head out and look for people. In order to match the rhythm of the village, I had to get out early and on the right day. People tended to head out to their fields after breakfast, so my best chance for finding people was to circulate through the village in the morning, sometimes eating breakfast at a little kiosk in front of the elementary school, or making a circuit as people chatted on street corners and in front room stores before heading out. On Wednesdays and Saturdays, many people were at the markets in Oruro, selling sheep meat and buying supplies, leaving the village quiet. On morning rounds I talked to people and wrangled invitations to help with work that day or attend social events or meetings. If all went well I could spend time talking to people about issues of interest to my research. After a particularly busy morning in the village, I would have to head back to my room to write notes.

Throughout my fieldwork I had a self-imposed policy of saying yes to almost everything. It was often difficult to predict ahead of time what activities would be the most fruitful for my research, and a local meeting on climate change adaptation could end up being less interesting than a day spent plowing fields. I would try to go to both. Joining people for work allowed me to experience daily life and gave ample opportunity for conversation, while social and community events introduced me to new people and helped me learn more about the issues that were of biggest local concern and at the centre of debates. I spent some time asking questions but also quietly listened to whatever came up without prompting. I knew that it was impossible for me to fade into the background: I was a white man speaking accented Spanish, born in one rich, privileged country and studying at a university in another. People often asked me what my plane ticket had cost, where my funding came from, or how difficult it was for them to make a reciprocal visit to one of my home countries. I gave honest answers: US\$1,500 roundtrip for the journey, the Canadian government and a private anthropology foundation funded my research, obtaining a visa to the US or Canada was difficult in most cases. The most uncomfortable question of all was one that was informed, in part, by my previous time there working on the well-drilling project: What are we going to get out of your project? I'm optimistic about the power of research to make a difference, but this project was not structured as an intervention. To such questions I explained the goals of my research but made clear that I did not know exactly where it was going to go. I found that a lot of people asked me questions like that out of curiosity, to better understand my purpose, but (with the exception of one hostile local leader I mentioned above) I heard very little disappointment that I had not come with something more concrete for the community.



This did not mean, however, that I had no reciprocal obligations beyond those narrowly defined by my research design and anthropological ethics. To live in El Choro meant that many people expected me to be a part of the community: to attend events, help with work, go to meetings (where I provided occasional updates on my research) and big parties, and sometimes put work aside to socialize and celebrate. Obviously this usually dovetailed with my research plans. Over the course of my time in El Choro, I joined people for myriad activities: plowing, seeding, and harvesting fields, making cheese and sausages, herding animals, cleaning canals, managing irrigation water, watching local soccer matches. I went to dozens of political and planning events, including meetings for irrigation canal zone members and special development projects, workshops on everything from commercial meat production to climate change adaptation, village- and municipal-wide meetings, special events for visiting dignitaries (such as the governor of Oruro; see Chapter 6), and much more. And there were the holiday celebrations, which usually lasted at least four days and included Christmas, *Carnaval*, Independence Day, and El Choro's annual agricultural fair in September. To participate in these different activities took some travel, including to other villages and sites around the municipality, which I mostly reached using my bicycle. I visited Oruro frequently, sometimes going to the peripheral neighbourhood known as Urbanización El Choro where many people from El Choro have settled. As I explain in Chapter 2, I came to understand the relationships between these different locations as emerging in the formation of the place of El Choro. As such, I do not consider this to be multi-sited research but rather as work that is interested in the production of place over varying spatial linkages.

While I did make audio recordings of a few interviews, as well as of most of the public meetings and events I attended, in general much of the rest of my data collection came in the

form of casual conversations that often happened spontaneously or arose in the context of many different kinds of events. These conversations were not recorded; rather, I wrote short jottings into a pocket notebook, including key quotes and short phrases to jog my memory later. I used these jottings as the basis for my daily field notes. Many of the quotations appearing in these chapters, then, are based on reconstructions of conversations from my immediate jottings into my daily field notes.

There was a significant limitation that emerged throughout my research: much of it took place in particular contexts with people who were not always fully representative of El Choro at large. Certain types of activities and interactions were more accessible than others; these left me in mostly male spaces a lot of the time. Many agricultural activities I joined tended to be led by men, as was group work mandated by canal zones and other local organizations. I collected a lot of information at public meetings, listening to discussions and debates. While women attended in roughly equal numbers to men, they mostly sat together in the back of the room and held only a small portion of the elected leadership positions. Most of the women were not as likely to speak up during discussions, and I could not help but notice that at many meetings, if a woman decided to speak up after four or five men had already spoken, that was often the moment that the facilitator, usually a man, decided to call for the discussion to move on to a new point. It did not always play out like this, but portions of the chapters ahead that rely on information I collected at public meetings perpetuate this imbalance. In day-to-day conversations and activities, I often found it to be more difficult to engage women in the community. Certainly much of this resulted from my own limitations as a researcher as well as my reluctance to be too pushy if people were shy around me, as was often the case with interlocutors who were women. In addition, the people who took it upon themselves to take me under their wings were nearly all men. I built rapport

with them through heavily male activities, like working in agricultural fields and building structures, as well as male socialization like chance afternoon celebrations over beers at small stores in the front rooms of people's houses. There was also the language barrier, which had a gendered dimension. Although the indigenous language spoken in El Choro is Quechua, most people living there today speak Spanish as well, and it is the language for all meetings, events, and workshops. Much socializing and informal interactions in El Choro take place in Spanish, but to the extent that there are still monolingual Quechua speakers in the municipality, that population is heavily weighted toward elderly women. While I speak Spanish fluently as a second language, I have not learned much Quechua.<sup>11</sup> I occasionally managed to get short interactions translated, but I was not able to communicate very much with monolingual speakers. I must do more to address these imbalances of gender and language in my future research in El Choro.

Nevertheless, as the chapters ahead show, over the course of the year dozens of Choreños shared their lives and experiences with me in minutes, hours, and days that we spent together. Through these varied conversations, of course, no single picture of environmental change in El Choro emerged; as the chapters reflect, people's experiences at times contrast with and contradict each other. But, as I will show, many themes did develop in common, such as increased out-migration, water and land changes, perceptions of pollution and shifting weather, and experiences with weather-related phenomena like mud and lightning. The next matter, then,

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<sup>11</sup> I received brief training in Quechua when I was in the Peace Corps and also took a basic class in 2011. This gave me a limited proficiency with the language, which, combined with the fact that most Quechua speakers in El Choro mix many Spanish words into their sentences, meant that I often could understand someone speaking Quechua, but I could not give more than a basic response at best. This led some people to joke that "Clayton speaks Quechua like a dog – he understands, but he does not reply."

is what conceptual tools I should draw upon to analyze these themes and attempt to bring them into broader conversations across anthropology.

### **1.3 Moving Toward Atmospheric Politics**

Climate change anthropology was essentially established in 1975 by a collaboration between Margaret Mead and climate scientist William Kellogg, when together they organized a symposium of physical and social scientists to address human alteration of the atmosphere and the risks posed to the planet (Kellogg and Mead 1980). Since then, but especially over the last fifteen years, there has been a proliferation of ethnographies addressing climate change and even a 137-page report from the American Anthropological Association discussing the issue (Fiske et al. 2014). Some researchers have looked at the incorporation of local climate change knowledge into scientific observations and adaptation programs (Checker 2009; Crate 2011; Peterson and Broad 2009). Much work focuses on the lives of people in marginal environments and their experiences of vulnerability, dispossession, and resilience under climate change (Crate 2008; Lang 2015; Porio 2014) and the emotions people feel in relation to environmental transformations (Drew 2012). Other works have focused on environmental conflicts over dwindling resources and energy projects (Howe 2014; Howe and Boyer 2015; Rhoades, Zapata Rios, and Aragundy Ochoa 2008) and how notions of blame and responsibility for climate change arise in different places (Hughes 2013; Rudiak-Gould 2014). Researchers have examined the relationship between climate change and earth deities in different places (Bolin 2009; Byg and Salick 2009), the quotidian experience of climate change and how it shapes people's relationship with place (Connor 2016; Hitchcock 2009), and the ways that the idea of climate change is deployed in local contexts as an explanation for different phenomena (Mathur 2015).

And anthropologists have engaged with the concept of the Anthropocene<sup>12</sup> itself, including the debate over its analytical validity and utility, and ways of conceiving and understanding the present-day as an age of unprecedented human impact (Haraway et al. 2015; Irvine 2014; Moore 2015).

Among this diverse and booming field of research, I saw a place for a deeper examination of the daily material and affective experiences of climate change. As the chapters ahead show, my time in El Choro impressed me with the idea that much of the experience of climate change and other environmental problems takes place in small day-to-day events involving intimate connections and disconnections between bodies in space: walking through mud, avoiding lightning strikes, reflecting on memories stimulated by the sight of abandoned homes in the countryside. I sought conceptual tools to help me explore these spaces of change with people. In other words, what does living in climate change feel like on a day-to-day basis? How do such experiences of environmental change intersect with different transformations and experiences that the people of El Choro face? How do these different processes connect with the political life of El Choro? As I will explain below, the goal of exploring people's experiences with environmental change in their day-to-day lives drew me to the work of theorists who address relationships between bodies in space and whose work I believed I could engage with in a productive, interwoven conversation. I do not see this as an exercise in seeking or interpreting that which is otherwise hidden from view in El Choro; quite the opposite, what I learned through the course of this research is readily seen and experienced day-to-day by the people there. But I

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<sup>12</sup> The Anthropocene is the geological epoch defined by humanity acting as a geophysical force. For discussion see Steffen, Crutzen, and McNeill 2007; Waters et al. 2016. For more on the debate over the Anthropocene as a concept and its relevance for anthropology, see Chapter 8.

seek to connect the significance of these experiences to the broader literature on life under environmental change. What may be under-considered, so far, is how larger transformations like climate change are experienced in the webs of people's day-to-day lives and the way that such interwoven experiences and spatial relationships are subsequently refracted into environmental politics. I work to expand this consideration with the hope that it will both aid in understanding the extent to which climate change and other environmental problems insert themselves into people's lives, in effect intruding on the minutes and hours of their days and their well-being in many different ways, while also looking at the ways that people create opportunities for themselves to respond to environmental change and challenges with hope and creativity.

The authors I draw on for this project, then, write on theories of affect, materiality, space, time, and rhythm, which I strive to connect to the ways that the people in El Choro are experiencing climate change and other environmental problems. These authors write from particular places and times; to ignore their location and situatedness runs the risk of presenting such works as universal or as detached from the power structures and politics in which they were created (Mignolo 2009; Sundberg 2013). As Walter Mignolo writes, "The knower is always implicated, geo- and body-politically, in the known, although modern epistemology...managed to conceal both and created the figure of the detached observer, a neutral seeker of truth and objectivity..." (2009, 162). I do not wish to present myself as such an observer nor to depict these authors as such. By not allowing my presence to fade into the background in the chapters that follow, I hope to continue drawing attention to the daily contingencies and interactions wherein this fieldwork was produced with my interlocutors, events that were always shaped in part by my presence as a privileged foreign researcher attempting to carry out a project. Likewise, I engage with these particular authors with a situated purpose: I hope to bring these

ideas with me into the unsettlements of El Choro's rain, mud, and lightning, in order to produce a work that speaks back to the broader currents of environmental anthropology while finding ways to incorporate the smaller, more intimate bodily experiences that accompany environmental change into the broader story of global climate change and its politics.

Key to this project first is the notion of the affective relationships between bodies. For this analysis I draw this idea from Spinoza's treatise *The Ethics* (1951), in which he outlines an immanent theory of the origin of emotions. For Spinoza, humankind is part of nature and as such the causes of human emotion can be explored and identified. In his exploration of emotions Spinoza elicits the key idea that bodies are open to each other and act upon each other. In doing so bodies can either increase or decrease another body's capacity to act. These bodily modifications are what Spinoza calls "affects." Another central idea is Spinoza's second proposition on the origin of emotions: that the body and the mind are one and the same and are affected by other bodies. This establishes a relational nature between bodies on what Gilles Deleuze calls a "plane of immanence" (1988, 122), upon which affects between bodies take place. This is juxtaposed against the idea that actions arise autonomously in a mind that controls body and being. Each body is constantly affected by other bodies in ways that may have unpredictable results (Spinoza 1951, 51). These affects are central to relations of power. Drawing on Spinoza, Jon Beasley-Murray reminds us that the apparently disembodied power of the state depends on real bodies and that affect, inseparable from politics, is abstracted and employed by the state (2010, 129–30). Kathleen Stewart (2007) points us to how affective politics play out, and indeed originate, in the smallest everyday spaces of life before the articulation of ideology or identity.

To think in terms of affect, then, has many implications for the immersive relationship that people have with environments undergoing transformation, because it suggests that the changing environment has the capacity to act on the very inseparable composition of emotions and actions felt and undertaken by human bodies. Jane Bennett (2010) argues that it is important to note how material bodies themselves shape the possibilities of agency and intention for the human actor. As she writes, “an intention is like a pebble thrown into a pond, or an electrical current sent through a wire or neural network: it vibrates and merges with other currents, to affect and be affected” (2010, 32). For Gastón Gordillo (n.d.), this material power to affect is important, but it is not enough to understand the “visceral immanence” of environmental change and destruction; he argues that it is also crucial to bring to the fore the fact that Spinoza understood affects geometrically, encompassing the spatiality and mobility of bodies as they affect each other, for instance, in processes of environmental destruction and resistance to it.

If people live in affective relations with each other and the material bodies of the world, then a key body for understanding people’s responses to climate change is the atmosphere itself. For Tim Ingold, the body’s immersive relationship with the atmosphere is a key part of what he calls “the relational constitution of being,” that organisms develop within a relational field where there is no strict separation between an organism and its environment and where “Things *are* their relations” (2011, 69–70 Emphasis in original). The atmosphere is the medium in which the substances of the world take shape. Ingold writes, “To feel the wind is not to make external, tactile contact with our surroundings but to mingle with them. In this mingling, as we live and breathe, the wind, light, and moisture of the sky bind with the substances of the earth in the continual forging of a way through the tangle of life-lines that comprise the land” (2007, S19). The atmosphere is not the mere background to everything happening on the surface of the earth



but rather gives the very possibility of life. According to Ingold, what this means for organisms is that “to inhabit the open world, then, is to be immersed in the fluxes of the medium: in sunshine, rain, and wind. This immersion, in turn, underwrites our capacities – respectively – to see, hear, and touch” (2007, S30). Through the binding of medium and substance – the joining of earth and sky, the breathing of air into the body – the wind and weather make their marks on the world, including on all organisms. The atmosphere doesn’t just move mountains; it moves us too.

But if this binding of air, earth, and the open body gives the possibility for life, it also gives the possibility of death and terror. This possibility is mostly unexplored in Ingold’s work, which in being influenced by phenomenology at times seems to impart a romantic and ahistorical quality to the relationship between the body and its surroundings. In contrast Peter Sloterdijk’s work on what he calls “atmo-terrorism” opens up space for the politicization of the atmosphere and shows the terror that can emerge in the relationship between body and air. In his book *Terror from the Air* (2009), Sloterdijk reviews the technological advances that allowed for what he calls the explication of latencies in the atmosphere, the intentional drawing out of the atmosphere’s dormant capacities. To do so, he traces the 20th century history of how the environment became a target of weapons of war, beginning with the gas attacks that started halfway through the First World War. Through these gas weapons, bodies were attacked by means of their relationships with the environment (Ingold’s “medium”) – *i.e.*, by breathing or simply existing in openness to the surrounding air (Sloterdijk 2009, 22–23). What Sloterdijk calls a “special climatology” – that is, a new field of scientific study on how to weaponize the atmosphere itself – emerged from these efforts to attack bodies through their need for air, and “the active manipulation of breathing air...became a cultural matter” (2009, 47). So breathing itself,

“binding medium to substance,” has been historically subjected to political violence and manipulation starting in the 20<sup>th</sup> century that has left the atmosphere changed and untrustworthy. Add to this climate change. As Sloterdijk writes, “Nowadays, what human beings meet in the weather are the exhortations – become atmospherically objective – of their own industrial-chemotechnical, militaristic, locomotive, and tourist activities” (2009, 89). The atmosphere is poisoned; the weather is changed. This means that “living and breathing under open skies can no longer hold the same meaning as before” (Sloterdijk 2009, 109). In a time of anthropogenic climate change, bodily relationships with the atmosphere are, in short, infused with politics.<sup>13</sup>

For both Ingold and Sloterdijk, a key point is that the atmosphere is affectively charged, whether with the possibilities of life and perception that it enables, or the politicization and weaponization that turns the atmosphere against the human body. But their work also reflects on the atmosphere as a space. This is a particularly important dimension of study considering that it is the atmosphere’s spatial properties – its contiguous spread around the entire globe – that work along with its material properties to enable the diffusion of climate change around the Earth. The inclusion of more theorization about space in atmospheric politics also contributes a way of conceptualizing the intersection of the atmosphere with what Doreen Massey (2005) characterizes as the heterogeneity of place, giving us tools to focus on a specific place like El Choro in space as well as time. For Massey, space is always under construction, composed of a “simultaneity of stories-so-far” (2005, 9). A multiplicity of different trajectories meet in a

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<sup>13</sup> This is especially true in a time when humans attempt to “cultivate” the atmosphere through geo-engineering, by either removing or adding substances to the sky to undo the damaging effects of climate change (Hulme 2015). However, according to the science historian James Rodger Fleming (2010), practical efforts to deliberately alter the atmosphere, such as fog clearance and later cloud seeding, took off during World War II and accelerated during the Cold War.

particular place, forming it as dynamic, open, and characterized by “throwntogetherness” (Massey 2005, 140). This meeting of trajectories forms place as an event, a location in time as well as space (Massey 2005, 132). Henri Lefebvre also emphasizes the dynamism of space, but he focuses on how space is a social product and is also a means of production, domination, and control (1991, 26). However, of much interest to this project is Lefebvre’s method of bringing space and time together through his analysis of rhythm, which he argues is present in any place where there is an expenditure of energy over time (2004, 25). For Lefebvre, it is through rhythm that different cycles of capital and destruction interfere with the cycles of the planet (2004, 18). As the rhythms of the atmosphere change, they intersect with, and interfere with, a multiplicity of other rhythms.

These are, then, some of the key ideas and concepts informing this work and the notion of atmospheric politics: affective, material bodies that relate to each other in space, affective relationships that have political potential, human bodies living in and responding to an affectively charged atmosphere and material environment, places formed by criss-crossing and heterogeneous trajectories over time, and the intersections of different rhythms that fall in and out of synchronization and disjuncture. It is time, then, to briefly outline how atmospheric politics emerge in the chapters ahead.

#### **1.4 Chapter Overview**

In Chapter 2, I present an introduction to the community of El Choro. Drawing on the spatial theories of Doreen Massey and Gastón Gordillo, I conceptualize El Choro as a place composed of a multiplicity of intersecting trajectories. These trajectories include the history of Spanish colonialism in the region and the displacement of the original inhabitants, the Urus, the

ways that mobility and forms of residency have transformed in El Choro in recent years, the rise of smuggling in the smooth space of the central Altiplano, and the role that part-time residents play in the civic life and politics of the municipality. The picture painted is of a village that, while initially appearing in some ways to be a bounded and traditional Andean place, is in fact a node in a greater constellation of spatial relationships with other places.

Chapter 3 cuts to the heart of daily life, and livelihoods, in El Choro with an in-depth examination of the agriculture practiced there. The chapter starts with a history of agricultural transformations in the highlands, many of which significantly impacted the ways that farmers and herders in El Choro make their livings today. These represent another set of trajectories forming El Choro as a place. This chapter also introduces the affective relationships that people have with local places through their agricultural practices, and traces some of the different sources of unease for El Choro's farmers and herders, including water pollution, climate change, and the intensification of quinoa production. I discuss how many people in El Choro make direct connections between this sense of unease and changing attitudes about the future – will people still be able to make a living in El Choro? Or will more and more people leave? This very question is also a great source of concern for many people. At the same time, though, the chapter explores some of the new opportunities available for El Choro's farmers through the central government's increased investment in rural areas. Will such programs be enough to keep more people on the land?

Chapter 4 examines how water politics in the central Altiplano emerge in water's materiality, temporality, and rhythm. The chapter approaches this topic through two different extremes of the water cycle. The first is the headline-grabbing drying of Lake Poopó in 2015, which left nothing but a desert in place of Bolivia's second largest lake, located 20 kilometres

south of El Choro. The second is flooding in El Choro in 2014 and the struggles of local irrigators to respond. I explore how disjuncture in water rhythm played into political debates over the fate of the lake and how the ways that flooding lives on in space makes for disasters that never truly end. In its vital materiality, expressed in the commonly heard phrase “water is life,” water also encompasses the opposite: in its absence, or in its excess, water can also be death.

In Chapter 5 I engage with theories of fluid materiality, terrain, and territory to make connections between the spatial-affective experience of climate change and an intense political dispute over the damage that a company’s dump trucks were doing to El Choro’s main access road. I argue that a key locus of the dispute is the intense mud that results from El Choro’s shifting rainy season under climate change. I turn to considerations of affect in this chapter to elucidate the relationships between people and the changing environment and to show how mud translates into politics, especially in terms of the different ways that participants in the dispute appealed to the concept of territory. Much of this chapter takes place at a road blockade where people from El Choro put pressure on the company at the centre of the dispute to repair the road by blocking their dump trucks. I argue that this event represents an example of climate change politics emerging in unexpected ways from relationships that are material, affective, and spatial.

Chapter 6 examines an atmospheric phenomenon that, I argue, plays a large role in defining the experience of working outside in El Choro over the summer: lightning. I explore the different relationships between bodies and the atmosphere that are implicated by lightning strikes, including embodied fear from strikes and the ways that people cope with this fear, injury and death from strikes, and political strife over lightning’s intersection with electrical infrastructure. Lightning haunts the sky over El Choro with its almost paradoxical invisibility and visibility, its stealth and capacity to instantaneously materialize. It also encompasses an

affective tension between the danger lightning strikes represent and the life-giving rainstorms that they accompany. People in El Choro see lightning storms as intensifying under climate change, and as such lightning suggests ways that climate change can be felt as a visceral, intense experience.

Finally, in Chapter 7 I explore how people in El Choro are thinking about their futures. While many people are leaving the area, in part due to pressure from climate change and other environmental problems, others are taking advantage of new opportunities to build their lives out in the countryside. Related to this, I explore how environmental issues are presented in different workshops in the community and how a confused and uncertain picture over environmental change emerges in these discussions. I profile a resident who has returned after a long absence and is making a life there, as well as others who participate in projects that entail commitment to a future in the village. The future may look bleak for the people of El Choro in many ways, but they continue to exercise their agency and creativity to respond to environmental challenges.

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At a community meeting in July, 2014, in a village called Santa María in the southwest corner of the municipality of El Choro, Donato, a short, middle-aged farmer, asked for the floor in the customary way, by calling out “*La palabra.*” The visiting NGO technician, who had been leading a discussion on a canal gate project, yielded to him. Donato began: “Why doesn’t it rain anymore? There are no trees in Santa María. Our grandparents had trees here, but a *viento huracanado* (windstorm) came through and blew them all down – it was so strong that it even buried cows. Santa Maria used to have a weekly market, and five or six buses would come, but now look at us.” He gestured around the circle of 20 people, sitting in the half-finished planter in

the centre of Santa María's plaza. "We're all there is," he said. He concluded: "We need to recover how it was before. We're ready to work, we just need guidance from you."

Donato's words contain a narrative of decline, with a once-vibrant village losing population, becoming more isolated, and facing dramatic environmental transformations. But they also sound a note of hope: the people may be fewer in number now, but they are willing to work and take advantage of new opportunities. Donato, then, provides an important reminder of a key tension that we will see moving ahead: while people's lives are profoundly shaped by environmental changes and challenges, at the same time, the future remains open.

## Chapter 2: Intersections in the *Campo*: *Choreños* on the Move

The present-day municipality of El Choro is situated amid what initially feels, at least to the outsider, like a topographical paradox: at 3,707 metres of elevation in the central Andes Mountains, higher than twice the elevation of Denver, the landscape is nevertheless flatter than the prairies of southern Saskatchewan. Known as the *Altiplano*, or high plain, this treeless basin has an average elevation of 3,750 metres over sea level and stretches from southeastern Peru, around Lake Titicaca, south through western Bolivia, and into small portions of Chile and Argentina. The municipal capital of El Choro is found approximately 45 kilometres south of the biggest city of the central Altiplano, Oruro. El Choro's municipal territory stretches along the west bank of the left branch of the Desaguadero River, Lake Titicaca's main drainage, which runs down a series of seasonal marshes on the Altiplano and eventually terminates in the fully enclosed Lake Poopó.

While on first impression El Choro might strike the visitor as a small traditional village, or as a bounded place defined by the surrounding Altiplano, it can be better described as a node in a much wider network of spatial connections. This was well-illustrated in 2012, when the Bolivian National Statistics Institute, or *Institución Nacional de Estadística*, conducted a national census. The stakes were much higher than generating a simple population count. Under the 1994 Law of Popular Participation (LPP), the Bolivian central government, which collects all tax revenue, is required to apportion 20% of tax receipts to the local municipal governments on a strictly per capita basis (Blanes 1999, 9–10). Having received their shares, the municipal governments themselves then invest government money in projects and programs depending on



the priorities they set with community consultation. Thus, resources are supposed to be distributed evenly across the population.

This resource distribution process sounds straightforward, but in a country experiencing rapid urbanization,<sup>14</sup> it was not so easy to determine who was a resident of where. With so much at stake, political actors attempted to influence the process of data collection on census day. National organizations that represent rural people, including the national peasant's union (Confederación Sindical Única de Trabajadores Campesinos de Bolivia or CSUTCB) and the national rural women's organization Bartolina Sisa, called upon rural-to-urban migrants, many of whom continued to own land and engage in productive activities in rural areas, to return to their communities of origin on census day to be counted there (M. Pérez 2012; Calle 2012). In some cases, people reported that local authorities threatened to expropriate properties they owned in rural municipalities if they did not return from the cities they lived in to be counted. Leading up to the day of the count, buses were packed with urban residents heading out to rural areas (Calle 2012). Altogether, by some estimates the return of rural-to-urban migrants to their home communities for the census may have led to undercounting of Bolivia's urban population over the age of 20 by 20 percent (Derpic and Weinreb 2014).

I heard no such tales of coercion in El Choro, but nevertheless many people who had migrated out of the area returned there to be counted in the census. This contributed to the municipality of El Choro registering a higher population than ever before: 8,724, compared with 5,710 in 2001 (Instituto Nacional de Estadística 2012b; Instituto Nacional de Estadística 2001).

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<sup>14</sup> According to the Population Division of the United Nations, approximately 70% of Bolivians live in cities today, compared with only 45% in 1980. See United Nations Department of Economic and Social Affairs Population Division 2014.

But as they made clear, many of El Choro's former residents who returned for the census, known colloquially as *residentes*, intended to be more than just marks on paper. As I will detail below, they demanded a greater role in El Choro's politics, in part appealing to their role in the census as legitimating their continued claim to residency in El Choro, even if they passed their days elsewhere.



**Figure 1: Quiet evening on El Choro's main street**

Far-flung former residents of El Choro were not the only people who engaged with municipal politics over a distance; even the mayor of the municipality mostly spent his time elsewhere. As this chapter will explore, the municipal boundaries of El Choro do not encircle its political and economic life. Rather, production and politics occur through linkages across a range

of geographies. When we pinpoint El Choro on a map, what we look at is a representation of a node embedded in a constellation of patterns of mobility and circulation. People come and go; they are drawn away by opportunities elsewhere, like education or work, but return when their families need them to or when they tire of working in the sweatshops of Buenos Aires. These comings and goings produce El Choro; what we know and designate as El Choro resides in the meetings of these fluxes. As Stuart Alexander Rockefeller wrote about a different Bolivian Andean community, it “is not a place on a map...It is, rather, a pattern of movements, a conjunction of forces, a set of spatial strategies and struggles, a situational context for people’s actions” (2010, 9). A village is not a place with relationships; the place *is* the relationships.

El Choro as a village, and as a municipality, is open to other places, though not limitlessly so – it is an openness shaped both by common patterns of circulation of people, goods, vehicles, animals, air currents, water, and more, as well as the physical properties of space. This openness can be explored back through the earliest documents recording the history of the area starting in the colonial period. Over time, however, the ease of mobility in El Choro’s territory has increased, bringing new perils, and new opportunities, to the people of the village. As residents face new challenges, especially the unsettling of the climate and related disruptions in agricultural production, these effects will ripple through El Choro’s dispersed spatiality. This chapter aims, then, to paint a picture of El Choro’s dispersed and far-reaching spatial politics that link the country homesteads of sheep farmers to the cities of Oruro, La Paz, and beyond. To better understand this, we must first start with the conceptualization of nodes and constellations before moving into the different ways that Choreños live their lives, and lead their communities, through dispersed patterns of movement and circulation.

## 2.1 Andean Nodes and Constellations

Classic anthropological works of the Andes have paid much attention to the spatial linkages that come to constitute a given village. John Murra explored the history of vertical climatic integration in the Andes through what he called “vertical archipelagoes,” non-contiguous sites of agricultural production at different elevations where members of a single highland community could take advantage of climatic differences to produce different types of crops and products (Murra 1975; Murra 1980). Murra dates this practice to pre-Inca times (prior to the late 15<sup>th</sup> century for the Bolivian highlands) but notes that it continued through Inca empire-building and even Spanish colonialism, though in many cases Spanish authorities tried to rein it in.<sup>15</sup> More recently, in Hans and Judith-Maria Buechlers’ classic ethnography (1971) of Compi, an Aymara community close to Lake Titicaca, they focus on the community’s linkages in that era with the city of La Paz. These include patterns of circulation and residence with (mostly) women who buy, sell, and transport the community’s agricultural products to big city markets and also the complex relationships between out-migrants to La Paz and their home community, in which they often continued to have land, economic, and family ties. The Buechlers argue for an expansive definition of place when it comes to their field site, writing, “The community may be considered as extending itself to La Paz to include the migrants who have continued to exercise a strong influence on their birthplace” (1971, 50). For Murra, and for the Buechlers,

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<sup>15</sup> These “vertical archipelagoes” were once important for the people of El Choro. Spanish colonial records for Challacollo (now in the northern portion of the present-day municipality of El Choro) showed that as of 1593 the Uru inhabitants there had land holdings, including pastures and maize fields, 100 kilometres away in the lower Andean valleys of present-day Cochabamba Department (Wachtel 1986, 295). The Uru of Challacollo obtained these lands under the rule of the *Sapa Inka* Wayna Qhapaq, who transferred many of them, along with thousands of other highland indigenous people, down to the Cochabamba valleys to grow maize for the Inca state, where they eventually acquired rights to some of the pieces of land they had been sent to farm (Wachtel 1986, 296).

places are not to be found in a single, bounded location. Rather, places are defined through these broad-reaching spatial relationships.

Such open-ended spatiality can be conceptualized in terms of nodes and constellations. For Gordillo, places are nodes: points that attract and gather, where movements converge and disperse, and which entangle each other through intermingling flows that form spatial constellations (2014a, 21). Nodes situated in constellations exist together in relationships that Gordillo argues are defined through “pure multiplicity” (2014a, 25), with connections that are innumerable but not inscrutable. Massey argues that this endless multiplicity and heterogeneity of nodes in space is what allows for the possibility of politics (2005, 59). To Massey, place is an event, for it is endlessly produced through the meeting and interweaving of trajectories. To conceive of place as an event means “There can be no assumption of pre-given coherence, or of community or collective identity. Rather the throwntogetherness of place demands negotiation” (2005, 141). Ingold emphasizes the continuous generation of place through movement: he argues that human existence “unfolds not in places but along paths,” and places are not containers but rather are where many such paths of movement meet and entwine into knots before continuing on (2011, 148–49). Places as such are mutually constitutive with the movements through them (Ingold 2011, 168).

Such unendingly open conceptualizations of place pose a challenge to what Gordillo critiques as the “stable spatiality” that some anthropological studies deploy to envisage an indigeneity firmly rooted in place and found on the other side of a dichotomy between indigenous and non-indigenous (Gordillo 2011, 857–58). This was the tendency that Arjun Appadurai criticized as the “incarceration” of native people in particular places, an indigeneity defined by immobility that only ever has been a product of the anthropological imagination and

that left indigenous people on the other side of a divide between outside agents of history and indigenes bound by both place and their “mode of thought” (Appadurai 1988, 37). As this chapter proceeds, then, it will draw on open conceptions of place as an attempt to trace the spatiality of El Choro’s politics from one node out toward a constellation of others. This is not to dispute the connection that many Choreños feel with particular places; on the contrary, as this chapter will show, such feelings of connection over space can be politically significant in a node like El Choro. This chapter, then, is an attempt to expand the zone of inquiry from a small village in the Altiplano to the constellations that link it to a wider geography of nodes, while also setting the stage for discussion on El Choro’s situation within global political-economic-environmental changes like climate change and the growth of agricultural markets.

## **2.2 From Uru to Aymara to Quechua**

The first step towards a consideration of the spatiality of El Choro is a brief look at the history of how Quechua-speaking farmers came to settle the floodplains around the Desaguadero River. To step into this village is not to step into a timeless, deeply rooted peasant community. Rather, El Choro, like the rest of the Altiplano, has been profoundly shaped by the history of Inca and Spanish colonialism, as well as the movement of peoples over space related to displacement, servitude, and commerce. But first, some geographic situation is in order.

The shores of the highland’s rivers, lakes, and marshes provided the home for the Uru people, the original inhabitants of the area now encompassed by the municipality of El Choro. During the early Spanish colonial period the Urus mostly lived close to the Altiplano’s major bodies of water, from Lake Titicaca, southward near the Desaguadero River, around Lake Uru Uru and Lake Poopó, and down to the salty flats of Lake Coipasa (Wachtel 1986, 284). Their

lifestyle of hunting and fishing along the shores of lakes and rivers and sometimes living on human-crafted floating islands made of reeds contrasted sharply with the settled agriculture of most of the other indigenous groups of the Altiplano, including the largest in the region, the Aymara (Wachtel 1986). Even before the Spanish conquest, Urus in the area were pressured by Inca administrators to assimilate with the Aymara, forced to turn away from fishing as their primary means of subsistence and adopt a lifestyle of settled farming alongside Aymara populations (Pauwels 1996, 48–49). Colonial accounts show that the Spanish invaders viewed the Aymara and Quechua peoples of the highlands to be more politically and culturally sophisticated than the Urus. A Spanish priest named Antonio Vázquez de Espinoza wrote in 1628 that the Urus of Challacollo, part of the present-day municipality of El Choro, were “wild” and incapable of governing themselves before coming under the power of colonial and church authorities (Pauwels 1996, 44–45).

As with other Altiplano indigenous groups, Spanish colonialism subordinated the Urus to a system of tribute, servitude, and *encomienda*.<sup>16</sup> For the most part Urus were required to pay tributes in the form of dried fish and woven woolen goods (Wachtel 1986, 292–93). Later accounts of the colonial period describe how some Urus fled deeper into the lakes of the region in order to escape such obligations, allowing them to avoid taxes and servitude in the mines but also leaving their lands to Aymara settlers and incorporation into Spanish plantations (Pauwels 1996, 52–53, 64–65).

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<sup>16</sup> *Encomienda* was a feudal-like system common throughout the Spanish colonies wherein the colonial authorities placed a colonist in charge of the “protection” and religious conversion of a group of indigenous people in exchange for their mandatory labour.

A description of El Choro during the Spanish colonial era appears in a 1688 account by the Spanish priest Fray Nicolás de Loaiza (Pauwels 1996, 67–78). He describes the inhabitants around what he calls *la laguna de Challacollo*, known in the present day as Lake Uru Uru in the northern portion of the municipality of El Choro, as a mixture of Christianized Uru and indigenous people from other highland areas. De Loaiza describes an island found to the south of Challacollo, between the left and right branches of the Desaguadero River and just north of where they both empty into what is presently known as Lake Poopó. De Loaiza calls this island by its local name Churo, meaning “island” in the Uru language and where the present day village of El Choro is located.<sup>17</sup> According to de Loaiza, Churo (which is also transliterated in some documents as Choro) only had about 30 houses, inhabited by people who lived from cultivating quinoa, raising pigs, fishing, and hunting ducks. While de Loaiza claimed that the inhabitants there were pacific and fully Christian, ethnographer Nathan Wachtel reports that other colonial accounts from that era reflect that the Uru people of Churo had a fierce reputation and resisted subordination (Wachtel 1986). He describes an excursion in 1688 by colonial authorities to attack the “rebel Uru of Lake Poopó” who are called “Vili-Vili,” a term that referred to unsubordinated and unconverted Uru populations<sup>18</sup> (Wachtel 1986, 304; Pauwels 1996, 42). The expedition managed to capture and interrogate about 30 people from Choro. According to Wachtel’s reading of the colonial records:

They said that they were born on the island of Choro and now formed some sixty households. Others lived even farther within the lake, on the islands of Cari, Puxpu, and Pansa. Not all of them were Vili-Vili: They had been joined by a band of drifters and

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<sup>17</sup> El Choro is no longer a discernible island, although it is located between the left and right branches of the Desaguadero River, with Lake Poopó to the south. At this time of Uru inhabitation Lake Poopó and the river had much higher water levels than they do today (Marcelo Lara, Interview, 2014).

<sup>18</sup> The name Vili-Vili lives on today in the names of several communities in the far southern part of El Choro’s current municipal territory, which roughly coincides with the areas Wachtel discusses.



runaways ‘from many provinces.’ All of them admitted that they accepted no one’s rule and had never paid tribute. Once the cacique of Challacollo had disembarked on the island and had tried to establish his authority: He had had to flee to save his life. (Wachtel 1986, 304)

Interestingly, these interrogations also revealed that although the Vili-Vili occasionally sent raiding parties from the island of Choro to other villages, at the same time, some Choreños provided agricultural labour each year to the Aymara caciques of Challacollo.

Ultimately, Urus were disproportionately impacted by Spanish colonialism in the Altiplano compared with other indigenous groups. Viceroy Toledo’s 1573-1575 census of highland peoples found that 67% of the population corresponding to Challacollo and lands south to the lake, roughly the present-day municipality El Choro, were Urus. Just over a century later, the census of 1683-1685 showed that while the total population in the region had fallen 54%, the population of Urus had fallen almost 93%. The region of Challacollo saw a drop to zero: the once predominant Uru population was recorded as having been completely replaced by the Aymara (Wachtel 1986, 297–99). Wachtel argues that it was unlikely that epidemics affected the Urus disproportionately and, rather, sees the main trend of the time as complete assimilation of the Urus into the Aymara cultural group (Wachtel 1986, 299). Depopulation, displacement, and the pressure to assimilate had taken their toll.

The Urus did not completely disappear from the Lake Poopó region. Today, there are three small populations around the east side of the Desaguadero River and Lake Poopó that self-identify as Uru (Marcelo Lara, Interview, 2014<sup>19</sup>). None of these populations are found in the

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<sup>19</sup> Marcelo Lara (his real name) is an anthropologist at the Centro de Ecología y Pueblos Andinos (CEPA) in Oruro, the organization with which I was affiliated for my field research in Bolivia. He has spent a large part of his career working with the extant Uru populations near Lake Poopó and advocating for their rights and recognition. I interviewed him on October 17, 2014.

municipality of El Choro. Rather, El Choro's present-day inhabitants are mostly descended from these Aymara settlers from the middle of the Spanish colonial period who displaced or assimilated most of the remaining Uru people. However, the current predominant indigenous language in El Choro is neither Aymara nor Uru (a language that is barely spoken anywhere today) but Quechua. This is the lingua franca of the lower Andean valleys and the language of Bolivia's single largest indigenous group, with 1.2 million Bolivians over the age of 15 self-identifying as Quechua, according to the 2012 census (Instituto Nacional de Estadística 2012a). Colonial records show that around the year 1600 Aymara and Uru remained the primary languages of most people in the El Choro and Challacollo region (Albó 1988, 24–25). However, over time the Quechua language started making inroads into the eastern edge of the Altiplano as more people from Quechua-speaking valleys came up to work in the mines or engage in trade, leading to Quechua becoming the primary language spoken in the mining centres (Albó 1988, 27–30). Anthropologist Marcelo Lara told me that over the 19<sup>th</sup> and 20<sup>th</sup> centuries the people of El Choro engaged in extensive trade with these mining centres, some of which are only 15 kilometres to the east, producing textiles and articles of clothing from wool and selling them in the mining towns, and as such this probably heavily influenced their use of Quechua. In addition, Lara told me, the eastern edge of Oruro Department was the site of many large ranches, or *haciendas*, where the post-independence language of prestige among landowners and workers alike was Quechua. Some of my acquaintances in El Choro told me that they recall a time when the Aymara language was more widespread, and some older members of the community told me that it was spoken by people of their grandparents' generation. However, I encountered only a handful of people who spoke Aymara as a first-language. Most people I spoke with told me that they identified as Quechua-speaking. According to the 2001 census "*Originario Quechua*," or

native Quechua, was the self-identification for 87% of the population of the municipality (Instituto Nacional de Estadística 2001).<sup>20</sup>

Through this brief history, many trajectories emerge that shape the ongoing formation of the area now comprising the municipality of El Choro. Imperial conquests, beginning with the Incas of Cusco and later the Spanish, first made outlaws of the original inhabitants of the region, forcing the Urus to flee deep into the reeds of the marshlands. Later the at-times violent pressure to assimilate led to the disappearance of most Urus into the predominant Aymara. And now the Aymara's descendants speak a third language, Quechua, which came in part from trade, migration, and the preferences of wealthy *hacenderos*. This historical overview risks leaving out other important points, but what should emerge is that El Choro is produced as a place through a long history of flux, movement, and circulation that links it broadly across many geographies. Such a history challenges any attempt to paint indigeneity as a consequence of stasis and the maintenance of tradition in a bounded, closed place. It reflects an open-ended spatiality built out of unending processes of becoming.

There is another important element to this spatiality to consider, however, and that is the physical properties of space and how they shape El Choro's spatial linkages. In short, there is no

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<sup>20</sup> Quechua is spoken by diverse peoples throughout Andean South America, mostly in areas that were once part of the Inca Empire. Quechua does not, then, represent a single, unified nation of people. However, as the 2001 Bolivian census data notes, the majority of people of El Choro self-identify as Quechua when asked to name their nation (Instituto Nacional de Estadística 2001). The Quechua-speaking indigenous nation of which El Choro is a part is Nación Suyu Sura, a regional coalition composed of eight *markas*, subdivisions that correspond to eight municipalities and are each subdivided further into *ayllus*, or communities, with their own elected indigenous leaders called *jilacatas*. Nación Suyu Sura is then part of the Consejo Nacional de Ayllus y Markas del Qullasuyu, or CONAMAQ, the umbrella organization representing and advocating for highland indigenous peoples. CONAMAQ itself was founded in 1997 as the culmination of a long struggle for indigenous peoples of western Bolivia to reconstitute themselves under the banner of indigenous nationhood after centuries of oppression – for more discussion, see Burman 2014; Canessa 2007; Lucero 2006; Perreault and Green 2013.

separating El Choro from the striking flat plain of the Altiplano, and it is to this, its smoothness, and its relation to the politics of mobility and circulation that I now turn.

### **2.3 Choreños on the Move**

Mobility is not neutral; it is inseparable from politics. In *A Thousand Plateaus* Deleuze and Guattari (1987) expound upon the political significance and potential of mobility in relation to space through their explication of the relationship between “smooth” and “striated” space. To Deleuze and Guattari, smooth space is the space of movements that are unhindered by topographical obstruction and unregulated by the state. It is a space that is “a field without any conduits or channels” that is favourable to movement, speed, and challenges to state control (1987, 371). Thus, Deleuze and Guattari argue, “One of the most fundamental tasks of the State is to striate the space over which it reigns, or to utilize smooth spaces as a means of communication in the service of striated spaces” (1987, 385). The state attempts to regulate flows by striating space – hindering movement with regulations and surveillance, or by putting up obstacles – through various techniques, such as channeling traffic onto monitored roads, but at times it also tries to put the physical smoothness of space to its advantage.

To be smooth or striated is not an absolute condition of any given space, nor is it binary. Deleuze and Guattari explain that even though there are distinct characteristics to both that can be set against each other, nevertheless smooth and striated spaces mix together and transform into one another. They write that “the two spaces in fact exist only in mixture: smooth space is constantly translated, transversed into a striated space; striated space is constantly being reversed to a smooth space” (1987, 474). While much of El Choro’s patchwork of privately owned

agricultural fields, interlaced with canals, mudflats, and homesteads protected by hostile dogs,<sup>21</sup> may be striated in comparison to the smooth space of nomads (Deleuze and Guattari 1987, 384), there are other mobilities allowed by the flat plain. The wide-open spaces of the central Altiplano lend themselves to furtive and opaque movements that take advantage of the smoothness of space. As I will discuss shortly, there is a long history of smugglers using the flat topography around El Choro to their advantage. In addition, the state's efforts to increase ease of movement around and through El Choro over time contributes to the development and deepening of linkages between this village and other places. These linkages can be explored through the ways that people engage with El Choro over varying distances, continuously producing it as a node in a constellation of connections to other nodes through patterns of circulation that depend on, among other things, new and old roads, the smooth plain, widely dispersed former residents, and international smuggling.

### **2.3.1 “Every road is welcome”**

It was not so long ago that El Choro had no year-round roads or regular transit to the departmental capital. For much of its history the main methods for transporting goods back and forth to and from the city of Oruro, 45 kilometres to the north, were animal- and human-powered. One day Eduardo, a jolly, rotund man of 54 who had spent many years holding various elected leadership positions in El Choro, described one of these old transportation routes to me.

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<sup>21</sup> In general homesteads in the countryside around El Choro did not have impenetrable fences. Sheep were kept in small corrals at night, while cows were tied to stakes, but properties otherwise were generally open to their surroundings. Thus, the number one form of security is the guard dog. Shepherds in the countryside very often had three to six dogs at their homesteads. These dogs protected the sheep during the day as they grazed in the fields and provided security for the homesteads at night. The dogs often presented a significant hindrance to all movement in their vicinity, chasing bicyclists and even attacking sheep in other herds. Having had my own share of terrifying encounters with these dogs, I do not believe it is an exaggeration to count them as a significant form of striation in the space of the countryside.

We were standing on a bridge over the Desaguadero River that had been built the year before in service of a new, still-in-progress road connecting the village of El Choro with the town of Poopó, fifteen kilometres to its east. Gesturing toward Poopó, he told me that this used to be the most accessible route into El Choro from the departmental capital of Oruro. “We would use trains of hundreds of donkeys,” he told me, “to carry our meat and cheese products as far as here, the river, and then we would load them into boats, float them across, and have to carry them on foot the rest of the way to the highway.” On the highway, he told me, they had to then find truck transport heading into the city of Oruro, another 60 kilometres to the northwest. On a different occasion, though, a farmer named Federico described a different and perhaps older route to the city to me. I had encountered him by chance on the bus from Oruro back to the village. A lifelong resident of El Choro, Federico was about 70 years old and still worked his own fields of forage and herds of sheep and cows. Gazing out at the passing countryside, he told me that there was an old donkey train route that used to roughly parallel our current route all the way to the city. Every once in a while a cargo truck arrived in El Choro to deliver and pick up goods, driving directly on the flat plain. But, he said, generally in order to sell their meat, cheese, and wool products in the city and resupply with sugar, rice, and noodles, people joined together with dozens of donkeys and marched the entire distance to the city in one grueling day.

This changed not long after the municipality’s founding in 1983, when, as former mayor Aurelio related to a municipal meeting during a discussion of the condition of the main road, local leaders organized the communities of El Choro to come together and build the main north-south road platform by hand, linking the municipal capital with intermediate communities and the international east-west highway 35 kilometres to the north. Today this road, still capped by gravel, is plied by public transit. The main carriers for trade in and out of the village are

depainted, rusting buses long ago sold out from Brazil or Argentina's fleet. On the twice-weekly Oruro market days they shuttle back and forth laden with meat, sheep skins, cheese rounds, bicycles, gas cylinders, packaged food, crates of beer, and any other product needed or produced by people in the community. In 2008 El Choro also saw the introduction of daily *mini* service up and down the main road; these are small vans that hold up to 17 tightly packed people and that, barring flat tires on the rough road or an excess of passengers to pick up along the way, make the El Choro-Oruro journey in an hour and fifteen minutes each direction. This latter form of transit is favoured by light travelers, including teachers, medical staff, out-of-town visitors, and the resident anthropologist heading to the city for meetings or to resupply. Thus, what used to be a daylong journey across the plain alongside tethered donkeys became a swift dusty roll of just over an hour.

El Choro's second major road was completed in late 2014 with the connection of the municipal capital with the town of Poopó, a mining centre at the base of the mountains 15 kilometres to the east on the Oruro-Potosí highway. This connection required bridging the biggest north-south barrier to mobility in the region: the left branch of the Desaguadero River. On its slow-flowing course linking Lake Uru Uru with its terminus Lake Poopó, the Desaguadero spills out into reed- and flamingo-studded marshes. To complete the crossing a new bridge was attached to a long raised platform slicing through the marshes, pierced with culverts for the marsh to sluice through. This failed during the marsh platform's first rainy season; the culverts were inadequate to manage the volume coming through the marshes. This led the water level to rise and overspill the road in places, washing it completely away. New culverts installed when the road was repaired in the next dry season were intended to avoid a repeat washout the following year but had not been tested by heavy rainfall by the time I left.



**Figure 2: Washed out road to Poopó**

The Poopó road remained under construction for most of the duration of my fieldwork, although people were already putting it to various uses, whether braving its muddy, half-finished state in a vehicle during the rainy season to attempt the trip to Poopó, or using it as a smooth space to herd sheep between non-contiguous pastures. Still, the road and its completion loomed large in the local imagination, especially after new patterns of mobility on the half-finished road emerged. I first noticed it when I woke up in my cold room in the middle of the night and heard loud vehicles moving through El Choro. This continued over successive nights. I wondered at the noise but could not figure it out. Finally, the answer came one day in June, when I was with a



small group of people in Pánfilo's back patio. For many decades Pánfilo had been El Choro's bread maker. Behind his house he had his small bakery, centred on his wood-fired oven, fueled by a small local bush colloquially referred to as *leña*, or firewood. He made hundreds of small rounds of bread in two or three overnight baking sessions per week and on occasion, as on this particular day, roasted sheep meat for special events.

While Pánfilo tended to the trays of meat, several more of us, including Roque and Eduardo, sat in his backyard on piles of sod blocks, drinking cups of Coca Cola and idly chatting. Roque halted the conversation to point out an unknown police vehicle driving across the soccer field behind Pánfilo's house. We watched the vehicle pull up to the police post facing the soccer field. Four officers climbed out. "I wonder what this could be about." Roque said. "Maybe they're here after the smugglers?"<sup>22</sup> This piqued my interest: "Smugglers?" I asked. "Oh yes," Eduardo said. "Are they coming in on the new Poopó road?" I asked. This question was met with a chorus of "Yes!" Roque said, "Just the other day a double-decker bus without any passengers came through and knocked down the electrical cable to my house." I had noticed that same bus, or a similar one, around that time, because it drove right alongside my house at about 11:00 AM, making its way slowly and carefully along the rutted village streets. It was an odd sight, for no bus of that size ever ran a route through El Choro, and it had no passengers. I had

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<sup>22</sup> The word Roque used here to refer to smugglers was *chuteros*, people who smuggle *chutos*, or undocumented, illegally imported cars, usually over Bolivia's vast, lightly guarded border with Chile and across the plains of Oruro and Potosí. Through many conversations on this topic, though, I had the impression that *chutero* could refer to the smuggling of illegally imported consumer goods in general. For the most part drug smugglers were referred to as *narcos* and were not the topic of much conversation.

heard in the news about empty buses being used to smuggle drugs and other contraband through the Altiplano, but even so, we could only speculate as to the bus's purpose.<sup>23</sup>

On another day I stood outside of a meeting house on the edge of the village, right next to the new Poopó road, with a middle-aged farmer named Matías. We were taking a break during a cooking workshop sponsored by the municipal government when a vehicle, eastbound on the new road, pulled up, and the front passenger called out to us. "How do we get to Poopó?" the man said. The way to Poopó from there was so easy that we were baffled by the question; from where we stood we could see the town, partway up the side of the mountains 15 kilometres to the east. "Just go the way you're going and you'll get there," Matías said, and the man said a quick thanks and drove on. It turned out that the car was the lead in a caravan of eight vehicles, two of which were minivans, and six of which were the exact same model of white Toyota wagon that is favoured by Bolivian taxi drivers. All were full of passengers. Clara, a young woman at the workshop with us, watched the caravan make dust down the road and muttered, "*chuteros*," the local word for traffickers of *chutos*, or illegal, undocumented vehicles. I could picture that perhaps these vehicles were caravanning into the country after making an illegal crossing from Chile, but even so, I had a hard time imagining that they would be so bold as to make the journey in broad daylight. On the other hand, there did not seem to be enough police control to deter such activities. There was one police officer regularly posted in the village of El Choro. His mandate was to provide coverage for the entire municipality, so he was often out on calls to other villages, using the truck that had only recently replaced his police motorcycle. Without enough striation at

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<sup>23</sup> That the mysterious traffic passing through the village represented smuggling was a common point of view, one that I also heard expressed on a local radio show on multiple occasions, when callers called in to complain that smugglers were moving through El Choro every night, and no one was doing anything about it.

the hands of the state, the roads remained smooth, and open, for smugglers wishing to take advantage of their presence.

However, as my acquaintance Osvaldo reminded me one morning as we were waiting for a community meeting to start, smuggling was not new with the Poopó road but had just become easier. Osvaldo was a middle-aged man with a smile set as wide as his eyes were narrow. In previous years he had served as the *corregidor*, a locally elected leadership position, for both El Choro and also the nearby village of Santa Maria, about 10 kilometres to the southeast. On this morning he told me that during his time as *corregidor* in Santa Maria, one of his biggest problems was the passage of smugglers through the southern part of the municipality. Back then they traveled overland and had to find ways to cross the river. El Choro had this history as a smuggling route for reasons of geography. The main international highway linking the city of Oruro to the Chilean border (approximately 236 kilometres by road to the southwest) passes over a bridge called Puente Español, only a ten minute drive outside the city. Until the completion of the El Choro-Poopó bridge in 2013, Puente Español was the only crossing over the Desaguadero for international traffic in the department of Oruro. Naturally, the Bolivian customs agency, as well as the special drug police, run a checkpoint there, and a casual perusal of the local newspaper shows that they make regular seizures for everything from cocaine heading out to undocumented and untaxed electronic products or cars heading in. The new link between El Choro to Poopó provides a route without checkpoints for the intrepid smuggler who manages to get across the Chilean border uninspected and wants to get onto the rest of Bolivia's highway system without passing through Puente Español. So the new bridge smoothed out an old pathway for smugglers by connecting the international highway from Chile to the north-south Oruro-

Potosí highway without any police or customs checkpoints in the way.<sup>24</sup> Increased state investment in mobility had, ironically, resulted in smoother space that provided an advantage to smugglers seeking to avoid state control in the opacity of the wide-open spaces of the Altiplano.

The new mobility afforded by the road was not seen to be entirely bad. While El Choro used to be near the end of the road, the new connection to Poopó was perceived by many to provide a draw for licit traffic looking to shave time off a trip from the Chilean border. On the same occasion in the baker's patio, when Roque wondered aloud at the presence of visiting police, he also mused about the changes that new international road traffic bypassing the city of Oruro could bring to El Choro. He said that El Choro would definitely need new services for this traffic, including restaurants, gas stations, tire shops, and stores, and that big changes were on the way. Everyone nodded in agreement. In fact, other than the occasional conversation, or call to the radio, that dealt with the perceived presence of smugglers in the community at night, I was surprised that there seemed to be little fear about the negative consequences of increased traffic moving through the area. At a meeting in Santa Maria, I sensed excitement in the air during a discussion about a road building project to connect the village with settlements in the neighbouring Saucarí province and onward to the main highway farther west. This would make the journey from the Chilean border and onward through El Choro even swifter, and many people described this project as certain to bring big changes to the area. This enthusiasm for road building stood in sharp contrast to the infamous TIPNIS case, where the Bolivian government's

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<sup>24</sup> On another occasion, the former mayor of El Choro, Aurelio, also spoke to me about their struggles in the past to control smuggling through El Choro, and he said that there used to be a police checkpoint on the main road, just outside the village, that inspected vehicles coming through and even charged outsiders a 5 boliviano toll to enter the village. He told me that it seemed that this new road had been built only for contraband, and he agreed with me when I suggested that similar 24-hour police control needed to be reintroduced to get a handle on it.

plans to build a new highway through a protected indigenous area in the Amazonian lowlands met with stiff resistance.<sup>25</sup> My landlady Rufina, one of Santa Maria's *jilacatas*, or indigenous authorities elected to serve the people of a particular *ayllu*<sup>26</sup> by settling disputes and managing development projects, had placed the new road to Saucarí on the meeting agenda. Rufina explained that the road project was underway already, but she needed to confirm that the people of Santa Maria still wanted it. In response, several community members spoke enthusiastically in favour of the road. Darío was one of the first to speak. He welcomed the road, and along with it speculated that new flows and connections could arrive. "The idea with this road is that it will be an international road," he said, "because it will go on to El Choro and Poopó after arriving from the international highway." Then, he said, "Along with the road there could be a canal and maybe rural electrification too, and from who? From Evo, of course! With whom else would there be these projects?" Another man reflected too on the possible flows of the road: "This road will be a means of communication," he said, and stated that he agreed with its construction. Jhonaton, a middle-aged man who had served in a variety of leadership positions over the years (and who often participated in meetings of a neighbouring community as well) spoke up and said, "Every road is welcome, this is an integration of different populations with each other.

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<sup>25</sup> However, the two situations are different in many important ways, including the fact that the people of TIPNIS make a living from the forest and are identified with a small indigenous population often at odds with the central government rather than Bolivia's majority highland indigenous peoples who form the government's base. For good overviews and perspectives of the TIPNIS issue see Rossell Arce 2011; Lorenzo 2011; Calla 2011; Fabricant 2012; McNeish 2013.

<sup>26</sup> The *ayllu* is a pre-Hispanic territorial designation. As is very common, Rufina and her husband Lucas had been elected to serve as *jilacatas* together as a pair for the *ayllu* of Santa María for one year. Their duties included settling land disputes and managing the increasing amount of funding available that bypassed the municipal government and went directly to the *ayllus*. To serve in such a leadership position as a couple was a great strain because it left little time for productive activities, and *jilacatas* receive no salary. For Rufina and Lucas, it seemed that Luca still split a lot of his time between taking care of livestock and crops, while Rufina devoted nearly all of her time to her leadership duties.

From this point of view I think that it is good to see this. We want to see that there is progress.” Rufina wrapped up the discussion, saying that the road would be constructed and “The road will serve everyone.” No one had spoken against it.

New roads bring new transit, new circulation, and new connections between communities, in an attempt by the state to both facilitate mobility but also to funnel it through channels that may, nevertheless, not be tightly controlled enough to halt illicit traffic. People respond to roadbuilding with both excitement at new opportunities and fear that crime will be facilitated. But there were other forms of connection between the villages of El Choro and broader geographies, and this was in part-time residents who shuttled back and forth between the city of Oruro and the countryside, and former residents, known unexpectedly as *residentes*, who maintained a connection to El Choro through occasional visits but otherwise had made their lives elsewhere. These descendants of El Choro remained engaged with village life and politics to varying degrees, but all depended on mobility to build and maintain linkages over space.

### **2.3.2 “We made sure that we were counted”**

On the afternoon of Palm Sunday, 2014, I walked up a muddy side street to the main plaza of El Choro. I had heard on the radio that there would be a *cabildo* held in the main plaza. A *cabildo* is a public forum with local leaders and members of the community, often intended to produce binding resolutions. This *cabildo* aimed to take advantage of the number of community members who would be in one place for *Semana Santa*. As I entered the plaza I noticed an array of vehicles parked nearby, including a conspicuous row of late model Toyota Land Cruiser Prados. I did not realize yet that these vehicles indicated a large presence of well-to-do visitors back to visit their ancestral village who would be participating in the *cabildo*.

I found a place to sit with some people I knew on one of the front benches facing the stage. The crowd filled in, clusters of men and women forming, the younger and middle aged men taking the central benches facing the stage while women of all ages sat toward the west side and groups of elderly men sat closely together on the east and west sides. There were few children present; the ones who came played in the plaza through the meeting. El Choro's elected officials, including the municipal council and mayor, the *jilacatas*, the *corregidor*, and representatives from the primary and secondary schools, took their seats in a line on the stage, with men on the east side and women on the west side. Soon the *cabildo* began. Maricruz, the director of the primary school, had the challenging, and often unheeded, task of moving the meeting agenda along and facilitating question and answer periods. At times the *corregidor* stepped in and even overruled some of her attempts to moderate. The meeting proceeded through reports from different authorities on the status of projects, whether completed, in progress, or hopelessly bogged down in some stage of planning or funding. Many of these projects, such as an ongoing dispute with a community in a neighbouring municipality over El Choro's water supply, and the planned project to upgrade its main electrical grid, had been common topics of discussion at previous meetings, and everything was proceeding as I expected up until the question period following the *corregidor*'s<sup>27</sup> lengthy report on his own efforts to move projects forward.

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<sup>27</sup> The position of *corregidor* is an unpaid position to which a community member is elected each year in each village of the municipality to oversee that particular village's affairs, lead community meetings, push development projects forward, and deal with relations with the municipal government. In earlier decades, the *corregidor* would be the main law enforcement officer of the village, but in many places, including El Choro, this role has been largely supplanted by a regular police presence. In contrast to *jilacatas*, the position of *corregidor* originated with Spanish colonialism and corresponds to villages, not to *ayllus*.

In response to the *corregidor*'s report, a man I did not recognize took the floor. About 40 to 45 years old, he had been standing among a group of five or six unfamiliar men toward the back of the crowd. He was wearing a vest, a baseball cap, and dark glasses. I thought, from his clothing, that he was from the city. He addressed everyone there as “*señores copoblanos*” (fellow villagers) and said:

We have come to visit our land and sadly we haven't seen any progress in El Choro. There are no big works done by the municipal government. Around the country, there are many projects, like *Mi Agua*,<sup>28</sup> that other communities are taking advantage of, but not in El Choro. I have been to towns in the farthest corners of the country that have water. I am a *residente* of El Choro and I want to see works built here. What does our president Evo say? He says that you need to present your projects to the national government. Many of you have children now who have moved away and who are professionals. They can help us write projects. When we visit here, we can't even satisfy our basic needs, and I can see that my father can't. We have to bring water from the city. I was in school here at Sebastián Pagador 14 years ago, when we installed the tank and water spigots in this town. They were used to bring us canal water, but it was water. And we cannot rely on other communities to supply us with water. We have to find a source here. This isn't to say that you're doing a bad job as *corregidor*. I have heard your report, you're working hard, and when you do good work, everyone should applaud. But, likewise, when a project fails, people are going to judge, and if the people of the town don't judge, then history will. Fellow villagers, in the name of all *residentes*, on our next visit here, I want to see that the authorities here are managing everything and that these aren't just words.

He was greeted with strong applause from around the audience. I was initially confused by the man's speech and the enthusiastic reception. On the one hand, I had heard plenty of local discontent with the perceived inaction on the part of elected village authorities and the municipal government on vital issues, such as the breakdown in inter-community relations that had led to the village having its water supply cut off. On the other hand, a nicely dressed man who lived elsewhere and rarely visited or participated in the politics of his ancestral village had just

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<sup>28</sup> *Mi Agua* is a series of projects funded by the central government to improve rural water access. In this example, the speaker is incorrect; El Choro had in fact implemented several phases of *Mi Agua* projects, mostly to machine dig watering holes for livestock. Nevertheless he was correct to identify that the village of El Choro itself had a severe water supply problem, in that there currently was no potable water available there.



publicly upbraided its local leaders, accusing El Choro of being behind the rest of Bolivia on fundamental metrics of development. But no one I spoke with after the event had a negative response to his interventions or those of any other *residente*. This was also the first time I had heard the term *residente*, which I initially found baffling, for it directly translates to “resident” and would seem to imply a person who lived in the village. But I learned then and continued to hear it in the context of people who maintain ties to the village but have moved away, even decades earlier. There seemed to be distinction from part-time residents who split their time between the city of Oruro and the countryside. *Residente* indicated more geographic distance: many of the people who had been identified as such lived in La Paz, Santa Cruz, or even Buenos Aires. They were too distant for regular visits and participation in village life but nevertheless were still connected through their history, family, and landholdings and, as the man stated in his speech, concerned with the course of the village and municipality.

This continued to be expressed in comments by *residentes* after the mayor’s report. The first to ask for *la palabra* was a man standing next to the earlier speaker. He spoke: “After hearing so many reports today, we need to produce a document that clearly defines which projects still need to be finished and what problems are holding them back so we can refer back to it in the future. And *residentes* need to help out more with these problems and projects.” He continued: “In the past, we have been restricted from helping just for being *residentes*. But what we really want are more public works that are for the village of El Choro itself.” He concluded: “We *residentes* came here for the census and we made sure that we were counted, and now we would like to make sure that El Choro is progressing.” After he finished, the *residente* who had spoken earlier spoke up again, saying, “There are more projects we would like to see in El Choro, such as a land registry office. We *residentes* need to have a local organization that

represents our interests in the municipality. We have a right to participate too.” I noted that many of the men with whom I was sitting, mostly full-time residents of the village, nodded their heads and said “yes” in response to that concluding remark.

While the grassroots expressed support for the participation of *residentes*, some of the local leaders could not hide their annoyance from the stage. When another *residente* directly asked the mayor, “Are you going to ever finish these delayed projects or just leave them for the next mayor?” the mayor shot back that many of these projects in fact had been finished and the *residentes* just had not noticed. The mayor went on: “You *residentes* are always using the Internet. Go and verify on the website of the departmental government that these projects have been signed. It’s just a matter of seeing.” He continued: “Sometimes people, including me, jump to hasty conclusions without going to see for themselves whether a project has actually happened or not.”

In this public forum, then, the *residentes* demanded that they be given their right to participate alongside the people who spent more or all of their time living in El Choro. In part, they did so by stressing their continued connection to the municipality, such as family members who lived there or landholdings that they had there. They also appealed directly to their participation in the 2012 census, which, as explained in this chapter’s introduction, was when many people who no longer lived in El Choro returned and had themselves counted in order to boost the local population and concomitant distribution of tax revenues from the national government<sup>29</sup>. But this participation by the *residentes* was not entirely smooth, as evidenced by

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<sup>29</sup> The concrete good that this participation in the census represented was recognized from the floor at the cabildo by a non-*residente*, the local irrigation zone leader Jeremías, who commented to the meeting that he wanted to congratulate the *residentes* for their participation in the 2012 census and that we needed to attend to their desires too.

the mayor's pushback. In his response to criticism, the mayor pointed to their physical distance by asserting that there were successful projects of which they simply were not aware. He also pointed to their lifestyle distance from El Choro by saying that these *residentes* used the Internet all the time and surely could look up these projects on their own to learn about them, a reminder of their difference to the mostly non-Internet using people of El Choro. However, a comment by Marino, an ex-mayor of El Choro, from the floor at the *cabildo* criticized the *residentes* from a different perspective: that they didn't participate in village life enough. Marino said, "The *residentes* need to come here all the time and not just come once and say that there's nothing. Come here more frequently and help us with projects. The *residentes* are professionals and have a lot that they can do to help." Like the current mayor, Marino appealed to the *residentes'* distance from the community, but his appeal was more encouraging: they had more education than the average resident of El Choro and often worked in highly skilled professions, such as engineers, lawyers, doctors, and business administrators, and thus had unique skills to contribute. They were an untapped resource, a potential vertical archipelago stretching from El Choro to Santa Cruz, Buenos Aires, and beyond, that could give the people of El Choro access to resources that were not available locally. As roads were built and improved and El Choro's connections became smoother, visiting from long distances became easier, but according to people like Marino, this also increased the responsibility of the *residentes* to visit and contribute more to their home community.

Distant descendants of El Choro did not only return to participate in the occasional village meeting. Every year it was common for a married couple, of which one or both often were *residentes* from El Choro, to return to serve as *pasantes*, or sponsors, for the village's biggest festivals. This entailed hosting and paying for nearly every aspect of a village-wide party

that drew hundreds of people. Sometimes these duties were shared; for example, for Christmas 2013, there were two sets of *pasantes*, both living outside of El Choro but with relatives who were still there. Each set of *pasantes* hosted meals, provided alcohol and party favours, and staged concerts over a four-day period. *Pasante* duties were expensive, and multiple people who had hosted parties told me that costs ran into the thousands of US dollars to pay for food, alcohol, and bands, meaning that a family often had to save their money for years in order to pay for a party. With all the attendant expenses, it is not a surprise that such sponsors, as for Christmas 2013, were often wealthier people who were connected with the community but had made their fortunes elsewhere in Bolivia or abroad.

The continued linkages between El Choro and its *residentes* was expressed in the village's architecture. When *residentes* came to visit El Choro for holidays, they often stayed in houses that they had built in the village just for these occasions. Several of the buildings on the main plaza, for example, are such houses, larger than their neighbours and constructed of brick rather than adobe. These houses stand empty nearly year-round but suddenly spring to life during holiday celebrations. One such house near the plaza was built by Adán. He was born and raised in El Choro but, as he told me, spent his teenage years "crying to get out of here," leaving as soon as he could and only returning once a year "wanting to party." He now lived in El Alto, running a (by his account) lucrative textile business. But earlier in 2013 he built a two-storey house in El Choro using the hollow ceramic bricks that are staples of Bolivia's current construction boom. By his own admission he built the house quickly and poorly, cutting corners on quality to save on time and money. The end result was that in November 2013, just a month before Christmas, the second storey of the house collapsed, dumping shattered bricks into the street but leaving the first storey intact. No one was injured in the accident, which Adán blamed

on a dump truck discharging a pile of sand next door for an unrelated construction project, although he admitted to me that he had no eyewitnesses to confirm this. A few weeks after the collapse I helped Adán, some of his family members, and several hired construction workers recover roofing material from the wreckage, clean up the rubble, and re-install the corrugated metal roof over the first floor. I did not realize until later why Adán was treating the project as so urgent: he was the *pasante* for Christmas 2014, and as such had duties for Christmas 2013, including hosting a lunch. This event was not to take place at his new house; nevertheless, he would not be a very good *pasante* if he did not have a nice house in El Choro. The house of the *pasante* was, in a sense, the architectural expression of the link that he was building between El Choro and his current home. For Adán, a pile of rubble would not do.

The various roles that *residentes* play, then, point to the open spatiality that contributes to the production of El Choro as a place and that connects it as one node to many others. More than just visitors, many people identified as *residentes* continue to build El Choro in a way that may be disproportionate to the amount of time that they actually spend there. Money that they earn in El Alto or Santa Cruz or elsewhere<sup>30</sup> goes into some of the village's most novel and notable architecture. During the census year, many of them traveled over a long distance to be counted in their ancestral village. When it came time to discuss the municipality's politics, some of them returned to make their voices heard, appealing to their own legitimacy as *censados* of El Choro to make demands on the municipal leadership. A central demand from the *residentes* was that El Choro keep pace with the rest of Bolivia. They appealed to their own worldliness; they knew

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<sup>30</sup> One *residente* of El Choro, a friendly, middle-aged man I met during the Christmas celebration, made his home in the valley city of Cochabamba but regularly flew to China to arrange for imports of consumer electronic goods into Bolivia.

how these things should go and El Choro did not measure up. Non-*residentes* in the village even recognized them as potential links to resources that otherwise may have been difficult, or expensive, to access.

*Residentes*, however, are a more extreme case of participation over distance with the municipality. Much more common, and prominent in day-to-day life, was the phenomenon of part-time residency.

### **2.3.3 Living Close to Home**

If you make the 45-kilometre drive from the village of El Choro to the city of Oruro, it is difficult to tell exactly where the countryside ends and the city begins. On the highway approaching the city from the southwest, after passing a small police and customs checkpoint at Puente Español on the Desaguadero River, you reach the muddy shores and flocks of flamingos of Lake Uru Uru. The north shore of this shallow lake forms the southern boundary of the city of Oruro. But it's a phantasmal boundary, constantly changing from season-to-season with the rain and year-to-year with the fluctuations of water flow feeding the lake.<sup>31</sup> People build small houses, often using construction techniques (such as adobe or sod bricks) mostly found in the country, on their lakebed land claims in the winter, only to find their houses then surrounded by water during the summer rainy season. Many of these homes end up abandoned to the elements. The effect is a city that appears to melt into the lake at its margins. A little farther up from the lake, more houses are inhabited as the land gets less prone to flooding. Many of these areas still

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<sup>31</sup> These fluctuations can be extreme. At the end of 2016, two years after I completed my fieldwork, Bolivian media reported that Lake Uru Uru had dried up completely in the midst of an intense drought – see Tedesqui 2016.

lack basic services, and have few year-round residents, but farther up the gradient, housing gets denser, services are closer, and some people commute to jobs all over the city.

So where does the city begin? It is not only the lake, or the melting houses, that blur any attempted demarcation of city from its surroundings. Many of the builders of these vast, rapidly growing neighbourhoods are people whom could be called rural-to-urban migrants. But it is wrong to assume that these are people who have permanently transplanted their lives to the city. Perhaps some have, but many others are people whom I would refer to as part-time residents of the countryside. This shorthand term is in some ways misleading, in part because it is difficult to designate what is city and what is country, but also because it gives the impression that people switch back and forth between city and country as if bouncing between two poles, or living two lives, in two separate places. But this is not the case. As a look at some of the part-time residents of El Choro will show, part-time residency constitutes both places, Oruro and the village of El Choro, as nodes defined in part by constant circulation and movement between the two. It is not only the lake that overflows the boundaries of the city but also the people with their feet in both city and country who render any notion of a boundary irrelevant through their movements.

In the following short profiles, I will explore the movements of some of the people who move fluidly back and forth between the city of Oruro, particularly these southern neighbourhoods, and the village of El Choro. Their movements point toward the co-constitution of nodes through constellations of circulation and movement. El Choro's part-time residents remain engaged on a regular basis with economic production, cultural events, and community meetings and leadership in the municipality, traveling at least every couple of weeks, if not more often, to the village. Each instance of part-time residency is singular in its way but also fits into a broader spatial politics wherein some of the most influential residents in the municipality are

those who only spend a small portion of their time living there. I will give examples below of how part-time residency is lived out by different people and how that relates to their position in the community, and in doing so also explore some of the characteristics of part-time residents, what divides them between city and country, and how this shapes politics in the village and municipality.

#### **2.3.4 Brunilda and Eduardo**

I first met Brunilda in 2005 when I was living in El Choro as a Peace Corps volunteer. Her husband was Eduardo, at the time an influential member of the municipal council. They lived with their three-year old son in a two-storey adobe house with a colourful brick façade facing the main plaza of the municipal capital. On the bottom floor, Brunilda ran a small store which at that time was the sole source of two vital resources for the community: first, it had the village's only public telephone, housed in a small enclosed booth just outside the door, and second, she was the sole vendor of homemade ice cream, which she made from her own herd's milk and sold in small plastic cups out of one of the only freezers in town. When I first met the two of them, Brunilda was somewhere around 40 years of age, Eduardo closer to 50. Eduardo was born in El Choro, but Brunilda was born and raised in a mid-sized city near the departmental capital of Cochabamba, in the temperate and well-treed Andean valleys about seven hours' journey from El Choro. To hear Eduardo tell it, Brunilda had a comfortable urban upbringing and was accustomed to a nice house and household help when he first met her in the early 1990s, during a period of his life when he was working in the coca plantations of the nearby Chapare region and frequenting the *discotecas* where their paths first crossed. A couple of years after they married, Eduardo was pulled back to El Choro when his mother passed away and he was called upon to manage his family's affairs and lands and take care of his disabled father. With this,



Brunilda and Eduardo left the verdant valleys of Cochabamba for good. The former city resident found herself herding cows and sheep in the Andean highlands.

As the years went on, Eduardo became more deeply involved in local leadership, and much the burden of economic production fell on Brunilda, as she managed their herds (with hired help) and tended to the store. They had a house on a plaza in the city of Oruro inherited from Eduardo's father, who passed away in mid-2005. As an elected municipal councilmember, Eduardo was constantly shuffling back and forth between city and country to attend meetings and oversee projects, and Brunilda mostly stayed in the country overseeing their affairs.

When I returned to El Choro in 2013 to do field research, however, I found the situation reversed: Eduardo was now nearly a full-time resident of their little house in the village, watching over their herds, planting quinoa, and operating a small tractor business, while Brunilda had transferred her life mostly to the city of Oruro. Together they were building a house in the relatively new community of Urbanización El Choro, a neighbourhood on the southern periphery of the city that had sprung up on the floodplain between the urban core of Oruro and Lake Uru Uru. Their lot, enclosed by a two and a half metre brick wall, stood on the corner of two rutted gravel roads that turned into sloughs when it rained. Next to the road on the east side of the house was an open sewage channel that drained the southern zone of Oruro directly into Lake Uru Uru two kilometres to the south. The neighbourhood did have 24-hour electricity and a few hours of piped potable water each evening, which residents stored in plastic jugs and barrels and, for a few of the nicer, more complete houses, in roof-top tanks. There was a new health post four blocks to the west, as well as a combination basketball/mini-soccer court, but most of the private lots in the community remained only partially developed. Most of them had brick walls to mark ownership but lacked completed inhabited structures. Brunilda and her son, however, lived in a

low, two-room house on one edge of their enclosed lot, while a two-storey, two-bedroom house was under construction on the rest by hired labour and as much time as her husband could afford to put into the sporadically advancing project.

Urbanización El Choro was more than just a place to live for Brunilda, for she had also become deeply involved in the leadership of the neighbourhood, having been elected president of the neighbourhood association. The neighbourhood association was the primary means through which residents engaged in collective management and advocacy on their own behalf, especially through the complicated negotiations of getting the city of Oruro to build roads and utility connections for a new neighbourhood built on a floodplain previously inhabited by flamingos and Andean geese. Part of Brunilda's duty included organizing the annual anniversary celebration for the community, which I attended on a grey afternoon toward the end of August. Unlike country parties, this celebration was a single-day affair and was not held in the courtyard of a private residence but rather on the basketball/mini-soccer court at the corner of two of the community's rough streets, with vendors offering beer and food. After an afternoon of drinking and music, Brunilda and Eduardo both made speeches in honour of the community's anniversary, which, they announced from the stage, had been founded seven years ago. To me the event felt like a strange, parallel version of the village of El Choro, for I saw dozens of people I knew from there, some of whom also had homes here in the *urbanización*.

Back in the countryside one afternoon, while Eduardo and I sat inside one of his small sod houses five kilometres outside of the village of El Choro, plunging our hands into a big metal pot of whey, pulling out balls of curds, and forming them into cheese rounds, he grew wistful about life in the countryside. As we worked he said:

You know, you can live really well in the *campo* (countryside). You can make cheese. You can build yourself a nice house out here. You can get electricity in your house and have all the comforts. You can have TV. If El Choro had water then you could bring it out here and have clean water, and you can live a nice life, with all the comforts, in the campo. Life in the campo can be beautiful. But this isn't what Brunilda wants. She doesn't want to live in the campo anymore.

Later he told me about how they spent a lot of time, earlier in their lives, living together in the countryside like that, in small houses, working in the fields and tending their herds, and every afternoon she would prepare a snack for the two of them to eat together. Then his voice trailed off, and soon we were talking about something else. Brunilda remained closely connected with El Choro, making frequent visits, participating in festivals and holidays, and working with Eduardo to manage their family land and herds. But her life was largely transplanted to the city, where she not only enjoyed more resources at her disposal (including the clean water that Chorenos longed for), but she also had new leadership opportunities, working with other people from El Choro to weave their new neighbourhood into the fabric of the city of Oruro. Brunilda's trajectory had led her from elsewhere to El Choro, and then away again, but she was not, and never would be, completely disentangled from life in the countryside, especially since she had taken the lead of a neighbourhood in Oruro that amounted to a parallel version of the village.

Brunilda was not the only part-time resident to find leadership opportunities. Some people who spent the majority of their time in the city, however, returned to the village to take on a leadership role and in doing so provided a resource that was often difficult for full-time rural residents to access: specialized skills and education. But this was not without some risks.

### **2.3.5 Emilio**

Emilio first came to my attention at the first community meeting I attended during my fieldwork, which took place in the *corregimiento* in El Choro in December 2013. I noticed a man

sitting up near the main leaders' table whom I had never met before taking a notably active role in the proceedings. He appeared to be around 36 and was dressed in a way that I or probably anyone else at the meeting would characterize as of the city: unlike the majority of the meeting participants, who were still wearing the muddy clothes in which they worked in their fields all day, he wore clean blue jeans and a black leather jacket. He also had a neatly trimmed beard, a style rarely seen in the highlands. He was outspoken throughout the meeting, sharing opinions on a dispute over a piece of property in the village, the need to reorganize the village's water committee, and the importance of electing a new president to the central irrigators' organization. I had never seen this man around the village before, although I saw him at Pánfilo's store a few days later and noticed that other men there addressed him as *doctor*. I soon learned that this title referred to the fact that he was a lawyer (in Bolivia, all lawyers are properly addressed by the title *doctor* or *doctora*).

We were formally introduced when I attended a meeting of one of the irrigation zones a few weeks later and found that Emilio was the zone president. The municipality of El Choro has a complex canal-based irrigation system, much of which was dug by hand over fifty years ago. It branches off of the Desaguadero River north of the municipality and feeds into a web fanning across the municipal territory. Sub-sections of the web encompassing multiple communities are designated as *zonas de canalización*, or canal zones, and are locally managed by leaders elected by the zone members. These people meet regularly to determine the allocation of water from the system as well as to organize canal maintenance and projects to enhance agricultural productivity, health, and education in the zone. Members are required to own land there, pay annual dues, participate in mandatory work, and pay their share of various one-time costs ranging from food for anniversary celebrations to hiring heavy equipment to clean out canals.

Membership imposes substantial time and financial burdens but also provides access to resources exclusively mediated through the zone structure, especially irrigation water, but also inscription into a variety of externally funded projects such as livestock improvement, barn construction, and quinoa planting. Indeed, although the producers in many parts of rural Bolivia are still organized through peasant unions, in El Choro such unions had little sway, and the primary means of organizing people are through these canal zones. So the president of the zone has substantial influence over not only water management but also the planning and execution of development projects with municipal and outside funding. While the position was unpaid and time consuming, presidency of a canal zone was often a stepping stone to higher office, including municipal council positions and the mayoralty.

Emilio was one such president, and he had proven to be popular in that role; while I was in El Choro he was elected to his third consecutive one-year term. Yet while he owned agricultural land in the canal zone and had a house on the main plaza in El Choro, the village where he was born and lived in until the fifth grade, he spent most of his time in the city of Oruro and only traveled out to the municipal capital occasionally to lead canal zone meetings or for other events. He told me that after leaving El Choro as a child he lived in Oruro and later Cochabamba. He married his wife when he was 21, and later they both studied law. He had taken up the practice of resolving legal disputes over properties so that they could be sold, which he told me was a lucrative business in the city of Oruro's chaotically spreading peripheral zone, where many lots were in dispute. He also put his training as a lawyer to use on behalf of the canal zone, preparing the legal documents many projects required, such as contracts and letters. As president he also found himself advancing a lot of his own money to the zone in order to pay for projects, which he then had to wait to receive back from the membership, person-by-person,

which sometimes took months, and which some members never paid back at all. He had two teenage sons who, he told me, had no interest in taking up a country lifestyle, nor did his wife, who rarely visited and worked as a lawyer in Oruro, implying that their family engagement with El Choro might end with him.

Emilio's legal training and political ambition also put him at the centre of a convoluted dispute in 2013 and 2014. He took the lead in an effort to unseat the mayor of El Choro, who had allegedly falsified his military service card. This issue had come to a head the previous year, resulting in the temporary suspension of the mayor from office, the freezing of the municipal accounts, and all municipal projects put on hold.<sup>32</sup> It was resolved by the end of the year, though, and the mayor began his final year in office with the accounts unfrozen. However, in early 2014, by his own account Emilio managed to convince members of the municipal council to delegate some of their powers to him so he could help them build a legal case against the mayor. Emilio admitted that it might appear connected to his personal ambition because he had been the runner up in the previous mayoral election, but he insisted that his participation was in the public interest. Although this action against the mayor remained a hot topic of discussion for much of 2014, the municipality's accounts were not frozen again, and by late in the year, the whole endeavour waned, with the mayor certain to be replaced in the March 2015 municipal elections in any case, as he was not running again.

By Emilio's own account, though, his actions had alienated the mayor from the whole community. Each year every canal zone in the municipality had a free hand to allocate its share

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<sup>32</sup> This local crisis received very limited attention from the regional and national press. See Juan Mejía 2013; *La Patria* 2014a.

of municipal funds to its chosen projects, but the responsibility of dispersing the funds belonged to the mayor. And in 2014 Emilio's zone found its projects at a dead end on the mayor's desk. For that year's budget they had proposed the purchase of an excavator for cleaning canals, hoping to arrange for credit to make up the difference from their budget of Bs. 318,000 (about US\$45,000), which was not enough to buy such a machine outright. However, by July Emilio and the zone membership realized that this purchase would not be possible, as Emilio said that the mayor was refusing to even speak with him due to the other conflict. They chose to reallocate the zone's money to two less complicated projects, the construction of sports fields and irrigation canal maintenance. Within a few months, though, Emilio reported to zone members that those projects were as dead as the excavator and that nothing would happen for 2014. It is not certain that the mayor retaliated against Emilio and the zone by refusing to execute their projects, and many other zones reported slow or non-existent execution of their projects, but nevertheless it seems likely that the friction between leaders played a role. For his part, Emilio publicly stated that his conflict with the mayor was a problem holding their projects back.

The story of Emilio illustrates some of the ways that having part-time residents involved in local leadership brings both opportunity and peril: opportunity in the form of leadership and professional skills, but peril too when a leader used such a position as a springboard for a political agenda that might be at odds with the community's general interests. Even so, Emilio was re-elected to his position with no opposition while his friction with the mayor was still underway. Supporting his contention that he was not involved only because he wanted to take the mayor's place, he did not run for mayor again in the 2015 elections.

Emilio's case indicates that a lot of people were tolerant of having leaders who were stretched between the village and Oruro. Even so, this does not mean that all people in El Choro,

even part-time residents, were apathetic when they perceived that a key local leader was alienated from and indifferent to the community that he had been elected to lead. This next case is of the mayor,<sup>33</sup> who was elected to serve El Choro but did not live there and was rarely seen in the community.

### **2.3.6 “El alcalde es E.T.”**

When I told Eduardo one evening that I needed to try and track down the mayor of the municipality of El Choro, so that I could talk to him about my research, he smiled and said, “The mayor is E. T.” I laughed and asked, “He’s an extraterrestrial?” “Exactly!” Eduardo said, laughing. “Sightings of him are that rare?” I asked. “Yes!” Eduardo replied. I took his comment to mean more than just that the mayor is rarely seen in the municipality itself; it also reflected a common perception of alienation between the mayor and members of the community, almost to the point that on the rare occasions that he walked among them, he appeared as a space alien come to visit Earth. This sense of alienation was expressed directly to me, again and again, by members of the community, and also spoken out loud at many community meetings I attended, at times in the mayor’s presence. Despite having been elected chief executive of the municipality of El Choro, the mayor did not live there even part of the time. Eduardo told me that the mayor had family history there: his parents and grandparents were farmers in the southern lands of the present-day municipality. But the current mayor had never made a living there; he had grown up in the city of Oruro and worked there as a schoolteacher. As mayor he maintained his office at his house in Oruro, which is where he held most of his meetings. Most large municipal-wide

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<sup>33</sup> Although he was a public figure, and his tenure as mayor during my fieldwork is a matter of public record, I have chosen not to put the mayor’s name in this text but rather only to refer to him by his title. This is not a journalistic account intending to tally this particular mayor’s sins; rather, I am interested in exploring how people relate to leaders who are perceived as distant in the ways I discuss here.



meetings were held in a rented meeting space near his house rather than in the municipal meeting room in the capital of El Choro.

This is not how municipal governments are intended to operate under Bolivia's system of decentralized municipal governance, which was designed to give more control to local residents. In 1994 the government of Gonzalo Sánchez de Lozada (popularly known as Goni) passed the *Ley de Participación Popular* (Law of Popular Participation or LPP), as part of a series of political and economic reforms. The LPP organized all of Bolivia's territory into municipalities charged with managing public infrastructure, operating social programs, allocating tax revenues for projects, and incorporating citizens into organizations for participating in and providing oversight for municipal affairs (Blanes 1999, 9–10). Under the LPP, municipal governments are overseen by an elected council, and the chief executive officer is an elected mayor. The mayor's job includes executing the projects approved by the municipal council, which mostly come from proposals made by grassroots organizations. Thus, while a vast funnel channeled projects upward from the grassroots through the council, it was a relatively narrow path back down, from approval to execution, that always had to cross the mayor's desk. This gave this position tremendous power and did not always lead to the intended decentralization of the law. Kohl (2003) notes that it is a common problem around the country that many mayors of rural municipalities spend most of their time at an office in the departmental capital, with the result that they are “duplicating the patterns of rural elites of previous generations” (2003, 159) by controlling resources in the rural areas from a distance.

This pattern of distance between the mayor and El Choro, and the perception of his alienation from local community members, was keenly felt by many local people. Eduardo, himself a former municipal leader, characterized the alienation of both the mayor and the

municipal council members, all of whom lived in Oruro and only made occasional visits to El Choro. We spoke about this on a windy, grey December afternoon as he managed irrigation water in one of his fields. He had his shoes off and pants rolled up, standing almost up to his knees in water, shovel in hand, guiding the water by digging small channels between sections of the field. After he returned to dry land, he told me that it was the lot of the farmer to work hard. “Look at this,” he said, pulling out his wallet and removing his national identification card. “See that?” he asked, pointing at the card. “What profession is listed on my card? Farmer.” He continued: “No one on the current municipal council, nor the current mayor, has ever so much as lifted a shovel in their lives. But if you haven’t suffered, you don’t know how to solve problems!” Moisés, an elderly man who ran a small store, bike repair shop, and gasoline dispensary out of his house on the corner of the main plaza, characterized the situation this way when he was telling me about the mayor’s long absences from the community: “We don’t even have a mayor.” Matías was harsher at a public celebration of the anniversary of one of the local irrigation zones, saying during a brief speech that once again the mayor had not shown up at an event and in any case he was “dead to us now.”<sup>34</sup> Other people saw the mayor as favouring other communities in the municipality; during one project meeting in El Choro, a speaker said that the municipal government was like a father who had five children but only fed three of them. The general low rate of project execution by the municipal government was a well-known problem

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<sup>34</sup> Even some of the mayor’s relatives complained about this sense of alienation at times. On one occasion an elderly part-time resident named Gervasio was chatting with Eduardo and me about politics in the municipality. Gervasio said that he was a loyal member of the mayor’s political party, the MAS (to illustrate this he pulled out his MAS party identification card) and the mayor was a relative of his, but nevertheless he had told the mayor, “Why can’t you at least live in the municipality half of the time?” “Yes,” responded Eduardo, “then he would see, he would feel the problems here that need to be solved, and he would understand. Like the roads here that need to be paved.”

and a frequent topic of conversation in the village of El Choro. Many people also complained that El Choro had a reputation, regionally, as not managing projects well and not spending its money.<sup>35</sup>

If so many people were not satisfied with the mayor's performance as chief executive, and were so critical of his long absences from the community, then why did they elect him? There is no clear answer to this, but many people told me that in general it was critical to vote for a mayor from this mayor's party, also Bolivia's ruling party, the MAS, because he would have an easier time gaining access to central government resources for his community. In any case, the situation with the mayor illustrates that the spatial dispersal of political power between different nodes, from the village of El Choro to the mayor's home office in Oruro and back, can lead to perceptions of alienation and detachment. In this case, many people take the mayor's absence as not only a lack of presence but also a symbol of his apathy and alienation. With a new election coming just a few months after my scheduled departure, many people told me that it was more important than ever to elect someone who actually lived in the municipality. In the end, though, yet another city dweller who had managed to lock up the coveted MAS nomination was elected.

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<sup>35</sup> Oftentimes such complaints were made in comparison to other communities, where Choreños perceived the governance to be better. At one community meeting in December 2013, an elderly man said that El Choro has had "bad administration" and that the municipal government only had executed seven percent of its projects, actually a higher number for 2013 than *La Patria* would report only two months later. The man continued, saying that the number should be compared to the neighbouring municipality of Toledo where the municipal government had completed 70% of budgeted projects. This number may have been an exaggeration, but people often appealed to the neighbouring municipality of Toledo as an example of better governance. The national average for municipal budget execution was 56% in 2012 (Luna Acevedo 2013).

## 2.4 Conclusion: A Community in Flux

In this chapter I have attempted to illustrate the ways in which El Choro is constituted as a node through its relationships with a broader constellation of other nodes and how these relationships produce the place itself. From the days of the original Uru inhabitants, when the people of El Choro held lands across broad vertical archipelagoes stretching into the Andean valleys, through the Spanish colonial disruptions that forcibly resettled people into *reducciones* and paved the way for new waves of from other parts of the Andean highlands migration, to the broad reach of Choreños today who live near and far but continue to participate directly in village and municipal affairs, El Choro's reach stretches far beyond the flat plains along the banks of the Desaguadero River. Part-time residents, and distant *residentes*, continue to involve themselves in village life and politics and challenge the notion that residency always means living in a place, as well as the idea that an urbanizing nation like Bolivia is necessarily turning its back on the countryside. The long history of flux and movement also challenges notions of bounded, place-based indigeneity. Choreños have long been on the move, from colonial era raiding parties to later trade with mining areas and the dispersal of many people through constellations of migrant-attracting nodes today. El Choro's constitution as an indigenous community not only does not stand on stasis; it is in fact created by flux.

This spatial openness is aided by, but not entirely dependent upon, the smoothness of the high plain. Mobility has improved over the years with new roads that aid the movement of local trade and illicit smuggling alike. But Choreños have long been on the move between city and country, whether on donkeys or trucks making the most of improvised overland routes. Nevertheless, improvements to El Choro's connections to major highways in the region, as well as the city of Oruro, influence the speed and ease by which people move back and forth between

the village and the city of Oruro, as well as farther points. The ease by which people can move back and forth contributes to continued participation of part-time residents in El Choro's economic, political, and social life. Even so, as evidenced by the case of the mayor, there seems to be a limit as to how much people will tolerate the participation of a mostly absent leader.

This is by no means an exhaustive presentation of the trajectories that get entangled in El Choro's spatial politics. To hearken back to Gordillo's words on nodes and constellations, these relationships are defined by "pure multiplicity" (2014a, 25). To pin some of these movements down, as in this chapter, is to look at some of the ways that people's dispersed lives create El Choro's spatial politics. This is just one aspect of these intersecting trajectories, for they encompass nonhuman bodies too. The explorations that follow will widen the circle of consideration to different nonhuman bodies with their own trajectories that produce El Choro and have an important role to play as different bodies, including the atmosphere and the hydrosphere, transform through climate change, water pollution, and other environmental challenges.

### **Chapter 3: “All We Can Do is Hope for Rain” – Agricultural Unease in a Changing Climate**

One morning in December 2013 I accompanied local farmer and ex-leader Eduardo out to visit his 10-hectare rain-fed quinoa field in the countryside east of El Choro. He wanted to check on the state of his crop after planting it a month ago. Knowing that Eduardo had been farming and herding in El Choro for decades, I was surprised when he told me that this was an experiment: he had never grown much quinoa and only started planting it in small quantities over the last few years. Responding to the booming export market, this year he had made what he called “a very large investment” to plow and plant these ten-hectares on what had been pastureland around the ruins of a small adobe homestead. In all, beyond the costs of plowing the field with his own tractor, he told me that he had spent Bs. 200 per hectare on seeds, a total of Bs. 2,000 (US\$291) for the planting. At harvest time, Eduardo planned to sell his crop to the quinoa processing plant in Oruro, which after washing, de-hulling, and sorting the grains would sell them on the export market.

Eduardo was dismayed when we found few signs of life in the field. In some areas no plants were sprouting; in others, there were green shoots, but they were stunted and sparse. As we walked through the field, Eduardo wondered aloud, “Is it poor soil quality? Is the field too dry? Not enough rain?” As we moved farther from the edge of the field, we found more robust plants in some areas. Looking over a cluster of plants that had sprouted to 8 centimetres tall and around 8 centimetres in diameter, Eduardo said, “They should all be this size!” He said this over and over as we looked over other diminutive plants. As we walked out of the field, Eduardo

looked to the east, where rain clouds had built up over the brown Andean peaks above the town of Poopó. “No matter what, it has to rain,” he said. “The soil is so dry; what can we do? All we can do is hope for rain. There’s nothing else we can do.” The rain never arrived that day.



**Figure 3: Eduardo's quinoa field a few months later. Note the visible white crust of minerals on the adjacent land.**

This chapter will explore the trajectories and tensions that manifest both in Eduardo’s faltering quinoa field and his worries about the course of his agricultural production in a changing climate. In a way climate change is just the latest in a web of alterations and movements that have shaped and disrupted agriculture in the Bolivian highlands. While many of

the native crops and animals in the Altiplano today were first bred thousands of years ago, agriculture in El Choro is also the product of interventions and influences ranging from several hundred years of Spanish colonialism to aid programs funded by the United States after the 1952 revolution. The sheep, cows, and forage crops that form the backbone of El Choro's economy today were introduced and promoted through US aid programs that pushed agricultural modernization and favoured imported species over native varieties. Even Eduardo's recent efforts to rediscover quinoa evidences the interlinkage between agriculture in the Altiplano and global markets, for while quinoa is native to the Andean highlands, it nevertheless had been almost dormant in many parts of the Altiplano until demand from consumers in the global north gave farmers incentive to grow it again.

But while Altiplano farmers are no strangers to such changes and exchanges, this chapter will show that today people in El Choro are experiencing a sense of unease about their futures that seems to grow alongside new disruptions. Climate change may be the most salient of such disruptions, as it is unsettling people's core expectations and knowledges about agriculture and raising questions in their minds about their ability to continue to thrive in the Altiplano. But in terms of agriculture, climate change is most acutely felt as it intersects with other unsettling trends that some Choreños identified to me as being of great concern, including water pollution, the depopulation of the countryside, and the negative side effects of the commoditization of quinoa. The main focus of this chapter, then, is to explore the two-sided question of how farmers' sense of unease arises within the intersection of climate change and other unsettling trends and then how the farmers' sense of unease relates to and influences their changing agricultural practices.



A key conceptual underpinning of this chapter is that material bodies have an inherent affective capacity, meaning that as they transform over time they have the ability to increase and decrease the capacity of other bodies to act. The genesis of this idea is in Spinoza's 1677 work *The Ethics* (1951). Spinoza's work represents an alternative to the mind-body dualism established by Descartes earlier that century. Spinoza conceptualizes the body as open and unbounded toward other bodies, human and nonhuman alike, which act on each other, moving each other, persuading each other, dispiriting and motivating each other. The political theorist Jane Bennett draws on Spinoza to point us toward what she calls "thing-power," or the affective power inherent in bodies as a material property, which she defines as "the curious ability of inanimate things to animate, to act, to produce effects dramatic and subtle" (2010, 6). Spinoza and Bennett point us toward understanding emotions and behaviour as inseparable and as arising in relation to other living and nonliving bodies. These material-affective bodies exist and relate to each other in space, which (as discussed in Chapter 2) Massey conceptualizes as heterogeneously open and relational, much like Spinoza's body, and consisting of a "multiplicity of trajectories" (2005, 63), or meetings of different movements and changes. This conception of space focuses on it as composed of continuous transformations rather than only as a backdrop to the action under consideration. In El Choro, people carry out their agricultural practices in constantly changing spaces that encompassing mutually affecting material bodies.

The spatial relationships traced and elucidated in the first chapter, then, are lived through this material-affective capacity. Socio-spatial processes like out-migration are materially refracted and experienced in new ways that are not always immediately obvious. Through the affective ways that space and materiality are lived and experienced, the trajectories of history, present, and future meet in the place of El Choro and people's day-to-day experiences. This

chapter, then, will start with an exploration of El Choro's climate and agricultural history before moving on to how climate change and other significant trajectories shape farmers' experiences and concerns related to agriculture in El Choro today. Over time these changes leave their marks upon the landscape and remind people of the limits to their ability to manage the challenges of climate. Sometimes, as Eduardo said, "All we can do is hope for rain."

### **3.1 Greening the Altiplano**

Even prior to climate change, growing crops and raising animals on El Choro's dry plains, 3,707 metres above sea level, was never easy. The high altitude, coupled with the tropical latitude, makes for an environment marked by intensities in all directions. Summer temperatures in the central Altiplano range from average highs of 19 to lows of 5 degrees Celsius, while winter temperatures range from average highs of 13 down to lows around -10 degrees Celsius (M. Garcia et al. 2007). Besides the potential for frost interrupting the growing season, these temperatures constrain agriculture by slowing plant growth compared to warmer climes (M. Garcia et al. 2007). Another major constraint is the large seasonal variation in moisture in the Altiplano's semi-arid climate. Winters are dry from May until October, and rainfall is concentrated almost entirely into the spring and summer months. The region around El Choro has had a historical average of 363 mm of rainfall each year, but wide-ranging variability year-to-year is normal (Garcia et al. 2007). Even so, precipitation is shifting toward shorter, more intense rainy seasons due to climate change (Valdivia et al. 2013). Time and time again, farmers I spoke with in El Choro characterized these shifts in rainfall as the mixing of seasons that were once more stable. As a young farmer named Eligio told me, "The weather is no longer by season. Four months of rain now falls in two months, and that is why flooding happens."

Given the climate constraints, the main crops for planting around El Choro have been historically limited. As Bolivian agronomist Magali García Cárdenas and her co-authors write of the Altiplano, “The short rainy season, erratic distribution of rainfall, and short frost-free period produce a permanent conflict in crop cultivation, allowing only the cultivation of crops with a short growing season, crops that are drought and frost resistant” (2007, 118). This leaves varieties of potato, with short growing seasons, and quinoa, highly resistant to frost, as the principle crops that do well under those harsh conditions. A grand part of the history of agricultural knowledge and technology in the Altiplano is a story of how climate challenges are managed for these two crops to thrive. As the Bolivian anthropologist Mauricio Mamani writes, “The Altiplano environment demands a constant struggle with inclement weather, which also means better understanding and interpreting indicators in order to foresee all of the risks to crops” (1988, 77). Climatic indicators are examined by farmers at different stages of the yearly agricultural cycle and include observations of the behaviour of plants, animals, and atmospheric and astronomical bodies.<sup>36</sup> Such observations help farmers determine when to plant and harvest and whether the season will bring good production. In El Choro, many people told me that the knowledge and use of such indicators was declining over time but that there were still several that farmers use year-to-year. One day in 2014 a farmer in his late 50’s or early 60’s named Guillermo explained to me how some of the most important indicators are read: first, you look for where birds lay their eggs in the spring, because if they lay them high and out of reach of water, it will be a very wet year, but if the eggs are in low places, it will be a drought year.

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<sup>36</sup> For a now classic study on one particular astronomical body that is observed in the Andes as an agricultural indicator, the Pleiades constellation and its relation to El Niño, see Orlove, Chiang, and Cane 2000.

Second, you must look at the flowering of the *leña* plant: if the flowers are on all sides of the plants, conditions will be normal, but if flowers are only on the north side, then a freeze will come from the south. Finally, when you see large flocks of birds flying around, either snow or rain will fall within three days. “Indicators are still useful for those who know them,” Guillermo concluded. Along with other adaptations, such as terraced fields (common in the high Andes but not present in flat El Choro), crop rotation cycles, canal irrigation, and application of natural fertilizers, farmers have managed to prosper in the difficult environments of the Altiplano for a very long time (D’Altroy 2000; Mamani 1988, 86–89; Zimmerer 1995).

The crops that underpin Andean agriculture today were developed several thousand years ago, with quinoa domestication in the Andes dating up to 5,000 years before the present and potatoes up to 7,000 years (Bruno 2006; Hawkes 1990; Orlove 1985). Native Andean herd animals, including llamas and alpacas, were likely first domesticated 6,000 to 7,000 years before the present and were used by pastoralists for meat, fibre, and as pack animals, held in herds of hundreds of thousands in pre-colonial times (D’Altroy 2000; Wheeler, Russel, and Redden 1995). These crops and animals were the basis for the prosperity of the pre-Incan civilization of Tiwanaku (800-1200 CE), an empire that covered 600,000 square kilometres of the central Andes, including much of the Altiplano, that was centred on a densely populated city of 100,000 people located close to the southern shore of Lake Titicaca (Morris 1999). But this prosperous, productive agriculture, which outlived the Tiwanaku state and was continued by the Inca Empire, was disrupted by Spanish colonial violence. Spanish authorities forced many of the indigenous farmers of the central Altiplano into missionary settlements called *reducciones* such as Challacollo in the present-day municipality of El Choro (see Chapter 2) and feudal *encomiendas* that forced them into serf-like relationships with Spanish overseers. The Spanish prohibited the

sale of llama meat in order to promote imported livestock and repress native ceremonies involving the animals (Healy 2001, 191). Colonial administrators also suppressed quinoa and potatoes in favour of crops from Europe, beginning a dietary shift in the Altiplano toward imported grains that persisted for centuries (Hellin and Higman 2005). The decades following Bolivian independence in 1825 saw the alienation of peasant farmers from their land and the rise of *haciendas*, large-scale estates that retained feudal-like labour relations with a captive indigenous workforce that functioned as a system of slavery (Antezana E. 1992, 20–21). This situation endured until the revolution of 1952, which propelled the Movimiento Nacionalista Revolucionario (Revolutionary Nationalist Movement, or MNR) into power. The MNR government abolished servitude and implemented the far-reaching land reform of 1953 that titled parcels in the names of now-emancipated peasant farmers. This established the basis for individual property ownership in El Choro today, where all lands are individually titled and none are held communally. The 1953 land reform allowed highland indigenous communities to recover land usurped by the *haciendas*, but it also subdivided parcels into grants that were often too small to provide for subsistence, resulting in food shortages and rural poverty (Patch 1960, 127–28). This gap opened the way for extensive food and agricultural aid from the United States through the next several decades that shaped the agricultural practices in the Altiplano and El Choro today.

Bolivian/US entanglement began in earnest in 1942, when Washington needed Bolivian tin for the war effort, and the USA dramatically increased its aid following the 1952 revolution in order to try and keep Bolivia out of the communist sphere of influence (Wilkie 1978, 83; Healy 2001, 19; Patch 1960, 130). US aid through this period was a large portion of the Bolivian government's budget and persisted through the military dictatorships of the 1960s and 1970s,

declining under the Carter Administration in 1979. US aid shaped Bolivian agriculture in many different ways, much of which linger in present-day practices in El Choro. Much US aid went into agricultural modernization programs that included land clearing, mechanization, and importing farm equipment and supplies (Wennergren and Whitaker 1975, 205). In particular, large amounts of machinery were imported from the USA, much for cutting down lowland rainforests (Healy 2001, 21). US agencies like the Servicio Agrícola Interamericano (SAI) and its successor, the US Agency for International Development (USAID), ignored native camelids and instead invested in establishing sheep farming in the western highlands by importing animals and non-native forage seeds. This effort degraded pasturelands and made farmers dependent on purchasing alfalfa seeds rather than relying on native forage (Healy 2001, 26–27; Wennergren and Whitaker 1975, 86). Quinoa was ignored and saw declining production through this period (Healy 2001, 42; Wennergren and Whitaker 1975, 50, 55). Foreign aid and the post-1952 government's policies encouraged the production of foreign products, such as sugar, rice, and cattle, on an industrial scale in the lowlands, as well as the consumption of imported wheat, which supplanted quinoa, maize, potatoes, and other native crops in highland people's diets (Healy 2001, 30–31, 42–43).

Agriculture as it is practiced in El Choro today is heavily influenced by this history of foreign aid-driven modernization. Farmers in El Choro grow alfalfa to support their livestock herds, which consist of sheep and dairy cows. Llama herds are almost nonexistent in the area. Many people told me that El Choro's soil and availability of irrigation support the rich forage that sheep and dairy requires, while llamas tend to thrive in more marginal environments where they can range widely, which is impossible in the absence of communal grazing lands. Sheep and dairy have been present in El Choro for several generations but production intensified in the

1960s and 1970s, as USAID money managed by the Catholic organization Caritas funded the introduction of purebred animals, including Hampshire and to a lesser extent Blackface sheep and Holstein cows, as well as the alfalfa crops needed to support them. Contemporary agricultural support programs in El Choro aim to boost production through these same breeds and types of forage. Food crops, however, generally reflect native varieties of potato and quinoa that were neglected during the years of heavy US-sponsored food aid.



**Figure 4: Severo herding dairy cows near the village of El Choro.**

Today programs funded by the MAS (Movimiento al Socialismo, or Movement Toward Socialism) government of Evo Morales have supplanted foreign aid as the main driver of agricultural change. Many of these investments replicate previous interventions, emphasizing

tractors and imported breeds in many cases, but some programs also incorporate native crops, animals, and forage. As the following sections will show, these government programs are so extensive that El Choro farmers are not even able to take advantage of all available programs nor spend all allocated money, for there is not enough time and expertise to do so.

### **3.2 Agricultural Unease**

Even with increased investment, local concerns about agriculture persist. The higher investments made historically in what people called *ganados mejorados* (improved livestock) and semi-mechanized agriculture also give the region farther to fall when challenges strike. This explains in part why despite the long history of innovation, technology, and relative prosperity in El Choro, I still encountered a strong sense of the precariousness of agricultural life pervading day-to-day conversation and activity with El Choro's farmers, an unease over the perception that life in the countryside is fragile and could easily be destabilized. In this section I will explore some of the sources of this unease and how this sense of insecurity in farmers emerges in their practices in and perceptions of space and how they then play into the choices that farmers make regarding production and even their own life trajectories. I will begin with the environmental challenges that set the context for the rest of the farmers' struggles: climate change and its inextricable linkage in the eyes of local farmers with water pollution.

#### **3.2.1 Turning Desert Back into Desert**

To hear El Choro's farmers tell it, climate and water quality were much better in the past. Many comments I heard from farmers reflected a perception that the past climate was more predictable than the present, along the lines of what Guillermo told me one summer afternoon: "In the past you could always count on rains falling before Christmas and everything being green



by the time that Christmas came around. This was always the case in older times, but it is no longer true.” And one day, after I told Eduardo that I had just been caught in a downpour, he said, “Yes, the rain came fast, didn’t it? It didn’t used to be like that. The sky used to prepare for four or five days before a big rain, and the arrival of the rain was predictable.” I asked him what time of day it rained in those days. “The rain usually started at night,” he said. Comments like this seemed to reflect an idealized past climate. But neither Guillermo nor Eduardo elided the weather violence of the past: in the same conversation Guillermo told me about floods he experienced when he was younger that covered his village in knee-deep water for days, as well as the story of an intense hail storm 20 years prior that destroyed all of his crops. For his part Eduardo told me that in the old days, these predictable night-time rains fell hard enough that once they stopped, dogs went out to eat dead rabbits that drowned in their burrows.

So intense weather was nothing new to the Altiplano. But still, farmers expressed a sense that something had changed. This is reflected in the climate change literature for western Bolivia, which demonstrates that the rainy season is transforming, with rainfall decreasing in the late spring and early summer months of October through December but with no net decrease in annual rainfall (Valdivia et al. 2010; Valdivia et al. 2013). Rather, there is an intensification of rainfall into a shorter period of the late summer.<sup>37</sup> I spoke with many farmers who described this intensification. They told me that they now must plant later in the season, December rather than October or November, and face potential flooding in January and February, then try to harvest before the arrival of early autumn frosts. Many farmers described these changes in comparison

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<sup>37</sup> Some general circulation models (GCMs) for the Altiplano project that over the longer term, total annual rainfall will decrease under many climate change scenarios – see Minvielle and Garreaud 2011; Seiler, Hutjes, and Kabat 2013a.

with memories of more predictable weather; they told me that everything was “mezclado” (mixed up) now, the weather increasingly perceived to occur “fuera de su temporada” (out of season). In other words, it seems that rainfall is unreliable for agriculture under climate change, and crops now run higher risk for damage from hail and frosts. Alcides, an elderly farmer with a rough, lined face and sparse teeth, summarized the changing weather’s impact on agriculture in a conversation with me in the main plaza in the village of Chaytavi:

The weather is really strange now. It has changed a lot. Now it wants to rain at any moment. The weather is happening out of its season. It is hard to plant because you cannot calculate when a good time is, because the weather no longer follows the seasons like it used to. Before it was possible to calculate when to plant. Weather happened in its time, you knew when to plant and when to harvest. Now we plant earlier but then it snows, and it freezes at the end of the growing season. It wasn’t like this before. The sun is stronger than before, too, it is so hot that it burns you. The sun’s layer is returning to the earth<sup>38</sup>. This is why sun is getting hotter. And since the sun is stronger, the soil dries out quickly after you water.

As Alcides describes it, the knowledge that El Choro’s farmers have relied on over the decades was derived from a climate that no longer exists. With farmers perceiving the weather to be separated from the seasons, they cannot reliably base their planting and harvesting decisions on the weather phenomena that they are experiencing at the time. Alcides also makes a notable connection between planetary bodies in his comments: the ozone layer, he says, is “returning to the earth.” Not only are the seasons mixed, but so are earth and sky as the sky falls out of place.

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<sup>38</sup> “*Su capa del sol está volviendo a la tierra.*” Alcides was referring to the ozone layer. Other people I spoke with regarding global warming also made reference to the deterioration of the ozone layer. For example, when I told Cándido, a former resident of El Choro back for a visit, that I was studying how climate change was affecting the area, he said, “The weather has changed. It is hotter, and colder. This is because of the ozone layer, which is getting thin and letting more heat in.” In 1999 Bolivian researchers in La Paz reported on the formation of an “ozone mini-hole” over Lake Titicaca (Campos 1999). Bolivia is also the site of the highest ground value of ultraviolet radiation ever measured, equivalent to a UV index measurement of 43.3 recorded in 2003-2004 (See Cabrol et al. 2014). As a point of reference, the World Health Organization classifies a UV index of 11 or above as carrying an extreme risk of harm.

Alcides's statement reflects his affective response to the perception of changes in material bodies. Agricultural unease resides in part in the relationship between Alcides and material bodies like the earth, sky, and atmosphere that are undergoing transformations. The sky falls. The sun dries out the soil. The farmer is not sure what to do.

While farmers like Alcides say that they can no longer trust the rainfall to come with the appropriate seasons, El Choro's extensive irrigation system is also compromised. Long-term application of irrigation water on any soil results in the concentration of minerals after the water evaporates and plants uptake water for growth (Bresler 1981, 65). Even "good quality irrigation water" with 200 to 500 milligrams per litre of dissolved salts can deposit 3 to 5 metric tons of salt per hectare of land during a normal agricultural year (Ghassemi, Jakeman, and Nix 1995, 32). Much of the water in the Lake Poopó watershed is saline and unsuitable for human consumption, while the long legacy of mining in the region and the 120 lead, tin, and gold mines that discharge their liquid wastes into the watershed have left surface and ground waters contaminated with heavy metals and ore processing by-products (M.E. Garcia, Bengtsson, and Persson 2010; Maria E Garcia et al. 2005). Farmers were aware of these processes. This is why an elderly farmer named Mateo, who held lands in the canton immediately north of the village of El Choro, told me, "There are areas around there that are desert now because of the mine pollution. Nothing grows there anymore." But his comments went on to reflect on the importance of the irrigation water: "The Creator<sup>39</sup> provided this river for us, and without this river, all of El Choro would be a desert and we never would have been able to produce so much here." This reflected how water pollution, perhaps even more than the changing climate, attacked the very

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<sup>39</sup> The word Mateo used was "El Creador." Mateo was referring to the Christian God.

heart of El Choro’s historical agricultural prosperity, which stood out in the broader Altiplano region, most of which did not have access to such abundant irrigation water. Mine pollution turned water into a weapon against El Choro, making the land back into the “desert” that it would have been without irrigation in the first place. Water pollution also targeted livestock; as some farmers explained to me, when livestock watering holes are filled with canal water, after some time, evaporation causes pollutants to concentrate. This is why Eduardo told me that the lower Desaguadero was the “*basurero*” (garbage dump) for the region. Everything flushed by the mines and by Oruro came downstream. Water was trash; water was contaminated. Water was materially transformed, and farmers felt the changes, the desert turning back into desert.



**Figure 5: Contaminants and salts visible in an evaporated marsh along the Desaguadero River**

The perception of water pollution had consequences for how people interacted with the canal system; some people refused to use irrigation altogether, relying on rainfall, no matter how capricious it could be. One morning in early summer I spoke with Ester, a 62-year old woman who ran a small store on the main road in town. In El Choro stores operated out of the front rooms of people's houses. Some storekeepers opened sporadically, but Ester kept long, regular hours and a detailed inventory of hardware, housewares, and school supplies, far beyond the normal food and sundries of most stores. Like almost everyone else in El Choro, however, she also kept lands outside of the village. On this December visit, we talked about the planting season and the recent heavy rains. She said:

The town is wet and muddy. It has been raining hard. We didn't have hard rains like this before, though when I was a little girl we did have some hard rains. Back then the water was clean. My father had land in Japo that had canal irrigation, and it was clean. Crops grew well, the land was in great condition. Also, El Choro had wells. But now the canal water is polluted. Water contaminates the land, and the crops don't grow as well as before. Land around Lake Poopó is already out of production. There's mine pollution that comes from Iroco, up by Oruro, which is dug like a giant *wigiña*<sup>40</sup>, and they discharge everything, as does Oruro itself, into the river, as do mines around Poopó. Some pollution also comes from washing salt<sup>41</sup> at Lake Titicaca. Canal water leaves minerals on the land, making it so crops can't grow. I won't use irrigation water now. I didn't plant anything last year, but this year I did, quinoa and potatoes. I won't irrigate. I just planted and then told God that He will have to irrigate.

Ester's words reflect how water pollution and the changing weather were frequently woven together into a narrative of decline over time and distrust engendered by spatial transformations. Past expectations of clean water and reliable weather alike were now unsettled. For Ester, it was time to leave irrigation in the hands of God.

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<sup>40</sup> Quechua word meaning watering hole, common in El Choro for water storage and watering animals. Ester is referring to the fact that many of the mines close to Oruro are open-pit mines.

<sup>41</sup> Many people blamed the high mineral content of the Desaguadero River on some kind of upstream industrial salt discharges.

The perception of all of these interwoven, material changes contributed to a deep sense of pessimism from many people about the future of agriculture in El Choro. This pessimism was reflected in comments that local irrigation leader and lifelong El Choro resident Matías made to a June 2014 workshop on climate change and its consequences sponsored by a Bolivian NGO. At the start of the meeting Jhoel, the young NGO worker from La Paz who was leading the meeting, asked participants to describe how the climate had changed. Matías rose to speak. In his remarks he wove together several of the problems and pressures that irrigators had been feeling from the river and the climate, their affective spatiality, and their consequences:

Before, it always rained in its time. It froze in its time. It had its time to happen. Now at any time it gets cold, in any moment it freezes, or rains, hails, so it is a bit worrying. And before also there wasn't pollution, isn't that right? Now, more than anything, we have felt the pollution in the water. We used to live as our parents did by taking water out of the canals for our use, but now it is no longer possible to live with this water. All of the water is salty, even well water. It was possible to live before, but now it is no longer possible to live. That's why so there is so much migration out of the community, isn't that right? Our children leave right after they finish school. That's what I would say.

Matías expresses the perception of climate change and water pollution as interwoven, similarly putting pressure on farmers at the same time and making their livelihoods harder compared to the past. He locates these problems in environmental bodies and their points of intersection: freezes, hails, and rain all out of season, all mixed up, and the pollution of water that was once clean and reliable, all trajectories that meet in space. These intersections implicate an intermingling of many different material bodies: the earth, the atmosphere, the hydrosphere, carbon pollution, plants, and, of course, human bodies that perceive and negotiate with these transformations. Matías points to material transformations as underlying drops in production and subsequent high rates of out-migration. But his comments also reflect the affective capacity of the material transformations themselves, such as water pollution that, he says, “We have felt.” We can make

some linkages between these transformations and Matías's dark vision of the present and future: "It was possible to live before, but now it is no longer possible to live." What this refers to in part is that unsettled weather, dirty water, and empty houses convey a sense that life in the countryside is irrevocably changed, that production can no longer happen like it did before. These changes reveal what Bennett (2010, 6), as discussed earlier, calls thing-power: the material bodies have the power to influence people, to animate and de-animate, to think about how these changes in material space influence a sense of pessimism. This happens in part through the temporal linkages that they embody: they point both to a darker future and also a different, more brightly remembered past. As Matías's comments reflect, polluted water reminds of a time when the water was clean and could be removed from the canals without a care, while the out-of-season weather is a reminder of seasons that once could be clearly defined and predicted. The affective potential of material bodies in space draws upon different temporalities, in part by triggering different memories, embodying different trajectories that have produced the place and bearing physical marks that are spatiotemporal inscriptions of both the past and the future. But what happens next, and what decisions El Choro's farmers will make as they are faced with these transformations, remain open questions. For even as Matías expressed that it was no longer possible to make a living in El Choro, he and hundreds of other farmers continued to do just that. What will they do as conditions continue to change? Will they still be able to make it?

An even more critical question about the future may be, however, whether the young people of El Choro will be able to see themselves making a living there through agriculture. Many Choreños feared that climate change and water pollution were foreclosing the potential of the next generation of farmers and that the countryside would eventually empty out; indeed, as I discuss in the next section, this process seemed to be underway already.

### 3.2.2 “Our Children Have Left”

At many community events around the municipality of El Choro, the first item on the agenda, at least informally, often was what to do to get people to attend. One evening in late summer I rode my bike at sunset out a rutted mud road to the village of Chaytavi, about 11 kilometres northwest of the municipal capital. Chaytavi is the seat of El Choro’s smallest canton<sup>42</sup>, officially home to a few hundred people out of the municipality’s total population of over 8,000.<sup>43</sup> This was a repeat visit. A week earlier I had made the same journey to attend a community meeting about the new tractor they had recently purchased using their share of municipal funds. The agenda was to establish a governing structure and policies for the collectively owned tractor. The stakes at the meeting were high, for the tractor had been a large expense, accounting for two years of Chaytavi’s share of El Choro’s discretionary budget. To add to the pressure, hanging over the day’s meeting was the knowledge that previous attempts at collective tractor management in Chaytavi had failed. I first heard this from an elderly woman named Perla whom I encountered on the road on my way to the meeting. She told me, “We just got this new tractor, and I’m afraid that we’re going to lose it. In the past we have received five different tractors, and all five of them have disappeared!” I later confirmed this story with other residents. But despite the importance of the meeting, only 20 people showed up, prompting the

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<sup>42</sup> The hierarchy of subnational governance in Bolivia is as follows: first there are departments, of which there are nine nationwide, with the municipality of El Choro located in the Department of Oruro. Departments are subdivided into provinces. Provinces are subdivided into municipalities, which under the 1994 Law of Popular Participation are the most important level of local government, with a locally elected mayor and council responsible for spending tax revenues, maintaining and operating infrastructure and services, and planning and executing development projects. Municipalities are subdivided into cantons, which have a limited role under the municipal structure in overseeing their share of expenditures and projects. In the municipality of El Choro, I often found that cantons played a minor to nonexistent role in day-to-day politics. Many of my acquaintances had land and obligations in multiple cantons. There were five in the whole municipality.

<sup>43</sup> This total is, of course, inflated by part-time and former residents counted in the census. See Chapter 2.



*corregidor* to ask whether the meeting should take place at all. Ultimately the participants decided that the meeting was too important for such low attendance and agreed to postpone it until the following Saturday night. As one participant explained, anyone who decided to skip the next meeting forfeited his or her right to complain or make demands.

Thus, the following week I made my sunset ride to the village. I arrived at nightfall and pulled my bicycle up to the edge of the main plaza facing the meetinghouse known as the *corregimiento*, which was still locked. The village was dark; most of the streetlights were broken. I sat on a bench facing the *corregimiento* and was joined after a few minutes by Candelario, a middle-aged resident of the area. When I mentioned the meeting he said, “Yes, it is important to attend. I hope that people come. It seems that people don’t really care about meetings like this anymore.” This theme continued inside. As the clock ticked past the meeting’s 7:00 PM start time and moved toward 8:00, Maximiliano, a rotund man dressed in clean slacks and a neat sweater, as if just arriving from the city, proclaimed as he walked into the room, “No one’s here? What, are they all asleep?” A few minutes later someone in the room shouted, “Let’s cancel the meeting!” A woman sitting close to me said, quietly, “We’ll cancel, and cancel, and cancel, and a year will pass.” I counted 20 people in the room, the same number present the previous Saturday. Maximiliano said, “What’s going on? Are people dissatisfied with what we are doing here?” The meeting finally started at 8:45, with the *corregidor* demanding that it move swiftly and not last into the early morning hours. Still, it did not adjourn until 2:00 AM.

This concern over attendance and participation was representative of many of the meetings and mandatory work days that I joined. The majority of these events opened with a debate over whether to postpone, why people did not attend, and what they could do to encourage or even enforce attendance. During these debates people often appealed to a past

when meetings and work were better attended and everyone supposedly was punctual. As Eduardo said, with complete sincerity, while we were waiting for a small community meeting out in the countryside to reach quorum, “Our ancestors here before the Spanish were always punctual, and it was the Spanish who introduced this bad habit of arriving late” (left out of his statement was acknowledgement of the fact that he had arrived an hour and a half late to this meeting, which ended up being postponed for poor attendance). Other people talked about the more recent past, saying that in previous decades meetings were crowded but over the years attendance had fallen off, influenced in part by the high rate of out-migration. As Matías said at a meeting of the five canal zones of the canton of El Choro, in which he was elected to serve as the president of the *central de canalización* that coordinates the work of all the zones, “Our children have left. Before, for a meeting like this, 80 to 100 people would have come,” in contrast to the 30 or so people there. He also asserted that decreasing participation came over a period of time when each irrigator’s mandatory labour commitment to the canal zone was dropping due to mechanization. Referring to canal cleaning and maintenance, he said:

In recent years, we haven’t worked very much. Everything has been with machinery. There is little interest in working, people just want water without working. Before, how did our parents work? 30 days, 40 days, I remember that we earned one 24<sup>44</sup> with 10 days of work. We were paid well by this. But not anymore, brothers. Now it’s just a mouth – whoever has a mouth wants water.

To Matías, then, it seemed that both out-migration and a general unwillingness to put in hard work on the irrigation canals were to blame for declining participation.

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<sup>44</sup> An allocation of irrigation water from the canals lasting for 24 hours, used as the standard measurement for apportioning water. Technically only canal zone members who had completed all mandatory work and fees could receive 24-hour water allocations.

Another reason for low attendance was the nature and necessity of the daily work of livestock herding, which was increasingly onerous for those who remained in the countryside as their family members moved away. As a young man named Eliseo said at the outset of the postponed meeting in Chaytavi, “*El ganado no perdona*” (livestock do not forgive). He meant that cows and sheep never took the day off from their bodily necessities, and as such, in the unfenced pasture land of El Choro’s countryside, herders could never take a day off from tending to them. Marcio, a middle-aged man in a San Francisco Giants hat who sometimes drove a passenger van to and from the city, phrased it like this at a community meeting while explaining why it had been difficult for many people to contribute mandatory labour to a sanitation project: “*Los ganados no dan permiso*” (livestock do not give permission). These phrases imbue cattle and sheep with a certain demanding willfulness. This reflects the reality for herders, whose daily life is structured around the needs of livestock. Most herders in El Choro have from two to twenty head of cattle and another twenty to more than two hundred sheep. All of these animals graze on private land, virtually none of which is fenced. Rather, herders lock sheep into corrals at night and tie cattle to stakes. In the morning, sheep and cows must be milked; much of this milk is set aside for making cheese later. Over the course of the day, regardless of the weather,<sup>45</sup> livestock need long stretches of time for grazing and drinking water from canals and watering holes. Without fences, and on the small parcels of pastureland held by many herders, livestock need constant supervision. This supervision can be labour-intensive: some activities, like moving livestock between non-contiguous pastures, requires tireless movements like urging and chasing

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<sup>45</sup> This necessity to being exposed to the elements of the weather due to livestock and their needs is, I believe, a major part of the experience of weather in El Choro. See Chapter 6 for a more detailed discussion of this.

the animals to maintain the herd. But herding can also be repetitive and dull, with hours of vigilance while the animals eat. For the majority of families these daily duties fall on women, while men tend to oversee crop production. Children also herd or assist, especially when school is out of session.<sup>46</sup> With more out-migration, however, family duties are not neatly divided, and many women are on their own in the countryside, overseeing family affairs alongside their livestock and cheese production, and thus in charge of attending irrigation meetings, planting crops, and trying to benefit from government-sponsored agricultural projects. All of this added up to be an overwhelming workload. It was no wonder, then, that meetings and group work projects saw smaller numbers of participants each year, as families became smaller and more productive duties fell on fewer people.

This was complicated, too, by the aging of the population. At a meeting in March 2014 of the Santa María canal zone, the zone president Nicolás complained that very few members showed up for recent mandatory canal cleaning work. He expressed his annoyance at the low turnout but acknowledged that many of the zone's members may simply be too old to do the work, which involves digging out the bottom of 1.5- to 2-metre deep canals with a short-handled shovel. Indeed, in a conversation we had in April 2014, an elderly farmer and lifelong resident of El Choro named Federico told me that there were few people left to work on group projects due to out-migration. He said that he was too old for this kind of work now and had to focus most of his time and energy on his herds. He had his daughter to help him, but his other children had left

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<sup>46</sup> With mandatory public education, there are fewer cases of children staying out of school to work with livestock year-round, but at the beginning of the school year, teachers have to wait for several weeks for many of the children to return from helping with livestock and the harvest. In February 2014, I heard daily radio announcements imploring parents to start sending their children to school again. After about a month, I noticed that the activity level at El Choro's primary school seemed to be back to normal.

the area. At late night community meetings, there was no missing the high percentage of attendees who were elderly and often nodding off as the hours dragged on (of course, I nodded off at some late meetings too as they stretched into four or five hours). In the words of Matías, himself in his late 50s or early 60s, “All of us left here are old people.”

Despite low participation, the stakes of these meetings and projects were high. With the election of the MAS government and President Evo Morales in 2005, central government investment in the countryside increased considerably. To give a sense of the scale, in 2004 El Choro’s total municipal budget was Bs. 1,596,761 (US\$204,712), while a decade later in 2014, the eighth year of Evo Morales’s presidency, it had risen to Bs. 14,243,650 (US\$2,076,333).<sup>47</sup> And this was only in terms of the municipal budget: many new programs funded by the central government were managed and paid for through different ministries, vice ministries, and government agencies. There were new projects to promote quinoa, dairy infrastructure, sheep herding, alfalfa, sanitation, potable water, education, public health, and more. Expressing a common sentiment in El Choro, Moisés, an elderly farmer and storekeeper, told me, “Evo is the only president who has done anything for the *campesino*. He gave all of our communities tractors. He has given many public works to the countryside.” Indeed, there seemed to be so many projects that they exceeded the capacity of community members to enrol in them and manage them. I regularly attended meetings and discussions about specific government-funded projects where project leaders complained that most of the enrollees were failing to follow through on their *contrapartes*, which are the required monetary and/or labour contributions from

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<sup>47</sup> This information was downloaded from the Ministerio de Economía Y Finanzas Públicas at the following page: <http://dgsigif.sigma.gob.bo/sigma/index.php/estadisticas-del-presupuesto/>. These numbers are not adjusted for inflation. Conversions to USD are based on historical rates from XE.com for January 1, 2004 and January 1, 2014 respectively.

beneficiaries. For example, the government-funded Mi Agua III project was initiated in El Choro in early 2014. It was intended to provide 3,500 litre rainwater catchment tanks to 200 beneficiaries spread throughout the municipality. By midway through the year, community leaders were struggling to get project beneficiaries to pay their Bs. 1,650 (US\$240) *contrapartes*. Failure to pay delayed tank installations; even so, many of these same beneficiaries were on lists for other projects with four figure *contraparte* payments due, and it seemed unlikely that they could afford all of them in a single year. However, there were many other reasons that development projects in El Choro bogged down, including lack of cooperation by the municipal government, and mismanagement and corruption involving outside project technicians.<sup>48</sup>

There is a broad sense of concern that communities in the municipality of El Choro are struggling uphill against low participation connected to, among other reasons, out-migration, overwhelming workloads, and the aging of the population, even as engagement by community members was critical to take advantage of new government investments in rural areas. These broader spatial processes manifest in the landscape of El Choro's agriculture, as projects go undone, canals go undug, tractors go unmanaged, and this spatial inscription affectively returns to farmers in concerns and insecurities about both the present and future of agriculture of El Choro. However, these are not the only trajectories intertwining in space that farmers in El Choro experience and by which they are affected. Another realm of agricultural insecurity comes from the trajectories of landscape transformations, both presently and imagined in the future,

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<sup>48</sup> A common form of corruption, at least according to allegations that I heard from my interlocutors and also in many community meetings, was that outside project managers or workers often asked for side payments from project beneficiaries, sometimes small (in one alleged case asking for Bs. 2 [US\$0.29] per bag of cement provided to beneficiaries of a cheese-making room construction project) and in other cases large (several beneficiaries of a subsidized housing project told me that project workers demanded payments of up to Bs. 4,000 [US\$583] to finish constructing their houses).

connected to the rapid expansion of the quinoa market, which threatens further stress to lands already straining under climate change, water pollution, and depopulation.

### **3.2.3 Quinoa Strains**

Quinoa is not new to the high Andes. But despite its long history, the international market for quinoa did not start to grow in earnest until the crop drew the attention of consumers in North America and Europe in the 1990s. Exports grew steadily over the following ten years until the international market began a rapid acceleration in 2006, with the global value of exports reaching US\$131 million by 2012 (Furche et al. 2014). For that year 84% of global quinoa exports came from the Andean nations of Bolivia, Peru, and Ecuador, with Bolivia alone representing three-quarters of this total, and 53% were destined for the United States, with another 15% destined for Canada (Furche et al. 2014). For its part, the Bolivian government has been investing more money in quinoa production each year and succeeded in pushing the United Nations to designate 2013 as the Year of Quinoa in order to promote the crop internationally (Gandarillas et al. 2014). Much of quinoa's international popularity is due to the recognition of its unique nutritional qualities, including high protein value, high lysine content, and almost complete array of amino acids, all of which are unusual qualities among plant-based foods (FAO 2011). NASA researchers concluded in 1993 that for these very reasons quinoa is an excellent food for long-term space missions (Schlick and Bubenheim 1993), a fact that was reflected in the occasional references I heard in western Bolivia to quinoa as "*comida de astronautas*" (astronaut food). In cities around the world quinoa has eclipsed the health food store niche and is now found in the aisles of virtually any major grocery store.

There has been clamorous debate in the international popular press over whether the quinoa boom has been good or bad for producing communities like El Choro.<sup>49</sup> International scholars who have studied quinoa in western Bolivia debate the extent to which quinoa production has led to harmful environmental and social impacts. Some authors argue that the increase in quinoa production has resulted in land degradation in the Altiplano due to shorter fallow periods, soil erosion related to increased tractor use, and plowing under virgin lands to plant new quinoa crops (Jacobsen 2011; Medrano Echalar and Torrico 2009; Small 2013). But others argue that data on soil degradation and crop yield in the southern Altiplano are too thin to draw definitive conclusions about the impact of quinoa on soil fertility (Winkel et al. 2012). They also argue that in general it is not virgin land but rather mostly pasture that is plowed for quinoa. Furthermore, they argue that home quinoa consumption in Bolivia has been reduced mainly due to subsidies, in Bolivia and internationally, for other crops, especially wheat (Winkel et al. 2014). While this debate is far from settled, the stakes are high for Andean quinoa farmers. For example, some authors use reports of environmental degradation and negative local impacts of high quinoa prices to argue in favour of expanding quinoa cultivation into new places, particularly in North America and Europe, thus reducing Andean producers' participation in the

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<sup>49</sup> Much of this international media coverage discusses whether eating quinoa is ethical in light of environmental and social impacts in producing areas that are attributed to the rise in quinoa production. For example, in January 2013 the *Guardian* published a flurry of articles on different sides of the debate, and other publications, such as *Slate*, weighed in too – see Blythman 2013; Philpott 2013; Collyns 2013; LeVaux 2013. Many of these articles reflect concern over environmental and social impacts of quinoa production but also take the opportunity to take shots at vegans, presumed to be major consumers of quinoa, or to defend eating quinoa in spite of some of the reported negative impacts. A major point of concern is that domestic quinoa consumption in producing nations is falling as international demand and subsequently prices rise. Farmers are opting to sell more of their product and domestic consumers are less able to afford it. At the same time, of course, many farmers' incomes are higher than they were before due to these higher prices and growing market, presenting them with new economic opportunities in marginal rural areas in the high Andes, a fact that is not always considered in articles that try to convince consumers not to eat quinoa for ethical reasons.



international market (Ruiz et al. 2014). Other authors argue, however, that such a shift would deprive Andean farmers of an important source of income and risked taking the genetic heritage of quinoa out of their hands (Hellin and Hignman 2003; Banks 2011; Winkel et al. 2014).

Farmers in El Choro generally support quinoa, and in 2014 many I spoke with were either expanding their production or planning on doing it in the next year or two. Even so, I heard a lot of concerns from farmers over the potential impacts of the expansion of the market. One winter morning I made the mini-bus journey from the village of El Choro to Oruro. I sat next to Nicolás, a lifetime resident of the area who is an experienced farmer and elected leader of one of the irrigation management zones. Nicolás is a chatty fellow and kept the ride interesting with a stream of commentary about the passing landscape. He pointed to a freshly plowed five-hectare field just off the road and said it had been prepared for the earliest planting of quinoa, to come at the end of August. Then he asked me if I had ever been to Salinas de Garcia Mendoza. This was the municipality at the southern end of Oruro department that is famous as the centre of the quinoa boom. To get there from El Choro was a journey of several hours to a drier area close to the border with Potosí Department and the Salar de Uyuni. I told him that I had never visited. He told me that if I went there, I would see that the people there had already overused their land for quinoa and that their production was falling. He explained that people from there, called *Salineros*, were now looking for land in other municipalities to plant with quinoa. “They will be coming here to try and do the same thing,” he said. “In fact, I have had *Salineros* come here and ask if they can rent or buy my land to plant quinoa, but we need to protect our land from overuse.” Likewise, one morning while we were waiting for a meeting to start a farmer named Darío expressed a similar concern to me over *Salineros* coming to El Choro to plant quinoa and exhaust the land. He said that they had already turned their land into “desert” through

overproduction and that they were now coming to El Choro to trick people into letting them use their land and to do the same thing. He said that people in El Choro were happy to get money for land that they were not using anyway, but that “we can’t let them damage the land here.” He said, “Without the canals, El Choro would be a desert too, just like Salinas.”

A few things struck me about these conversations. First, they reflected a certain geography of unease over quinoa and land degradation. Among these two men and other people with whom I spoke, land degradation from quinoa overproduction was seen as something that currently happened in Salinas and could potentially spread to El Choro, especially at the hands of Salineros, unless Choreños defended their land. While Nicolás and Darío envisioned such land degradation as spreading to El Choro from elsewhere, such a picture was already visible in the area because so much land in El Choro was degraded by impacts related to irrigation and mine pollution, including salinization and contamination of irrigated plots by heavy metals. People recognized that the land was under strain, even without additional quinoa production, and this strain, seen as transformations in the land, informed their concern about protecting the land from future threats but also indicated that the land already had not been protected from damage.

Another trajectory in the space of El Choro that my interlocutors identified as having a strong influence on the development of quinoa production is the phenomenon of out-migration and the related depopulation of the countryside. With many people leaving the countryside to study and work in different cities, a lot of empty land is left behind. Absentee landowners were either willing to rent or sell this land to the aforementioned, interloping outsiders, or these same landowners intermittently returned, not to live or to be a part of community life but just to try and make quick money from growing and selling quinoa off of their landholdings. As Eduardo’s story at the beginning of this chapter illustrates, quinoa farming is more complicated than it may

initially seem, and these inexperienced city farmers struggled in many cases to produce a good crop as the climate changed and weather became less predictable. Many were like a man I met named Iván, who was born in El Choro but had left during his childhood. Iván lived in Oruro and worked as an engineer, only maintaining a loose connection to El Choro over the years with occasional visits. After rising quinoa prices attracted his attention, he decided to try his hand at absentee farming, planting a ten-hectare plot that he had inherited from his father. I accompanied him and his daughter Maribel one afternoon in the middle of the growing season to check on his crop. He said this was only his second year of planting quinoa; his first year had not turned out well, but he was trying again. He had few opportunities to visit, and this was his first time looking at his plantings in a couple of months. When we arrived at his land in his daughter's Ford Ranger, after a 20-minute drive south of the village on improvised sandy tracks, we found his crop faltering, many of the plants turning yellow and drying out. He frowned and said that he was baffled as to what had caused the damage, finally selecting a representative plant so he could show it later to a more experienced farmer for advice. I could not help but see a bit of poetic continuity with that day's earlier event: Iván and Maribel had visited El Choro in the first place to attend that morning's speech by Vice Minister of Rural Development and Lands Victor Hugo Vásquez,<sup>50</sup> who had visited to deliver an array of development projects to the municipality. In his speech, Vice Minister Vásquez warned that inexperienced people coming back from cities to try to capitalize on the quinoa boom were getting poor results and were wasting land and productive resources, and he emphasized that government projects to support quinoa needed to go to full-

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<sup>50</sup> Vice Minister Vásquez was elected governor of Oruro Department in 2015. He reappears in Chapter 4 in this capacity.

time rural residents who knew what they were doing. This was a concern that I heard many times at local development project meetings as well: people worried that part-time, more affluent city residents could join subsidized productive projects, taking up resources from people who depended on full-time agricultural work to make a living. For his part, Iván had not been subsidized by any project, but his land was producing poorly.

Despite some people's worries about the potential impacts of expanded quinoa production in the area, the municipal government and many local farmers were moving to push quinoa forward through new investments. In the last few months of my fieldwork in 2014, the departmental government's agricultural branch and the El Choro municipal government introduced a joint pilot project to expand production in the municipality by providing sufficient seeds, organic fertilizers, organic pest control products, and technical training to plant new one-hectare plots of quinoa for 70 different farmers. Undoubtedly this reflected in part the UN Food and Agriculture Organization's projection in 2013 that global demand for quinoa would continue to rise and that supply had to expand accordingly to keep up (Furche et al. 2014). However, in 2015 the price of quinoa in Bolivia fell sharply, dropping 73% over only a four month period, mainly due to increased production in Peru (Manzilla 2015). In early 2016, Bolivia's Ministerio de Desarrollo Rural y Tierras (Ministry of Rural Development and Lands) projected that quinoa production would drop compared to 2015 due to falling prices and drought in western Bolivia (Villca 2016). The future of the Altiplano's quinoa farmers, then, is not clear. But even if quinoa continues to provide new (albeit hazardous) opportunities for the people of El Choro, at the same time, climate change, water pollution, and depopulation are putting pressure on Altiplano agriculture and contributing to the precariousness of farmers' lives, lending to a sense of unease and uncertainty even in the face of new opportunities.

### 3.3 Conclusion: “If You Give Nothing, You Receive Nothing”

On the day that Vice Minister Victor Hugo Vásquez visited El Choro to deliver projects,<sup>51</sup> following my visit with Iván and his daughter Maribel to his struggling quinoa crop, I found myself in the front room of a small house in the village at a party to celebrate the conclusion of the day’s event. There were guests of honour there, though no vice minister, who had been whisked away in his black Toyota Land Cruiser after his speech. But many authorities from around the municipality were present, including Rainerio, the *corregidor* of El Choro, and indigenous leaders, called *jilacatas*, from different *ayllus* throughout the municipality, as well as engineers and project managers from some of the government agencies involved in the projects.

First lunch was served: a plastic bag with *cordero asado* (roast mutton, an El Choro specialty), roast potatoes, and half an ear of corn. Then it was time for beer. The guests of honour, engineers from the government agency that rebuilt the water system, were presented with crate after crate of beer, which they portioned out and passed around the room in small plastic cups. To drink in El Choro for an outside visitor means setting aside any feelings of germophobia, for cups are passed around and reused, person after person. You’re expected to drink your beer within a minute or so, calling out a toast like “*salud!*” or “*jallalla!*” and gulping it down, so that you can give your cup back to whomever is serving and the good times can continue going around the circle. This means that a roomful of people can get drunk rather

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<sup>51</sup> One of the projects the Vice Minister came to ceremonially deliver was a newly rebuilt and improved water system for the village of El Choro. This was a premature celebration, as the village’s water system continued to be non-functional due to a political dispute with a neighbouring community where the well was located.

quickly on a sunny midsummer's afternoon. Within an hour or so, this was the situation we found ourselves in.

As the afternoon continued, and as the party started to wane, a young *jilacata* named Aristides came around serving beers, and we struck up a conversation. Appearing to be in his mid-20s, he was young to be a *jilacata*, a position that usually went to older community members who had served in other positions of authority first. As we talked, he said, "You're from a more developed country. People in an underdeveloped country like Bolivia need to learn how to do things better." He told me that he had seen a lot of documentaries on television about agriculture in the United States: "Agriculture is mechanized there, and irrigation is all computerized, and they can determine exactly how much water is needed for each field, even how much water is needed for each plant." I told him that these things were mostly true, but I said that I thought that Bolivia, especially Oruro, was ahead of the United States by other measures, for it seemed that people in the rural areas of Oruro had more respect for the Earth, the environment, and for Pachamama, the Andean figure of Mother Earth.<sup>52</sup> I said that the USA also bears a lot of the blame for climate change. Aristides agreed with me on climate change, but he said, "With respect to Pachamama, this just doesn't work anymore. People are stuck in old ways like that, but we need to put our faith in technology now." This comment surprised me: as

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<sup>52</sup> It would be impossible to paint a singular portrait of Pachamama and what she means to each person in El Choro, let alone Bolivia. Mauricio Mamani writes that Pachamama is that which generates all life (1988, 77). Stuart Rockefeller notes that while Pachamama is often translated as *madre tierra*, or Mother Earth, invoking Pachamama really means to invoke space-time and the world itself (2010, 78–79). In the present day, Pachamama has emerged as a figure of environmental protection and has been central to Bolivian state rhetoric about environmental protection (Kaijser 2014). There is simply too much literature on the figure of Pachamama in the Andes to list here, but Olivia Harris has a highly recommended and classic essay in her book *To Make the Earth Bear Fruit* (2000, 201–19).

*jilacata*, Aristides was charged with performing rituals to Pachamama, but he seemed to view her as obsolete. He went on:

With the climate changed, the old ways that people used to read the climate don't work anymore. People will look to the behaviour of certain birds, or they will look at the droppings of foxes and say, these are very white, it is going to be a wet year, but with the climate changed, that doesn't work anymore. What we need now is technology, the technology that your country has, so that we can advance. Respect for Mother Earth, for Pachamama, doesn't accomplish anything anymore. But all the people here in El Choro still think all of that works. Sure, your country bears a lot of the responsibility for climate change, but you can't stop technology. You can't create technology and not use it; it is unstoppable. In your country, people don't believe in nature anymore, right? You're not eating from nature anymore, right? We have to stop believing in Pachamama here, and we have to start believing in technology."

I realized at the time that there was a chance that in part Aristides was attempting to flatter me, by flattering my native country or professing his belief in what he viewed (no doubt correctly) as my home country's religious-like devotion to technology as problem solver. But in his words I heard his search for a solution to the frustrations and worries that so many farmers expressed to me during my time there. Witnessing the transformations of weather and water, Aristides did not believe that old practices, including rituals to Pachamama, were useful anymore. He did not relegate Pachamama to nonexistence but rather to impotency and obsolescence: the goddess of the Earth, like so many practices of reading weather signs, could not keep pace in a transformed world. And at the same time, he saw technology as having its own autonomous agency, seeming to excuse the USA's disproportionate culpability for global warming because its technology had its own inertia. He seemed to argue that the technology that had doomed the world to climate change could somehow also rescue Bolivia from climate change's worst consequences. After all, isn't that what the United States intended to do to save itself?

Of course, not all Choreños had turned away from Pachamama. Eduardo, who was much older than Aristides and had served in every position of authority in El Choro, including *jilacata*,

told me that his prosperity as a farmer and herder and his ability to acquire land over the years had all been due to his devotion to Pachamama. One morning, after a heavy December rainstorm, as the world outside dripped and soaked, Eduardo delivered an impromptu family history to me. We were upstairs in his small house on El Choro's main plaza. Eduardo picked up a finely woven, colourful wool blanket from the top of a pile. He said that his mother had made them and that he kept all of the blankets because she had done so with such care and affection. He told me that she worked hard her whole life: "She believed that a woman needed to rise before dawn and go to bed well after sunset." She had 12 children, only 7 of whom survived their childhoods, and one of whom had died in an accident six months prior to our conversation. He told me that his mother passed away in the early 1990s. At that time Eduardo was living in the Chapare region of Cochabamba with his wife Brunilda, working in the coca plantations. He decided to return to El Choro to manage the family lands and take care of his disabled father. This was the beginning of his career as a farmer and herder. Eduardo told me that he started with a very small patch of land inherited from his mother. The land had a small house and a ritual site to make offerings to Pachamama: "My grandmother told me that I had to make all of the ritual offerings to Pachamama, just as she had always done, and this is why I continue to do so today." He explained to me that people in El Choro once made offerings to Pachamama every November 30<sup>th</sup>:

These offerings include slaughtering two sheep, and the meat must be consumed in its entirety, the bones stripped bare. The bones must then be burned. Our first year here, we had no livestock and had planted only a few crops, but we managed to complete the ritual, and we have completed it every year. You get out what you put in. You receive what you give, and if you give nothing, you receive nothing, if you give a little, you receive a little, and if you give a lot, you receive a lot. How can you expect to receive any love if you do not give any love?



Eduardo told me that his success following those initial lean years after returning to El Choro depended on his willingness to make sacrifices and complete the rituals every year, eventually moving up to sacrificing a bull instead of sheep. Over time he expanded his land holdings, his crops, and his livestock herds, and he made sure to always show his gratitude to Pachamama and to the generosity of God. He said that God wants to be praised and greeted:

God is like any father. When a child comes home, if he doesn't greet his father, his father will get angry. God is the same way. Birds do not have to raise crops or work their own land, but they still have plenty to eat. Why? Because every morning, before the sun rises, the birds sing, and this pleases God, and so He rewards them with abundance.

He said in older times, when people still faithfully completed rituals of devotion and sacrifice to Pachamama and to God, there was no pollution, there was less heat, and the weather was more predictable, especially the rain and the freezes during the growing season. But people are no longer as devout and very few Choreños complete the November 30th rituals. He concluded by saying that he worries that today Pachamama will not be enough: "With the rise in the population, she just won't be able to provide for everyone."

To Eduardo, declining devotion of the populace in El Choro may explain, at least in part, why the environment is changing and people are having a harder time making a living. Even so, he seems to suggest that the world has changed enough that not even Pachamama will be able to provide for everyone, and even the combination of hard work and ritual devotion that had worked so well for him through his life may not be enough for the future. In this way, perhaps Eduardo and Aristides are not so far apart in their doubts that older rituals and beliefs are enough for the future. Both point to a spatial disruption, a feeling of change in the transformations of space that entered people's relationships with Pachamama. Both believe strongly that you "receive what you give," in the words of Eduardo. He believed in the importance of giving

devotion to Pachamama, to receive prosperity in return, but to Aristides, Pachamama was no longer holding up her end of this reciprocal relationship. Instead, Aristides was ready to devote himself to technological solutions, in the hope of reaping, somehow, a pathway out of the agricultural unease now pervading El Choro's productive atmosphere.

With or without the help of Pachamama, the farmers of El Choro knew that they had many struggles ahead. One major arena of struggle, where materiality enters and influences politics, is one already raised in this chapter, and which I will now explore in more detail in what follows: water.

## Chapter 4: *Agua Es Vida (y Muerte)* – Water and Rhythmic Disjuncture

On December 12<sup>th</sup>, 2015, *La Patria*, the local newspaper in Oruro, greeted residents with an alarming banner headline: “Lake Poopó Disappeared.” The accompanying article reported that this lake, Bolivia’s second largest body of water, had almost completely dried up, leaving in its place nothing but “an immense saline desert.”<sup>53</sup> The article was accompanied by dramatic photos of the dry lake bed and the desiccated corpses of water birds. On the same day, *La Patria* posted a video on YouTube showing footage taken from an overflight of the dry lakebed.<sup>54</sup> At one point in the video the camera cuts to a GPS screen in the cockpit, showing the plane’s location on an electronic map of blue water near the Isla de Panza, but then it pans up and shows the island, to use the words of the onscreen caption, “surrounded by dry, salty clay.” The video of the sad overflight continues, showing, as another caption put it, “the lake converted into a sea of land.”

This initial press coverage led a wave of extensive domestic and international media attention to the drying of the lake over the following months. In Bolivia, no media outlet was more attentive, in-depth, and passionate in its coverage than Oruro’s *La Patria*, which ran a story stating that “what was the second largest lake of Bolivia after Lake Titicaca now is nothing, only desert, sadness, and death” and calling the disaster “a harbinger of ecological apocalypse for planet Earth.”<sup>55</sup> While climate change was a major theme of the coverage, in the months that

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<sup>53</sup> *La Patria* 2015f

<sup>54</sup> Available at [https://www.youtube.com/watch?v=h8V26ykYV\\_M](https://www.youtube.com/watch?v=h8V26ykYV_M)

<sup>55</sup> *La Patria* 2015n

followed, *La Patria* and other Bolivian media outlets began digging into the other causes of the disaster, identifying problems such as water diversions for irrigation projects in Peru,<sup>56</sup> mismanagement and theft of funds from a project that was intended to protect and restore the watershed,<sup>57</sup> and unmitigated mine pollution in the region.<sup>58</sup>

International coverage was also very widespread, with Lake Poopó attracting the attention of large media outlets such as The New York Times, The Guardian, and the CBC. This coverage, however, tended to focus much more on climate change. As *The Guardian*'s headline on the Associated Press's widely distributed article from January 22<sup>nd</sup>, 2016, stated, Lago Poopó was "lost to climate change."<sup>59</sup> A Thomson Reuters report, republished by CBC News, focused on climate change and the impact of shifts in the El Niño cycle.<sup>60</sup> The *New York Times* made the drying of Lake Poopó a centrepiece of a series of articles on climate change impacts around the world entitled "Carbon's Casualties." Under the headline "Climate Change Claims a Lake, and an Identity," and illustrated with photos and drone-shot videos of the dry lakebed, stranded fishing boats, and struggling villages, the article focuses on the impact of the drying on the Uru-Murato people who made their living from fishing and hunting in the lake. Painting an intimate portrait of the disruptions that have accompanied the death of the Altiplano fishing industry, the author follows different people as they struggle to establish new livelihoods, from quinoa farming to salt mining and handicraft sales in the city of Oruro. No one meets with much success; the author, Nicholas Casey, writes of the Uru-Murato people, "They adapted over

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<sup>56</sup> *La Patria* 2015i

<sup>57</sup> *La Patria* 2015j; *Página Siete* 2016

<sup>58</sup> *La Patria* 2015k; *Página Siete* 2015a

<sup>59</sup> Valdez 2016

<sup>60</sup> *CBC News* 2015

generations to the conquests of the Inca and the Spanish, but seem unable to adjust to the abrupt upheaval climate change has caused.”<sup>61</sup>

Following initial press reports of the disappearance of the lake, a debate began over why it happened, who was responsible, and what the government could have done to prevent it and preserve the Altiplano’s small but important fishing industry. This debate was shot through with the overlapping rhythms of the politics and materiality of the drying lake. Franz Krause argues that political debates over watershed processes emerge out of the negotiation of rhythms that are both “natural” and “social” and so intertwined as to be impossible to break apart into what is human-caused and what is not (2013, 40). Lefebvre argues that such a distinction is impossible, writing that rhythms are “simultaneously natural and rational, and neither one nor the other” (2004, 19). This is seen in the contestation over what happened to Lake Poopó and who or what was responsible: how much of the drying was due to climate change, with the main fault lying in wealthy northern countries? How much was due to mine pollution, which would point the blame more toward the national government and the lightly regulated mines of the Bolivian Andes? How much was due to water diversions for irrigation and mines, which would point toward water projects upstream in Peru as well as the web of canals that Altiplano farmers, including in El Choro, used? Or was the drying of the lake just a natural cycle with historical precedents, a product of the shallow endorheic basin long subjected to large shifts in water volume and surface area? What did emerge more clearly in the public debate over the death of Lake Poopó was that the different rhythms of the lake – such as local rainfall, upstream discharges from Lake Titicaca, and irrigation diversions – had fallen dangerously out of synchronization. But as the debate over

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<sup>61</sup> Casey 2016

the lake shows, teasing these different rhythms apart, and finding culpable parties to blame for the lake's death, proved to be much more difficult.

In this chapter, then, I will explore the emergent politics that arise in water's material and spatiotemporal dimensions, as exemplified in two different political debates around the shifting rhythms of the water cycle: first, the question of who or what was responsible for the drying of Lake Poopó, and second, the conflicts that arise between irrigators in El Choro as they struggle to walk the thin line between flood irrigation and flooding. These debates show that while water has the capacity to bestow life – indeed, it is the very definition of vital – this capacity also has its corollary, and that is water's destructive power, both in its presence and absence. These capacities come together in the droughts and floods that I will discuss in this chapter. While these events represent two extremes of water in the Altiplano, I argue that both examples illustrate how the politics of water emerge in its materiality, temporality, and rhythm. Life depends on water, and water's special material properties provide a critical element to life. But at the same time, rhythmic disjuncture, the result of interferences that arise between the many different trajectories intersecting in space and time, unlocks water's destructive power, highlighting the fragility of life along the Desaguadero River at a time when climate change is making the water cycle less dependable than ever before.

Before moving further into the stories of the drying of Lake Poopó, and the irrigators who struggle to make a living in the region while suffering droughts and floods, I will first discuss the central place that water holds in Bolivia's politics. Water's life-giving materiality is ineluctably political, and Bolivia's recent history is saturated with this politics.

#### 4.1 “Each Drop of Water is Life”

The vital materiality and concomitant political salience of water in Bolivia is captured in the phrase “*agua es vida*” – water is life – which I frequently heard from my interlocutors in El Choro and is a common refrain among water users across Bolivia. For example, on a rainy December morning I spoke with my close research collaborator Eduardo at his house on El Choro’s main plaza. Eduardo was all smiles while we talked about the previous night’s rain, one of the first of the growing season. He told me that he spent much of the night filling every container he could find in his house with rainwater, managing to store several hundred litres. El Choro had no potable water due to a long-running dispute with the neighbouring community where El Choro’s well was located, so this rainfall provided a lifeline for village residents, who were usually left drinking out of canals or hauling jugs of water from Oruro. Still, Eduardo’s palpable excitement that morning seemed to reside more in his recently planted quinoa field, which was rain-fed and had been struggling in the dry early summer (see Chapter 3). He smiled as he told me that the rain surely would help his new quinoa. He went on: “Each drop of water is life, so millions of drops of water germinate millions of lives. We can live without electricity, look, we are doing so now (referring to a power outage), but we cannot live without water. Water is life.”

This simple truth, *agua es vida*, expressing that life does not and cannot exist without water, captured Eduardo’s satisfaction at the rain that morning, but in the bigger picture, it had also served as a political rallying cry<sup>62</sup> inextricably bound up with Bolivia’s recent history of

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<sup>62</sup> “Water is life,” of course, has served as a rallying cry around the world and has been at the forefront of the 2016 acts of resistance led by the Standing Rock Sioux against the Dakota Access Pipeline in North Dakota.

water conflict. This conflict reached its height with the 2000 Cochabamba *Guerra del Agua*, or Water War, when *Cochabambinos* took to the streets and forced Hugo Banzer's government to cancel the privatization of the municipality's water supply.<sup>63</sup> From this conflict *agua es vida* invoked water as inalienable commons and served as an anti-neoliberal battle cry: water is life, and it is too important to be privatized.<sup>64</sup> The social movements built around the Water War, and the 2003 Gas War (a wave of national protests that drove President Gonzalo Sánchez de Lozada (Goni) from power), helped set the stage for the rise to power in 2005 of Evo Morales and his social movement-driven MAS party (Harten 2011). The political legacy of *agua es vida* emerges in the 2009 Bolivian constitution's provisions on water: it establishes that all people have the right to water through public, cooperative, or communal potable water systems free of privatization (Chapter 2, Articles 16 and 20) and that the state "will prioritize water for life," sustainably manage and protect hydrological resources, protect ecosystems and watersheds from damage, and recognize and respect the uses and customs (*usos y costumbres*)<sup>65</sup> of indigenous communities with respect to water (Chapter 5). Even so, despite the establishment of water as a constitutional right, even into his third term Evo Morales's MAS government had yet to pass a water law implementing these sweeping constitutional reforms, leaving a long-outdated 1906 law on the books, the oldest law in Bolivia that is still in effect (Berton 2015).

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<sup>63</sup> There is much literature discussing the details of this watershed event in Bolivian resource politics, grassroots political organizing, and mass social movement awakening. Among others, see Assies 2003; Dangl 2007; Dwinell and Olivera 2014; Fabricant and Hicks 2013a; Kohl and Farthing 2006; Olivera 2004; Perreault 2006.

<sup>64</sup> This idea was so influential that the Cochabamba Water War was cited in the preamble of Bolivia's 2009 constitution as one of many events inspiring the Bolivian people to construct "a new State" ("Constitución Política Del Estado" 2009, 1)

<sup>65</sup> This phrase refers to traditional, i.e. indigenous, water management practices. For an excellent analysis of how this term is deployed by Bolivian irrigators, see Perreault 2008.



The social movements activated in the 2000 *Guerra del Agua*, and the water provisions in the 2009 constitution, tell only part of the story of the politics of water in Bolivia. As the rest of this chapter will endeavour to demonstrate, another important facet of the politics of water is a spatiotemporal dimension that emerges in the cycles and repetitions of rain, water, and people that give both droughts and floods their shape: rhythm. For Henri Lefebvre, nearly all spatiotemporal processes implicate rhythm; in his book *Rhythmanalysis*, he writes, “Everywhere where there is interaction between a place, a time and an expenditure of energy, there is rhythm” (Lefebvre 2004, 25). He defines rhythm not as mechanical repetitiveness but rather as repetition that creates difference (2004, 16). To Lefebvre, motions of the planet and of capital alike are repetitive, from the sunrise to daily work schedules, but such repetitiveness gives rise to difference, not uniformity: no sunrise, nor workday, is identical to the last (2004, 17). Among these he distinguishes between two types of rhythm, equally important and constantly intermingled (2004b, 18). One is cyclical rhythm, often associated with what he calls the cosmic, planetary cycles like night and day, the seasons, and the tides. These are the rhythms of beginning again, for as he writes, “The dawn is always new” (Lefebvre and Régulier 2004a, 97). The other is linear rhythm, which he locates in social practice and denotes as the rhythm of monotony, work, and daily human activity, rhythms that are more associated with the rhythms of capital, which to Lefebvre are the rhythms of production and destruction (Lefebvre 2004, 65). Lefebvre makes it clear that while he separates rhythms into two broad, general types, that does not mean that they act separately; rather, he writes that “Cyclical repetition and the linear repetitive separate out under analysis, but in *reality* interfere with one another constantly” (Lefebvre 2004, 18 emphasis in original). Daily monotony is entangled with the great cyclical

rhythms of the cosmic, and the two types of rhythm provide a base to measure and experience the other (Lefebvre and Régulier 2004b, 85).

Thus, to say that droughts or floods in El Choro have a rhythm is not to imply that there is a uniformity, or predictability, to their cycle. Rather, it is to draw attention to the entanglements between different linear and cyclical rhythms that shape the experiences and politics of water, including the efforts of political leaders and capitalists, and the power of the active materiality of the earth. But for Lefebvre, there is one more important bundle of rhythms to take into consideration: the body. To Lefebvre, the rhythms of the body provide the baseline for perception of all other rhythms, and the body is also the site where linear and cyclical rhythms meet and intermingle (Lefebvre and Régulier 2004b, 89–90). This resonates with Ingold’s argument (2000) that an organism’s perception of the environment is inseparable from the constantly unfolding and indissoluble relation it shares with its surroundings. Lefebvre takes this idea farther, because through rhythm he designates the body itself as a key site of politics. The rhythmic shifts experienced by farmers are felt in human, social, spatial, and environmental bodies. And as the 2015 drying of Lake Poopó shows, these rhythmic shifts may be felt most acutely as political in water when they reach a state that Lefebvre designates as arrhythmia, when “rhythms break apart,” which he calls “a pathological situation” necessitating intervention through more rhythms (2004, 77).

#### **4.2 “Desapareció El Lago Poopó”**

In the years leading up to 2015’s attention-grabbing drying of the lake, signs of this arrhythmia emerged in many different ways that made the death of Poopó a predictable event. In the words of an editorial from the La Paz newspaper *Página Siete*, “Although it has caused great

impact and alarm, the disappearance of Lake Poopó...was not unexpected news”<sup>66</sup>. One of the greatest causes of concern was the unmitigated mining waste that discharged into the watershed and concentrated in the closed basin of Lake Poopó. But this mine waste, as damaging as it was, did not occur alone but rather mingled with other dangerous rhythms, including climate change, floods, sewage, industrialization, and governmental apathy. This was reflected in comments I heard at a July 2014 meeting in El Choro between representatives of a La Paz-based NGO and local leaders. The purpose of the meeting was to identify points of concern and possible projects to include in a climate change adaptation plan for the region. Addressing the meeting, Senator Rosario Apaza Chambi, who represented El Choro in the national Senate in La Paz as a *senadora suplente* (alternate senator),<sup>67</sup> addressed the rhythmic shifts in Lake Poopó that put the region at risk. A representative from the NGO asked for input on what needed to be done to prevent floods in El Choro, and the senator replied:

In truth, it is very worrying when we talk about climate change. It is a theme of great concern in light of the fact that all of the water that we’re talking about in Uru Uru and Poopó is completely polluted. Lake Uru Uru is polluted by wastewater and Lake Poopó is polluted by mining operations. There is Comibol in Huanuni as well as the cooperative mines. Also the Chinese are building a new processing plant in Huanuni that is going to process 3,000 tons (of tin) every day.<sup>68</sup> Can you imagine? 3,000 tons per day! Sadly, to this day there is no tailings pond (for Huanuni)...everything goes directly into the river. This is why some people say that the tailings pond is Lake Poopó. How many times have I protested in the meetings that we have had? ...Livestock consume the water, and people drink the water too. It is a totally dangerous risk.

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<sup>66</sup> *Página Siete* 2015b

<sup>67</sup> Alternate senators are elected on the same ticket as the main senate candidates. They consult with constituents and engage in advocacy but do not vote on bills unless the senator is incapacitated, removed from office, or steps down.

<sup>68</sup> Senator Apaza was referring to a new tin processing plant that was under construction in Huanuni, about 50 kilometres to the southeast of Oruro and 30 kilometres east (and upstream from) El Choro. First announced in 2010 and planned to process 3,000 tons of tin per day, the plant was being built by a Chinese company, Vicstar, for US\$50 million, and was to be operated by the Bolivian state-owned Empresa Minera Huanuni (Huanuni Mining Company). The project suffered significant delays and was not online as of 2016, in part because the vast quantity of water needed for the project was difficult to obtain (30,000 cubic metres per day) and the tailings ponds, which had been mandated by the Ministry of the Environment, had yet to be constructed. *La Patria*, Oruro’s daily newspaper, has given the issue thorough coverage; see *La Patria* 2010; *La Patria* 2011; *La Patria* 2015d; *La Patria* 2016a.

Senator Apaza's comments reflect on the dangers converging in the lake. This includes capital's voracious appetite for energy and minerals that pumps carbon into the atmosphere and toxic mine waste into the water of the Poopó watershed. With a new mineral processing plant under construction, Senator Apaza asserted that daily mine waste discharges were going to increase by a highly damaging degree, but despite her protestations and letters, the government was uninterested in taking action. This was made all the worse by the fact that for now the only tailings pond for the mines was the lake itself, where for reasons of topography the uncontrolled waste discharges came to their final resting place and concentrated in the water under the powerful Altiplano sun. Polluted water and climate change enter into an "antagonistic unity of relations" (Lefebvre 2004, 18) with the cyclical rhythms of the lake, including cycles of rain and evaporation, the annual waxing and waning of the Poopó's surface area, and the sedimentation and salinization that occurs over time in the closed basin and that would, to an extent, exist even without human interference. These cyclical rhythms amplified the effects of pollution (through concentration of contaminants) and climate change (through the entanglement of pressures on the surface area and volume of the lake). Linear rhythms also intertwine with the rhythms of the body: the need, for example, for hydration, from humans and livestock alike, puts bodies at risk from pollution and changing cycles of precipitation that can make water overly abundant (in floods) or scarce (in droughts). Senator Apaza's concerns were echoed by scientists and indigenous leaders at an event I attended at the Universidad Técnica de Oruro (Technical University of Oruro, or UTO) later in the year, in October 2014. Sponsored by the Centro de Ecología y Pueblos Andinos (Centre for Ecology and Andean Peoples, or CEPA), the purpose of the event was to present a public evaluation of the health of Lake Poopó. Researchers Dr. Maria

Eugenia Garcia of the Universidad Mayor San Andres (UMSA) in La Paz and Dr. Gerardo Zamora from UTO detailed their separate studies into Lake Poopó's high heavy metal and arsenic content from upstream mine discharges. They emphasized how these contaminants concentrate in the soil and water as Lake Poopó's surface area shrinks under low recharge rates and heavy sedimentation. To the dozens of people in the crowd, these presentations generally confirmed the many years of well-known damage to the lake; as a young Uru leader explained at the event, in the 1960s, Lake Poopó had a depth of over six metres and produced large fish, but over the years since then "the lake has died." Much like Senator Apaza's comments, Drs. García's and Zamora's presentations presaged the extreme that was to come a year later with the headline-grabbing disappearance of nearly all of the lake's water. Before the late 2015 drying came to pass, however, Lake Poopó's death was first to manifest in a different way.



**Figure 6: Environs of Lake Poopó during dry season, June 2014, a year and a half before the drying disaster.**

In November 2014, shortly after I left Bolivia at the end of my first stretch of field research and still a year before headlines announcing the lake’s disappearance, residents living close to the southwestern shores of Lake Poopó reported a mass die-off of wildlife. Early estimates were that millions of fish, as well as hundreds of birds, died and washed up on the shore of the lake on November 18<sup>th</sup>, leaving a band of dead animals over 30 kilometres long and three metres wide<sup>69</sup>. The investigation by Oruro’s Servicio Departamental de Agricultura y Ganadería (Departmental Agricultural and Livestock Service, or SEDAG) blamed the die off on

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<sup>69</sup> *La Patria* 2014d

a convergence of causes: first, fish were already stressed in the lake due to rising water temperatures related to climate change, which lowered the dissolved oxygen content of lake waters. Then on November 18<sup>th</sup> there were high winds (up to 69 kilometres per hour) that drove the fish to the low-oxygenated waters close to shore, where they suffocated and then washed up onto the beach *en masse*. SEDAG acknowledged that mine contaminants and the water's high salinity may also have played a role, especially since birds died too, although they did not give specifics regarding the roles that these elements played.<sup>70</sup> The die off decimated Lake Poopó's fishing communities and drove many fishers to migrate out of the area in search of work.<sup>71</sup> On December 24<sup>th</sup>, just over a month after the die off, the local environmental NGO known as the Coordinadora en Defensa de la Cuenca del Río Desaguadero, los Lagos Uru Uru y Poopó (Coordinator in Defence of the Desaguadero River, Lake Uru Uru, and Lake Poopó Watershed, or CORIDUP) issued a resolution condemning what they perceived as the inaction and apathy (which they described with the colourful phrase "*no-me-importismo*," I-don't-careism) on the part of political leaders, including the governor of Oruro, who they asserted was downplaying the disaster. They called for a protest to pressure the government to investigate the root causes of the die-off and take action to protect and restore the lake.<sup>72</sup> Several months after the disaster, CORIDUP and other environmental organizations and agencies issued a joint call for mines to establish tailing ponds and for the government to enact a dredging project to improve water flow to the lake.<sup>73</sup>

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<sup>70</sup> Mejía 2014; Mollo Mollo 2014; *La Patria* 2014e

<sup>71</sup> *La Patria* 2014c; *La Patria* 2015e

<sup>72</sup> Centro de Ecología y Pueblos Andinos's *Facebook* page, accessed May 13, 2016, [https://www.facebook.com/permalink.php?story\\_fbid=690853747702350&id=119057281548669](https://www.facebook.com/permalink.php?story_fbid=690853747702350&id=119057281548669)

<sup>73</sup> *La Patria* 2015b; *La Patria* 2015c

The lake was widely recognized as envenomed and moribund by the time it dried out at the end of 2015, about 12 months after the fish die off. Even so, many responses to the November 2015 drying, particularly from policymakers, emphasized the cyclical rhythms that the lake had historically experienced in a way that mostly decoupled them from damaging linear rhythms that had intersected with them like water pollution and irrigation diversions. For his part, the governor of Oruro, Victor Hugo Vásquez, acknowledged that climate change, sedimentation, and mine contamination played a role in damaging the lake, but he also emphasized the history of cycles that the lake had faced. Under the headline “Governor Not Worried that Lake Poopó has Gone Dry,” the newspaper *La Patria* reported the governor’s remarks on the crisis, delivered during a television interview:

I live on the shores of Lake Poopó, I was born on the shores of Lake Poopó, I grew up my whole infancy and youth and currently I continue pasturing my llamas on the shores of Lake Poopó.<sup>74</sup> I want to explain three fundamental themes: first we shouldn’t worry about the fact that the lake is drying out, because Lake Poopó has its cycle, it is like the rain, it is like the wind, the people know perfectly, there are years that it rains more, years that it rains less...there is this dynamic in the conduct of the rain in Bolivia, not only in Oruro but around the world.<sup>75</sup>

The governor’s comments make a direct connection between an affective response to the drying of the lake, *i.e.* worry and anxiety, and what he asserts is the precedent of the lake having dried out before, meaning, essentially, that there is no reason to worry if this is a cycle as natural as annual fluctuations in the wind and rain. The upshot of this argument is that no one should point their finger too much at the role of the government of Oruro. For his part, President Evo Morales

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<sup>74</sup> Governor Vásquez was born in the town of Orinoca, on the western shore of Lake Poopó, approximately 70 kilometres south of El Choro. This is also the area where President Evo Morales was born. Governor Vásquez was mentioned in Chapter 2 as a vice minister in Evo Morales’s government who visited El Choro for a special event; he was elected governor of Oruro for the MAS party toward the end of 2014.

<sup>75</sup> *La Patria* 2015h



made a similar statement that also emphasized Lake Poopó's cycles of drying and filling, although he made his desire to deflect blame against his government a little more explicit. At a public event on December 20<sup>th</sup>, 2015, Morales recounted that his father had crossed the dry lakebed on his bicycle as a young man. He said: "Some members of the opposition say that it is the fault of the Government that the water is drying out. What a lie if it always dried, but also it used to fill up. The people who live on these rivers and that lake are familiar with this situation."<sup>76</sup> The views that president Morales and governor Vásquez expressed were not entirely discordant with local perceptions of the lake. One indigenous authority from the lakeside community of Untavi told *La Patria* that the lake had always followed cycles of filling and drying, although he also asserted that it had never dried up completely before.<sup>77</sup> There were also local fishers who remembered a fish die-off similar to that of November 2014 that happened between 1992 and 1994.<sup>78</sup> The NASA Earth Observatory in the United States issued a pair of images (well-covered by the Bolivian media) showing comparisons of the lake's surface area between 2013 and 2015, demonstrating the rapid shrinking of the lake, but they also noted that the lake shrunk similarly in 1994 and had needed several years to recover (Hansen and Allen 2016).

Although President Morales and Governor Vásquez both acknowledged that climate change played a role in the drying of the lake, their emphasis on the role of cyclical rhythms and their supposed naturalness, evidenced in the precedent set by historical drying events from past

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<sup>76</sup> *La Patria* 2015l

<sup>77</sup> *La Patria* 2015g

<sup>78</sup> Centro de Ecología y Pueblos Andinos's *Facebook* page, accessed May 13, 2016, [https://www.facebook.com/permalink.php?story\\_fbid=678122332308825&id=119057281548669](https://www.facebook.com/permalink.php?story_fbid=678122332308825&id=119057281548669)

generations, in some ways echoed the ways that climate change deniers in North America appeal to so-called natural cycles as a way of deflecting human responsibility for climate change.<sup>79</sup> But these appeals to the cyclical rhythms of Lake Poopó's water volume elide the fact that recovery was not inevitable, as mine pollution and climate change kept up pressure against the lake. The lake would experience cycles but they would not necessarily be the same every time. Lake Poopó might simply be too damaged to fully recover, especially in the absence of new government policies and projects like pollution mitigation and restoration of water flow into the Desaguadero River.

This was precisely the concern of many environmental advocates, as well as some journalists and commentators, who pinpointed the cause of the crisis more in human actions and choices. The Oruro environmental NGO CEPA posted a statement on Facebook blaming the drying on four processes: water diversions for irrigation and mining, the uncontrolled discharge of mine waste, soil erosion related to the expansion of quinoa monoculture, and climate change-related temperature increases.<sup>80</sup> Many other critics pointed to similar causes, especially the role of water diversions for irrigation and use in upstream mines.<sup>81</sup> A debate also emerged about the role of Programa Cuenca Poopó (Poopó Watershed Program), a governmental project established in 2010 under cooperation between the Department of Oruro and the European Union, which provided most of the funding. Critics, including Oruro's former prefect from 2010, charged that

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<sup>79</sup> There are numerous cases of climate change deniers making this argument – see, for example, Bell 2012; Easterbrook 2008; Spencer 2016 N.D.

<sup>80</sup> Centro de Ecología y Pueblos Andinos's *Facebook* page, accessed May 13, 2016, [https://www.facebook.com/permalink.php?story\\_fbid=907799916007731&id=119057281548669&notif\\_t=notify\\_me\\_page](https://www.facebook.com/permalink.php?story_fbid=907799916007731&id=119057281548669&notif_t=notify_me_page) See also *La Patria* 2015k.

<sup>81</sup> See, for example, Chuquimia 2015; Puente 2016.

Programa Cuenca Poopó “squandered” its €14 million total budget and let the lake die, while the former director of the program argued that it never had enough funding to save the lake.<sup>82</sup> There were also charges that at least some of the money for the protection and restoration of the lake was lost to internal theft.<sup>83</sup> Thus these internal dynamics of Programa Cuenca Poopó also entered the entangled trajectories that met in the drying lake.

Months after the drying, and a year and a half after the fish die off, communities bordering the remnants of the lake struggled to move forward. February 2016 brought heavy rains to the region, prompting the Ministerio de Medio Ambiente y Aguas (Ministry of Environment and Water) to declare that a “natural process of recovery” was underway.<sup>84</sup> A reporter for the La Paz newspaper *La Razón* wrote that the February rains left many lake residents hopeful that recovery had begun, enough so that some who had left the area were already returning.<sup>85</sup> Even so, many of the residents of the communities on the west side of the lake migrated to Oruro and other cities to work in construction or sell artisanal wares or head south to help with the quinoa harvest in southwest Oruro.<sup>86</sup> The drying of the lake was the result of several years of shifting cycles, with more drying, and less renewal, year-to-year, finally culminating in the late 2015 event, so observers such as the former head of Oruro’s SEDAG (agricultural service) doubted that the lake would recover at all without a much larger government intervention.<sup>87</sup>

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<sup>82</sup> *La Patria* 2015m; *La Patria* 2015j

<sup>83</sup> *Página Siete* 2016

<sup>84</sup> Cuevas 2016

<sup>85</sup> Mejía 2016

<sup>86</sup> *La Patria* 2016f; *La Patria* 2016e

<sup>87</sup> *La Patria* 2016b

The government of Oruro did put forward a multi-pronged plan to restore the lake, including proposals for treatment plants and tailings ponds for the mines, dredging of the Desaguadero River, and artificial ponds to restore fish populations.<sup>88</sup> Several months after the disaster, in April, the government of Oruro also announced a plan to dig a canal from Lake Uru Uru to bring water down to Lake Poopó.<sup>89</sup> Whether or not these solutions bring water back to the lake in the short term, however, the lake may yet be moribund; the inevitable cycle of the endorheic lake is always to fill with sediment and minerals until broader cycles over time doom it to a more permanent death.<sup>90</sup>

Through the story of Lake Poopó's gradual poisoning and (at least seemingly) sudden drying, we see the realization of the corollary of "water is life": that water, when polluted or absent, is also death. But these are not the only ways that water's destructive capacity is brought to fruition. In 2015 pollution and drought threatened the livelihoods of dwellers of the central Altiplano, but over previous years, water made its threats through another state: its abundance. To illustrate this, then, I turn to El Choro's irrigators and their struggles to use irrigation water for their fields and animals while protecting themselves from its excesses, a task made even more complicated by the politics of flooding.

### **4.3 Dry Island, Dry Rivers, Endless Floods**

Flooding is not an unusual occurrence in El Choro. Just in recent years, El Choro experienced heavy flooding in 2010, 2011, 2012, and 2014, drowning crops and affecting

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<sup>88</sup> W. Pérez and Mejía 2015

<sup>89</sup> *La Patria* 2016c; *La Patria* 2016d

<sup>90</sup> The Altiplano is the site of several such dried lakes, now salt flats, including the world famous tourist draw the Salar de Uyuni, just south of Oruro in the Department of Potosí.

thousands of people. Local people are constantly and continuously aware of flooding and its dangers. This was illustrated in an impromptu speech delivered by Eduardo on a windy winter afternoon in 2014. The occasion was a visit out to the countryside north of El Choro by a delegation from an NGO based in La Paz. A small community called Japo had recently completed a series of workshops to develop what the NGO called a “risk management plan” for natural disasters related to climate change. The delegation, which included a representative from one of the NGO’s principle foreign funders, had arrived to hear community members present the plan and celebrate its completion. Renato, the vice president of the community’s canal zone, presented the core components of the plan, much of which focused on protecting the community from flooding by building higher dikes along the river, installing new flood control gates in irrigation canals, and establishing an early alert system to warn of approaching floodwaters. Then, after a short round of questions and comments, it was Eduardo’s turn to speak. Years before he had been the president of this community, but on this day he spoke as a private citizen with a deep knowledge of the area and its history. After speaking for a couple of minutes about the history of agricultural improvements in the area, Eduardo’s comments turned toward its propensity to flood:

Historically, all this land here was land covered by water. From that comes the name: in reality it isn’t “El Choro” but rather “El Churu,” which is a word in Aymara that means island. This area was a type of island, completely surrounded by water, and we see now that there are dry rivers that used to flow. So this is a zone that is very easy to flood, any flood arrives here (makes a whistling/hissing noise to indicate how fast it arrives). So when a lot of water comes down the river, the Mauri and the Desaguadero, and discharges here, yes, it comes down the other branch too, the right branch, but it also comes down here, the left branch. Apart from this, there are the other rivers, the Poopó, and the Huanuni, which also come down here. There is almost a constant danger here, in our home here, thinking that someday perhaps this area will be converted back into what it was before, everything a lake.

In these comments Eduardo weaves together the space-time of floods in El Choro that happen in the past and spill into the future. He cites El Choro's situation at a convergence of rivers that feed the Poopó watershed, including the Poopó and Huanuni rivers from the northeast and the Desaguadero River's left and right<sup>91</sup> branches, as forming a geography of flood potential that hangs over the heads of local residents. This potential also lives on in the history of the region as an island, a history Eduardo reads in traces such as the meaning of the name El Choro and the web of dry river beds that record an older, wetter time that could return. Eduardo's comments show how this convergence of rivers, and these traces of history and geography, evoke the threat of flooding, even on a dry August afternoon, leaving a constant fear that someday the lake will expand and make El Choro an island again, or worse. This fear makes for a flood that never really ends.

The role of these lingering traces of flooding in producing El Choro as a place comes into clearer focus if we follow Massey in conceptualizing place itself as a spatio-temporal event. Massey writes, "If space is rather a simultaneity of stories-so-far, then places are collections of those stories, articulations within the wider power-geometries of space" (Massey 2005, 130). These stories encompass the mingling of human and nonhuman in place. Massey writes, "The nonhuman has its trajectories also and the event of place demands, no less than with the human, a politics of negotiation" (Massey 2005, 160). Massey argues that each trajectory has its own temporality, and it is the intersection of temporalities that make the history of a place, simultaneously producing it as unique yet always in flux: "It's the returns...and the very

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<sup>91</sup> People in the Altiplano refer to the two main branches of the Desaguadero River with respect to the river's flow – in other words, since the river flows from north to south, the left branch is to the east, and the right branch is to the west.

differentiation of temporalities that lend continuity. But the returns are always to a place that has moved on, the layers of our meeting intersecting and affecting each other; weaving a process of space-time” (Massey 2005, 139). Thus the flood is only one of many trajectories weaving the spatio-temporal event of place, one of many stories collected there that co-exist and shape each other through processes of negotiation. But how do you negotiate with the flood? As I will discuss, flooding in El Choro is, in some ways, a human disaster, for Choreños are well-aware that the very infrastructure that undergirds their agricultural prosperity, a complex of irrigation canals, also make the region susceptible to flooding. Much of their negotiation with the floods comes in the form of managing this infrastructure, attempting to corral water and put it to use as it flows down the Altiplano without letting it spill into damaging excess. Failures in attempts at managing this infrastructure exacerbate flooding events and instigate political conflicts. But foolproof flood prevention is also impossible, for water always holds the potential to escape human causes and controls, and this lies in part at the heart of its affective power. As Nigel Clark writes, reflecting on how anthropogenic climate change interacts with the long-term instability of the Earth’s climate, “Whatever ‘we’ do...our planet is capable of taking us by surprise” (2011, xi). With the intensification of the rainy season under climate change, extreme weather in the Altiplano bears the marks of anthropogenesis, and yet there is always something more to these floods. No one is ever quite sure what the water will do.

The politics that emerges from flooding was evident in a mandatory work event that I attended in early January 2014. All irrigation beneficiaries in the southern parts of the municipality of El Choro were required to attend by the canal zone leadership, who threatened to fine or deny water to non-attendees. Many farmers in the area depend on an intricate web of canals connected to the Desaguadero River, using the water for crops and livestock (see Chapter

2). The canals are mostly hand dug and require constant maintenance. On this rainy summer morning, the called-for work was to dam the canal system at the point where it branched from the river, work that had to be done mostly by hand (with the aid of one excavator that arrived from Oruro) since floodgates installed a few years ago had failed and were allowing water to gush through. The work was urgent: heavy December rains had brought the river level up. The canal system, vital for watering during drier times, now turned against the farmers, serving as a vector for flooding in their fields. The very infrastructure ensuring El Choro's agricultural prosperity made the area vulnerable to flooding and crop loss. The only way to prevent such flooding through the canal system was by careful management and coordination, damming at just the right time, after there was enough rain to cover irrigation, but before flooding turned into a large problem. In other words, the rhythms of water, crops, and irrigators alike had to be in alignment to avoid disaster.





**Figure 7: Irrigators work to dam the main canal.**

During a pre-work meeting, however, it became clear that this year the management of the canal system had broken down in the face of rising water levels, resulting in a state of arrhythmia that left some people flooded, vulnerable, and angry. This is what happened: throughout the municipality of El Choro, different portions of the canal system are divided into zones responsible for managing their own sections, with each zone having its own leadership structure and membership base. The zones are then supposed to report to one of the three central canal districts, which also have leadership structures and are intended to coordinate larger projects across the canal system, such as flood control. But that day in January it became clear that this coordination sometimes failed. As the meeting began a canal zone president named

Jeremias addressed the group and raised a topic that was to dominate most of the meeting. After calling for the floor, he said, “We need to think of a punishment for those who have dammed their canals without coordinating with other zones.” He explained that for the third year in a row, some canal zones had dammed their sections of the canal system without waiting for overall coordination of the work to dam the whole system. Thus, he said, some sections unilaterally protected themselves from flooding while raising the water levels in the rest of the system and making flooding worse everywhere else. He demanded that these offending zones be punished. Other meeting participants echoed this call; one man said that this unilateral damming had happened many times before and that without punishment these zones would continue doing this in the future. In response to these criticisms, some leaders from culpable zones defended their decision to dam their canals early. One president, a man in his mid-30s named Poncio, put it this way when addressing the meeting:

*Compañeros*, I want you to understand why we dammed the canal in our zone. We didn’t dam just to screw things up. We had people whose fields were flooded. We had to do something. There was no meeting where we could present our plan. There has been no effective coordination between zones. There was no general cleaning of the main canal this year which makes the flooding even worse.

Poncio, then, did not so much see the decision to dam early as lying at the heart of the arrhythmia that left downstream communities flooded, but rather presented his community as responding to rhythms that had already broken apart: no meetings, no coordination, no support from the municipal government, no maintenance of vital infrastructure that may have prevented the worst of the flooding, all the while with vast volumes of water coming down the watershed. Many meeting participants agreed with the general thrust of his comments, blaming the central canal district leaders for failing to act sooner to dam the whole system and the municipal government for failing to carry out large-scale dredging projects the previous year. The meeting

ended with no agreement on penalties for the offending zones. Several participants argued that it was not worth the bother because no one would comply with them anyway. But leaders signed an accord affirming that this would not happen again during future floods that were sure to come. Their pledge reflected an effort to work toward eurhythmia, when “rhythms unite with one another in the state of health” (Lefebvre 2004, 25).

This dispute at the riverside illustrates some of the underlying political tensions of the temporality and rhythms of the flood: the fear of flooding reverberated through inter-community relations as unilateral canal damming protected some zones but made the flooding in others worse. Zone members demanded political action due to this pre-emption, including punishments, changes in leadership, and action by the municipal government. In this way, the rhythms of floods intertwined with rhythms of poor leadership and larger disputes over the direction of the municipal government. But this also reflected the politics of negotiation between the human and the nonhuman that Massey argues lies at the centre of the “throwntogetherness” of place (2005, 140). The politics of flooding are where the human and the nonhuman spill together into a complex negotiation that, in this case, resulted in a state of arrhythmia. Water’s liquid materiality and the geometry of the floodplain, sloping gently from north to south toward Lake Poopó, shape the uneven politics of flood control: the slope itself was political, enabling the flooding of some communities at the hands of others facilitated by the disjuncture of the rhythms of heavy rains, human-created infrastructure, and political decisions. Different sociopolitical trends in the countryside also shaped the changing rhythms of flooding; one example is the depopulation of the countryside, which left fewer irrigators to do canal work, leaving canals unmaintained and, as Poncio pointed out, making the flooding worse. Another major problem was that, as meeting participants noted, municipal funds for flood control had gone unspent, reflective of a broader

problem El Choro was suffering around that time of what many people perceived as absentee and neglectful municipal governance (see Chapter 2). But the floodwaters kept coming, overspilling attempts to contain them, even bursting through the concrete-and-metal assemblage of the main flood control gate.

This kind of material power exhibited by the floodwaters is behind Bennett's call to expand the notion of agency in order to de-privilege human intentionality, which she argues does not occur on its own but rather always emerges among a confederation of materialities. The result of this is that for any event "the locus of political responsibility is a human-nonhuman assemblage" (Bennett 2010, 36). This is increasingly salient in the era of climate change; as Bennett writes, "There was never a time when human agency was anything other than an interfolding network of humanity and nonhumanity; today this mingling has become harder to ignore" (2010, 31). Her point is well-illustrated by how shifts related to climate change muddy any boundaries that could be traced between the excesses of the human and the nonhuman in the politics of flooding. This was evidenced in another meeting of irrigators that took place in March 2014, a couple of months after the debate on the banks of the Desaguadero River. Having successfully dammed the irrigation system in January, the canals were dry, with irrigation provided by rainfall. The taken-for-granted dynamics of the rainy season was expressed in a saying that I heard repeatedly from Choreños in January: "*enero poco, febrero loco*," which translated as "January a little, February crazy." This referred to the perception that no matter how much it rained in January, February would be rainier, delivering a "crazy" quantity that inevitably made January's rain look minimal. But in 2014 these rhythms shifted: January produced a lot of rain, but in February it tapered off. By mid-March irrigators who had recently panicked about flooding met again to determine how quickly they could finish desperately

needed dredging in the dry canals before releasing river water back into the canal system. The dry February had caught irrigators unprepared, and plants needed water urgently; as one canal zone president said at the meeting, “The alfalfa is starting to turn yellow.” There was also a need to refresh and refill the water in the *wigiñas*, the watering holes for livestock. There was additional urgency to this too, for as Jeremias pointed out, water pollution was making the water scarcity worse because pollutants concentrate in the watering holes: “Before the *wigiñas* lasted half a year for us, but now, with pollution and everything, they don’t last, just a month or two, maximum. Livestock enter (to drink) and the water has already decomposed (due to pollutants).” In the end the water had to be released back into the canal system before all of the needed dredging had been completed, which could potentially exacerbate flooding the following year.<sup>92</sup> The arrhythmia of the 2014 growing season perpetuated itself.

What these examples demonstrate, then, is that the temporality of flooding in El Choro spills between past, present, and future. The spatiotemporal event of flooding is not just a totalizing deluge of water washing over everything but rather is a fabric of interwoven trajectories, each having its own rhythm that shapes the consequences and politics of the flood. As evidenced in Eduardo’s speech, memories of past floods, and physical inscriptions of the watery past of the landscape, keep the threat of future floods alive. Brian Massumi argues that it is the nature of threat to always be open-ended. He writes, “Even if a clear and present danger materializes in the present, it is still not over. There is always the nagging potential of the next after being even worse, and of a still worse next again after that” (Massumi 2010, 53). A look at

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<sup>92</sup> The following year did not see floods but rather the beginning of an intense drought. The failure to finish dredging the canals in 2014, however, can also exacerbate drought, as the sedimentation at the bottom of canals reduces the volume of water they carry.

El Choro's flooding, then, allows us insight into the recursive temporality within which the rhythms of disaster, place, and people all produce each other. This lens provides new glimpses into the political tensions that people negotiate with each other but also must negotiate with the nonhuman in myriad ways. But while future threats are open-ended, so are these negotiations.

#### **4.4 Conclusion: Rhythmic Disjuncture**

The expression "*agua es vida*" encompasses the vital necessity of water for life on Earth. This is a material fact, when human and animal bodies are mostly water and when plants and crops depend on it to survive and thrive. But water contains more. In its absence, such as in the case of Lake Poopó, the vital need for water is highlighted by the corpses of dead fish and birds, the dry dust of the lakebed, and the movement of people out of dying fishing communities. In its excesses, as in the irrigation canals, water overflows attempts to contain and control it and causes harm to those who try to put it to use. In both conditions, water exhibits the corollary of *agua es vida*: water is also death. These conditions are enabled by water's material properties, for water has the capacity to give life, but it also drowns, dissolves, or evaporates away and leaves everything dry. Whether it gives life or death emerges in whether rhythms come together or break apart. For the flooded canals of early 2014, disjuncture between the actions of irrigators and their leaders, the January rainfall, and the limits of infrastructure left some farmers flooded and many angry. When Lake Poopó dried up at the end of 2015, it became clear that over time the rhythms that had maintained the lake within a certain range of expectations over the previous decades had broken apart, prodded by numerous decisions and changes. Both cases, then, exhibited harmful disjuncture between rhythms that led to suffering for the people of El Choro and the central Altiplano.

Looming over both cases, however, is climate change. This may be the ultimate example of the interference of rhythms with each other, as the appetites of capital lead to the discharge of greenhouse gases into the atmosphere, and the concentration of these anthropogenic gases ultimately leads to shifts of (among so many other things) the cyclical rhythms of water. In this way climate change attacks at the very foundations of the rhythms that produce El Choro as a place. And while focusing on certain rhythms, such as the upstream mines in the case of Lake Poopó, or the communities that unilaterally dammed their canals in the case of flooding, can help pinpoint culpable parties, focusing on the rhythms of climate change has a tendency to disperse and dilute responsibility, complicating political mobilizations around these issues.

As the people of El Choro and the Lake Poopó watershed continue to struggle forward against shifting water rhythms, people there may find that due to the entanglement and inseparability of different types of rhythms, solutions to water problems may be difficult to find. Many of El Choro's irrigators told me that their priority was an end to water pollution, which they said was held back by the political and economic power of miners, who benefited from unlimited water use and a lack of pollution controls and regulations. Even so, irrigators and environmental organizations made headway on this issue in recent years, and plans were underway to finally build pollution containment infrastructure in Huanuni and other mining areas in the Poopó watershed. But could this all be for naught if climate change, whose solution lies far outside the hands of irrigators or even the Bolivian political system, shifts the rhythms of the water cycle too far away from the rhythms of plants and people? Will the communities of El Choro dry up alongside the lake? This remains an open question.

## Chapter 5: Fluid Terrain – Climate Change, Mud, and Territory

Life comes to a halt when a heavy rainstorm hits El Choro. On a December afternoon in 2013, the clouds started to thicken again around noon, after a partly sunny morning had broken a night of steady rain that left the village soaked. The sky burst open around one o'clock. I was at my temporary quarters, a house on the village's main plaza, watching from the open doorway of the bottom floor. Five minutes after the downpour began, pea-sized hail began to fall. The plaza emptied quickly of the few people who had been out and about. I saw one construction worker run by; I said hello and he responded with some kind of exasperated statement that I couldn't understand through the roar of the rain and hail. A man rode a motorcycle through the plaza, managing to hold a magenta umbrella in one hand while he steered with the other. Hail bounced in the doorway of the house. I was alternating my observations from the doorway with fast trips outside to swap out pots and pans under the downspout. Hailstones bobbed about in the water as the containers filled. While I saw no lightning bolts, at times the thunder was constant and sounded like it was directly overhead. It roared as if a squadron of fighter jets was criss-crossing the sky. After 45 minutes of this intensity, the rain tapered off and the sky broke again into light rain mixed with sun.

That morning, before the heavy storm, El Choro's main plaza was already a lake, with much of the street under six to nine centimetres of water. Most of the side streets feeding the plaza were unpaved and had turned into mud. Pedestrians trying to cross the plaza struggled to find dry paths that emerged in the micro-topography of the ground. In a few places the street was passable by stepping on the remains of old adobe bricks left from past construction projects. An abandoned house on the corner of the plaza had shed some of its walls into the street, leaving a



soft path through the muck and water. In the days before this storm, perhaps in an effort to spend the municipal budget before year-end and make improvements before El Choro's Christmas celebration, workers used a backhoe to put gravel on some of the side streets in town. After a dump truck discharged a pile of gravel, the backhoe spread it out over the mud and drove back and forth a few times to tamp it down. The heavy tires left parts of the road somewhat compacted, but the middle of the road remained a soft mixture of muck and gravel. The surface of the newly repaired roads was U-shaped, higher on the edges than at the centre, so water collected down the middle. The first time I walked on one of these newly repaired roads, I was heading to a store to buy a couple of small bags of yogurt. I stepped onto what looked like firm ground but instead it was mud with a deceptive layer of gravel floating on top. My shoe sank in quickly. I pulled it out, my foot covered in mud up to my ankle. I walked up to the store, attempting to kick the mud off on a rock; the proprietor, an elderly woman named Mercedes, was sweeping her outside sidewalk. I told her that I had just stepped in mud in the road because it had been covered in gravel. She clicked her tongue with annoyance and said, "They should have cleaned all the mud out first before putting the gravel down." Later I saw Moisés out by his store at the corner of the plaza, shoveling gravel into some of the water-filled potholes that were already forming in the repaired roads. Within a couple of months much of the gravel had worn away or been reclaimed by the soft earth.

This kind of rain and mud acted as great annoyances to the people of El Choro, hindering people's ability to move and work. But was there something more to mud? As I will explain in this chapter, for many people in El Choro, climate change was experienced as an intensification of the rainy season accompanied by extensive muddiness. Over time I realized that mud itself was an important bodily experience related to climate change. In order to explore the

atmospheric politics related to climate change – the affective politics that arise in the relations between people’s bodies and the bodies of the earth and atmosphere – it was time to get down in the mud.



**Figure 8: Storm clouds build over El Choro's wet and muddy main plaza.**

In this chapter, then, I will explore how politics emerge in mud through examining a dispute that I witnessed in 2014 during my field research in El Choro. For two days, I joined local residents as they blockaded a bridge on the main road to El Choro with vehicles, rocks, burning tires, and their bodies. Their aim was to prevent a construction company from removing gravel for a highway building project. Over the course of the blockade, I spoke with participants and leaders and observed negotiations with representatives from the construction company and the national highway agency. I came to realize that the dispute took place precisely at the intersection of fluid terrain and territory, the latter of which Stuart Elden argues is a historically

situated political technology that “is itself a process, made and remade, shaped and shaping, active and reactive” (Elden 2013b, 17). Blockaders acted, they said, to assert control over their collective indigenous territory and demand compensation from the construction company for damaging their road and removing gravel from the community. In return, the highway builders asserted the state’s imperative to integrate national territory through road building and El Choro’s responsibility to contribute to the effort. As I sought to trace the different trajectories that met in this event, I wondered if perhaps the mud upon which we were standing was not only the sticky stage for the blockade but also central to the dispute. Connecting mud to the intensified midsummer rains associated with anthropogenic climate change in the Bolivian Andes, I started to think about the fluid materiality of mud as an intersection between the Earth’s modified atmosphere and the complex politics of territory. From this, then, I seek to find the emergent localized politics of climate change in the mud under people’s feet and in the ways that people invoked the fluidity of terrain alongside different conceptions of territory through this dispute.

The experiences of the body in mud and the emotional effects of the association between mud and conditions such as immobility and uncleanliness are well-documented in diverse literatures, particularly relating to soldiers’ bodies in warfare (Das 2005; Gregory 2015; Ugolini 2014; Winters et al. 1998; Wood 2006) and natural disasters (Forth 2009). I see mud as a mundane entity with a subtly transformative capacity related to changes in climate. So when mud manifests, how does it influence politics? How could mud’s intensification—in volume, flow, viscosity, even in its sheer presence—intersect with practices of territory? In addressing these questions, I offer up to the broader literature on climate change and its relationship to politics and spatiality a small-scale and grounded consideration of the body’s experience under

environmental transformations.<sup>93</sup> By focusing on experiences like a human body slogging through mud, or a truck's tires chewing up a road, I want to ask how climate change influences day-to-day politics in El Choro. Such a consideration, however, must avoid what Mike Hulme has called "climate reductionism," the tendency to envision humanity's future as solely shaped by climate and climate change, erasing human agency and ingenuity as well as other diverse influences such as politics and ecology (Hulme 2011; See also Dalby 2013). As I will develop further below, I believe that one way to avoid this reductionism is to focus in on people's affective relationships with their surrounding environments, which creates space for webs of intermingling influences rather than mechanical linkages.

## **5.1 Mud and Climate Change**

The central Altiplano north of Lake Poopó, where El Choro is located, is predisposed toward muddiness in several ways. For one, it is almost perfectly flat. After a heavy rain the water does not drain away but rather mixes into the earth, forming mudflats and pools. This poor drainage is exacerbated by the road platforms and canal levees that criss-cross the plain and encircle areas of water. If the sun comes back quickly, it is strong enough at that latitude and elevation to dry out the soil. If the sun stays away, or if the rain keeps returning, the area turns more and more into the lake that it once was, and the thick mud persists for weeks, or months.

The irrigation canals relied upon by El Choro's farmers are also vectors for muddiness (see Chapters 2 and 4). Farmers use flood irrigation to water their fields; when it is their turn to

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<sup>93</sup> Much of this literature focuses on larger examinations of conflict and international security and has given less consideration to the political ramifications of bodily experiences under climate change. Key sources include Barnett and Adger 2007; Dalby 2009; Dalby 2013; Dumaine and Mintzer 2015; Hendrix and Salehyan 2012; Hsiang and Burke 2014; Selby and Hoffmann 2014; Swyngedouw 2010.

take water out of the system, they dig breaches into canal levees and channel the water through ditches until their fields are under a layer of water. A field undergoing flood irrigation often spills into adjacent fields when farmers have trouble controlling the water or leave it unattended for too long. Or heavy rains and rising water levels coming from upstream will force canals to spill over. In the worst cases this can result in disastrous flooding (see Chapter 4). However, even in good years the canals spread muddiness around the municipal territory. Some places that habitually flood in the summer months from canal spill overs eventually turn into marshes, replete with *titora* (marsh reeds) and a complement of ducks and flamingos. When those marshes dry out again in the winter, cows and sheep return to graze on the *titora*.

Living with mud, then, is not a new experience for farmers in El Choro. But the region's geography of muddiness intersects with climate change-induced shifts in the water cycle to make the mud even more intense. Under climate change, rainfall is decreasing in the early rainy season, which comes in the late spring and early summer months of October through December, but so far there is no net decrease in annual rainfall (Valdivia et al. 2010; Valdivia et al. 2013). This points toward an intensification of the rainy season into a shorter period, something that many farmers described to me during my fieldwork. As a young farmer named Eligio said, "Four months of rain now fall in two months." Farmers told me that they must delay planting due to low rainfall early in the summer. When the rain catches up in January and February they face potential flooding and mud that makes access to their fields as well as grazing their livestock difficult. By the end of the growing season, farmers stare down fall frosts while crops are at the final stages of maturation. Many farmers described such changes in comparison with memories of more predictable weather, saying that everything was "mixed up" (*mezclado*) now. "This weather isn't what our grandparents saw," a local leader named Fabián told me.

This muddy mess ebbs and flows through the summer, but during some years it can last for several months right in the middle of the growing season. Even if mud is not new with climate change, for rural Altiplano residents one of the tangible and unavoidable effects from multiple days of intense rainfall is the transformation of the surface of the earth into fluid terrain. Mud is an immediate, daily experience for bodies mutually bound with the terrain during the climate change-altered rainy season. It is also political.

## 5.2 Terrain and Affect

In recent years, many authors have explored ways to take materiality and the nonhuman seriously in politics (Boyce 2016; Braun and Whatmore 2010; Elden 2013a; Steinberg and Peters 2015; Sundberg 2011).<sup>94</sup> As Juanita Sundberg argues in her examination of the human/nonhuman collectives that emerge within, complicate, and disrupt the US government's attempt to control its southern border, "those classified as nonhumans—whether living or inert—cannot be backdrops to (geo)political affairs but are integral to and constitutive of them" (2011, 332). Such collectives include the land itself in all its forms – the terrain – which has the capacity to "inhibit, disrupt, and unravel" the plans and operations of the state in watching and controlling its own territory (Boyce 2016, 251; See also Gordillo 2014b). Philip Steinberg and Kimberly Peters (2015) emphasize materiality in considerations of the politics of volume and territory with their development of "wet ontologies," wherein they draw on the oceans to conceptualize space

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<sup>94</sup> Sundberg (2013, 34) critiques much of this literature, arguing that "many geographical engagements with posthumanism tend to reproduce colonial ways of knowing and being by enacting universalizing claims and, consequently, further subordinating other ontologies." She argues for approaches to decolonize posthumanist thought by "tak(ing) responsibility for the epistemological and ontological worlds we enact through the paths we walk and talk" (2013, 40), making serious engagement with diverse epistemologies, ontologies, and methodologies, and engaging in political action and acts of solidarity.

in terms of fluidity, churning, and chaos. They argue that, while water and land share many properties of material and volume, such as “depth, underlying mobility, and transformation across physical states,” water is markedly different from land in that “these properties are distinct in the speed and rhythm of mobility, the persistent ease of transformation, and the enclosing materiality of depth” (2015, 6). They argue, then, that thinking through space and territory using the ocean can be used “as a means toward unearthing a material perspective that acknowledges the volumes within which territory is practised: a world of fluidities where place is forever in formation and where power is simultaneously projected on, through, in, and about space” (Steinberg and Peters 2015, 15). In other words, thinking through water can also help to call into question what we think we know about the political control of land. Steinberg and Peters draw our attention to a post-humanist politics generated in fluid materialization, but through their examples of surfing, swimming, and kayaking, they also consider how fluid materiality is embodied by the human actor. What I seek to build upon, then, is this sense of how fluid materiality and churning can be embodied experiences that have important political dimensions. I argue that an important part of terrain’s emergence in territorial disputes is through bodily relationships that develop with the dynamic materiality of the terrain itself and that are then refracted into political action.

First, however, it is important to note that mud has distinct qualities as an intermediate state that is not-quite-land and not-quite-water but has some capacities of both. Depending on elements such as moisture content, soil type and topography, as well as one’s mode of movement, mud can be solid enough to traverse with minor inconvenience or impassably viscous or flowing. Over time it fluctuates widely while still holding the state recognizable as mud. Mud is the materialization of weather into the earth; rainstorms pass by but their effects shift into a

new time-scale as the earth remains persistently sticky long after clouds have cleared. Even when mud dries it leaves enduring marks – solidified undulations, ridges, pits and crinkles – that call to mind the muddy past and the potentially muddy future and point toward land’s constant capacity to make fluid shifts. Mud reveals how, as Tim Ingold (2011, 130) writes, “The ground is not the surface of materiality itself, but a textured composite of diverse materials that are grown, deposited and woven together through a dynamic interplay across the permeable interface between the medium and the substances with which it comes into contact.” Land is not as solid as it appears; it is “the more or less ephemeral congregate of a generative movement” (2011, 24).

The ephemeral solidity of land, underlined by mud, highlights how terrain, defined by Gastón Gordillo (2014b) as the tangible space of the world, is unruly and ever-changing. Gordillo (2015, 23 emphasis in original) highlights what he calls terrain’s “pure multiplicity” and argues that it is “an unassailable constellation of very diverse materialities, objects, and vectors of force affecting each other through physical contact, collisions, and friction.” This is what Tim Ingold (2011, 71) calls the domain of entanglement, where everything in the world, including organisms, meets and intertwines. This entanglement encompasses the relationships between terrain and other physical bodies of the planet, including bodies of water and of air, that affect and shape and mix boundlessly with each other. As earth, atmosphere and water intermix their differing forces, materialities and porosities, they transform: thus on the Bolivian Altiplano, the sun-baked earth yields when spring rains halt the long, dry winter. Under wind, water and gravity, fresh mud finds new mobilities and motions in what had just seemed as solid earth.

What binds terrain and other bodies together can be analysed through what Gordillo calls an affective geometry, a concept he draws from Spinoza and which speaks to the affective relations between bodies in space (Gordillo 2015, 8). According to Spinoza, bodies are not



closed and bounded systems but rather are open and exist relationally with other bodies, capable of affecting each other, or increasing and decreasing the capacity of other bodies to act (Spinoza 1951). For Spinoza, according to Deleuze, “A body can be anything; it can be an animal, a body of sounds, a mind or an idea; it can be a linguistic corpus, a social body, a collectivity” (1988, 127). For any body, it is its capacity to affect another body that “defines a body in its individuality” (Deleuze 1988, 123). Such diverse bodies affect each other in a multiplicity of diverse ways, and the tendency of affect is to be inherently unpredictable, open, and open-ended, for the full range of capabilities and capacities of the body are unknown (Spinoza 1951, III, ii). In turn, the unique “lived past” of each body shapes its capacities to affect and be affected (Massumi 2015, 49). Gordillo’s appeal to a Spinozan affective geometry points to the non-deterministic spatial arrangements of this multiplex of human and nonhuman bodies and focuses on the more-than-discursive ways in which bodies relate in their openness to each other. Not only does the terrain meet with and influence the air and water, but it also meets and influences human bodies, increasing and decreasing their capacity to act.

In the Altiplano, fluid terrain, in the form of mud, physically interacts with the farmers’ boots or tractor tires, but this is not where its entire affective power resides. The sight, scent, feeling or anticipation of mud can motivate or demotivate the farmer during the rainy season. I was reminded of this while taking shelter in a farmer’s one-room adobe house during an intense summer thunderstorm.<sup>95</sup> With lightning striking the ground within a few hundred metres of our position, I was nervously watching the open doorway for more strikes. But Teobaldo, the owner of the house, was pacing sharply back and forth for a different reason. He looked out the door

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<sup>95</sup> I discuss this event in detail in Chapter 6.

and then turned to me and my companion Moisés, telling us that he planned on going to the village to buy cooking gas, but the storm had thwarted his plans. “How will I get to El Choro with all of this mud?” he asked us. “My motorcycle won’t work in this. Can I go on foot?” Moisés said that the gas canister was too heavy to carry the five kilometres to the village. Teobaldo grumbled and watched the sky as we waited for relief from the storm. He didn’t go to El Choro that day. There would be no relief from the mud for weeks.

Affect has political dimensions that emerge in the day-to-day relationships between different bodies. Affective politics is, as Massumi describes, “an art of emitting the interruptive signs, triggering the cues, that attune bodies while activating their capacities differentially” (2015, 56). Due to affect’s openness, such attunements have uncertain results. Massumi argues that bodies do not all act the same even if they are “cued in concert” because each carries a different set of “tendencies and capacities” (2015, 55–56). Affective politics reflect the inherent unpredictability and openness of affect in a world that is “still tentative, charged, overwhelming, and alive” (Stewart 2007, 128). Some authors argue that affect is not only part of politics, it is the medium through which all politics occurs. Beasley-Murray, for instance, writes, “History is no more or less than the recomposition or movement of bodies, a series of modulations in and through affect. Anything else is mere tableau” (2010, 132). In the pages ahead I aim to show that taking into account this political salience of affects can help us consider how physical and spatial transformations, such as climate change, enter politics in more-than-discursive ways. By their open, undetermined nature, such affects are difficult to pinpoint and put into words, but this does not make them any less consequential. To paraphrase Bennett (2010, 4), the physical world issues a call, even if we do not understand what it is saying. When people respond to the call of mud, bodies are attuned, and the result is messy political negotiations of people with each other

and between people and mud. One result from these messy negotiations is that the unruliness of ever-fluctuating terrain is refracted into the process of territory via the relationships that emerge between terrain and bodies.

### **5.3 The Contested Road**

As the condor flies, the village of El Choro, capital of the municipality, is 45 kilometres south of the city of Oruro, separated only by the flat terrain of the Altiplano and the marshlands of Lake Uru Uru. Oruro is close enough to light up the northern horizon at night, and an observer in the village can see the brightly illuminated 45-metre Virgin Mary statue that stands on a hilltop above the city. Despite such proximity, the journey from village to city can take an hour at best or longer. Although a road platform was built crossing the flood-prone plain a few decades ago, supplanting the improvised dry season truck tracks that in turn had replaced the donkey trains of earlier years, the gravel surface of the road receives scant maintenance and is deeply pitted. During the rainy season parts of the road are chewed into muddy bogs.

In 2013 the road became the site of conflict. Shortly after my arrival in the village late that year, I noticed that many dump trucks entered and exited the main municipal road every day, hauling material out of a site near a community about halfway between the village of El Choro and Oruro. I soon learned that the dump trucks worked for a road project about 40 kilometres to the northwest. The departmental government had contracted a private company called Congar to pave one of the final stretches of the international highway connecting the city of Oruro to the

town of Pisiga, on the Chilean border, a project started in the late 1990s but still unfinished.<sup>96</sup> Congar was granted the contract in 2013 after the departmental government yanked it from the previous contractor for advancing too slowly. With a mandate to finish in 14 months, Congar rushed to establish local material sources. In July 2013, they reached an agreement with a community called Cruce Belén in the municipality of El Choro to provide construction aggregate for a 14-kilometre stretch of the highway. At the time, local media reported that people in the community of Cruce Belén agreed to stop obstructing the removal of material from a nearby hill in exchange for benefits like maintenance of the main road and enrolment in a rural electrification program. Regional leaders and the media portrayed the highway as critical for international trade related to a broader three-nation project, the *corredor transoceánico*, a plan to connect the Pacific and Atlantic coasts of South America through the heart of the continent. The *corredor* was a key plank of Oruro Department's efforts to place itself at the centre of Bolivia's economic integration. This was evident in a 2012 editorial on Oruro's road building efforts in the local newspaper *La Patria* that stated, perhaps with some hyperbole, that "Oruro turns out to be the heart of the country where the veins transporting progress arrive and from where they radiate out to the four cardinal points of our nation" (*La Patria* 2012).<sup>97</sup> Along with other projects of integration, such as Oruro's new international airport, the Pisiga highway was a bid for Oruro to be at the centre of Bolivia's rapid economic growth.

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<sup>96</sup> Details for the background of this project are mostly from the local Oruro newspaper *La Patria*. See *La Patria* 2013d; *La Patria* 2013e; *La Patria* 2013a; *La Patria* 2013b; *La Patria* 2013c.

<sup>97</sup> See also a 2010 commentary by a departmental assembly member on regional integration (Campos Velasco 2010).

In a broad sense, road building in western Bolivia has public support, and expanding the road network has been a centrepiece of the national MAS government's economic development goals.<sup>98</sup> But these projects met friction when they encountered the fluid terrain of the earth. In the case of the Oruro-Pisiga highway, in order to haul the material out from Cruce Belén to the worksite, Congar's dump trucks drove dozens of times a day up and down a 17-kilometre stretch of El Choro's main access road. Five months after people in the community of Cruce Belén agreed to allow Congar to remove aggregate, residents of the municipality of El Choro blocked trucks from entering the removal site for the second time, demanding improvements to the main road.<sup>99</sup> A committee spearheaded by the governor of Oruro led negotiations. As reported in *La Patria*, a member of Oruro Department's legislative assembly visited the community and implored people to lift the blockade so that this project, which "is fundamental for the development of Oruro and desired by the whole population," could proceed.<sup>100</sup> Eventually residents agreed to lift the blockade in exchange for the construction of a 600-metre stretch of road connecting the community to the nearby cantonal capital of Crucero Belén.

A few months later, however, I heard rumbles that Congar's work was again to be blockaded. The action materialized in late March 2014. On the morning of the blockade I listened to a radio show out of Oruro as local indigenous leader Mama Ruperta<sup>101</sup> made a case

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<sup>98</sup> See, for example, *La Patria* 2015a. However, contrast with the controversies over the infamous TIPNIS case; see Fabricant and Postero 2015; McNeish 2013; Calla 2011; Lorenzo 2011; Rossell Arce 2011.

<sup>99</sup> This occurred only a week or so after I arrived for my 2013-2014 field work, and I was not able to attend this blockade. It received limited media coverage; see *La Patria* 2013f.

<sup>100</sup> From *La Patria* 2013f. Original quote, which is a paraphrase by the newspaper article's unsigned author: "Por su parte, el asambleísta Froilán Fulguera pidió a los comunarios no perjudicar el avance de este tramo que es fundamental para el desarrollo de Oruro y es anhelado por toda la población."

<sup>101</sup> "Mama" is the proper form of address for a woman who has been elected as an indigenous authority, or *jilacata*. Mama Ruperta, like most indigenous authorities in the highlands, was elected as part of a husband/wife pair, who serve one year together and are addressed respectively by the Quechua terms for father and mother, *tata* and *mama*.

for action against Congar that focused on the instability of the muddy earth. She explained that the decision had come from the indigenous authorities in the *ayllu*<sup>102</sup> of Crucero Belén, who had traditional jurisdiction over settling territorial disputes in the territory where the aggregate production site was located. She used a phrase that I was to hear time and time again that day, referring to what happens when Congar’s dump trucks intersect with the fluidity of the terrain: she said that the main road had been worn down “all the way to the earth” (*hasta la tierra*) and that in the midst of a heavy rainy season it was just mud and barely passable in places. Mama Ruperta’s evocative phrase, “all the way down to the earth,” pointed to the feeling of insecurity that resulted from the road’s ephemeral solidity; her comment emphasized that while the earth was soft and unreliable for transit, without proper care human interventions to overcome this softness also yielded over time to moisture, mud and dump truck tires. This soft, unstable terrain affected bodies through, among other things, the fear of and the experience of diminished mobility. This moved people to blockade the road, which, as Mama Ruperta explained, had the purpose of demanding that Congar carry out its obligation to maintain the road and put pressure on the government to follow through on a planned paving project. The official call to blockade, signed by the local indigenous authorities and later read on the air by the radio announcer, also reflected this feeling of insecurity from the soft surface: “Brothers and sisters, we’re supporting the construction of the highway to Pisiga, but our road is deteriorating, and there are places where it is worn down to the earth.” The call to blockade reflected how mobility is differentiated and relational, reinforcing or challenging power relations depending on context (Adey 2006; Cresswell 1996). For people in El Choro, expanded mobility for Bolivia at large meant that they

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<sup>102</sup> A pre-colonial territorial designation.

faced diminished mobility at home through the wearing down of the muddy road. So to contest this they planned a collective immobilization of their own targeting Congar's trucks and, subsequently, the highway project. The means to do this would be by closing access to and through their territory.

Later that morning, I arrived at the blockade on my bicycle. The site was 17 kilometres north of the village of El Choro, at the intersection of the main road with the connector leading out to the village of Crucero Belén and onward to the small community where Congar had set up its machinery. Immediately north of the intersection on the main road was a bridge over a canal, which Herminio, a bus driver and local authority, had blocked with his bus. Congar's dump trucks stacked up on the connector. Soon eight or so were parked in a line, their drivers milling about, performing maintenance on their trucks and chatting with the blockade participants, who continued to arrive by bicycle, motorcycle, and minivan. Blockaders stood on the leeward side of Herminio's bus, sheltering from the smoke of two burning tires that served as a sort of blockade beacon at the north end of the canal bridge.

Soon the first participant meeting of the day was called, one of a series to first set the terms of the blockade and later to negotiate with visiting representatives from Congar, the national highway agency (Administradora Boliviana de Carreteras, or ABC), and the departmental government. Over the course of these meetings I noted how participants situated the debate in terms of territory and terrain. The fluid terrain appeared in many speakers' appeals, using Mama Ruperta's phrase from the radio that morning: the road had been worn "down to earth" by the combination of rains and the passage of heavy dump trucks. It was muddy and difficult to traverse after storms. The mud persisted and in dry times left a legacy of wear and potholes. With access to El Choro threatened, participants demanded that Congar fix the road

with a new gravel layer on the entire 17-kilometre stretch that their vehicles regularly traversed. If not, blockaders were prepared to indefinitely prevent Congar from having further access to their territory, an action that threatened the national government’s efforts to further integrate some of its remote territories in western Oruro Department as well as to improve international territorial connections through the new highway.



**Figure 9: Blockade against Congar marked by a burning tire.**

The concerns about mud and mobility that I heard at the blockade were not unique to this dispute. Throughout my research, I found that mud was at the root of much anxiety and stress during the rainy season, a time so muddy that some people referred to it as the “*época del barro*” (mud season). Mud inhibited many aspects of daily life. After thick rains, farmers had difficulty



traveling between their fields, which could be far outside the village and many kilometres apart from each other. These fields were mostly accessible by bare tracks or bike paths worn into the surface of the Altiplano over the years and completely impassable on a bicycle or motorcycle after heavy rainfall. It was difficult for livestock to graze in deep mud. As Eduardo told me when I encountered him heading out to his livestock on a particularly muddy day, “Imagine the cows, they’re 400 kilos, walking around in the mud. They just sink in.” He told me the cows crushed alfalfa plants into the muck, making it necessary to herd them to a firmer field, a slow and difficult journey in such conditions. And the pervasiveness of mud – its persistent ubiquity in the old lakebed after heavy rainfall – made the search for less muddy ground a fruitless effort at times. The intensifying rains of climate change made full access to the territory of El Choro more and more difficult during certain times of year. The heavy mud also made plowing nearly impossible because tractors churned into the fluid terrain and became stuck, causing operators to cancel or postpone many days of work. Such delays in plowing, and subsequent late planting, could prove costly if the frosts arrived early. I found that people talked about the mud much as they talked about the weather, predicting mud intensity, expressing concern that a coming rain storm would make it worse, assessing mud conditions before heading out for work, even opening passing conversations on the road with, “a lot of mud today” or “too much mud!” Typical was a brief conversation I had with an acquaintance named Salvador when I met him walking on a muddy road near the village late in January 2014. After greetings, he pointed at my tall, mud-caked boots, and commented that he liked them. “Yes,” I said, “well, I need these because it is very muddy, isn’t it?” This observation seemed to open the floodgates for Salvador. “Yes,” he said, speaking excitedly, “it rained all night, there is a lot of mud, just too much mud! It has rained harder than normal, there is so much mud, you cannot use a bicycle or a motorcycle but

rather have to walk everywhere. That's why I'm walking." He looked up toward the half-clouded sky and exclaimed, "Let there be sun today! It needs to dry out a bit." Salvador points out that mud is an experience that forces the body into intimacy with it since two-wheeled vehicles cannot pass and one is forced to walk through mud's depth and stickiness. Mud brought on bodily-affective discomfort not only through such encounters but also through their anticipation when staring out at approaching rain clouds, or, as we shall see, the rutted road worn down to the earth. Salvador's comments reflect Peter Merriman's contention (2012, 9 emphasis in original) that "There is no mobility *in, across* or *through* space and time, only movements *with*, which are marked by emerging rhythms, forces, spatialities, affects, gellings, temporalities and much more." Salvador does not merely move through space; the viscosity of the mud does not allow this. Rather, to move Salvador must continually negotiate *with* the mud and its rhythms, forces, temporalities and affects. Mud is the vehicle translating between Salvador's body and the ground, sticking him to the earth, binding bodies through mutual porosity and entangling climate change with daily practices. It is inescapable.

At the blockade, I heard similar concerns over mud's affective stickiness and its rhythms and forces of viscosity and fluidity. The road was supposed to provide year-round access to and through the municipality's territory but negotiations with the fluid earth were impossible to avoid, and blockaders spoke of the earth churning into an impassable and disquieting mire under the mix of rain and the weight of heavy trucks, or in the words of El Choro's mayor, "The earth is, sadly, made into mud." In the words of Salomón, an elderly bus driver, "We're facing danger on the road. Holes are opening up." The constant potential for such transformations was reflected in a comment by Tata Régulo, an indigenous leader from Crucero Belén, at the morning blockade meeting. He stated that his people would not allow Congar to remove any more

material and added, “Imagine if it rained today, with the road worn down to the earth in some spots, it could interrupt traffic.” It was not raining, but that could change; future mud, like present mud, had affective potential that was translated into the day’s political mobilization. Herminio also complained that with the velocity of the passing dump trucks, the material of the road achieved new velocities even as it slowed down future vehicular movements: he said that truck tires frequently kicked up flying rocks that could break other vehicles’ windshields. But mud, holes and flying rocks were not the only fluid transformations at the heart of the dispute. In dry times, blockade participants complained, the material of the road blew away as trucks passed, showering residents, animals and crops with dust. Tata Régulo said that dust coated forage crops, with livestock either refusing to eat the dusty plants or suffering ill effects when they did, while schoolchildren breathed in the dust every day as the trucks passed their school. Pascuala, a woman living close to the road, spoke angrily at the meeting about the dust of the trucks: “Every day they scrape and scrape the road. There is so much smoke from the dump trucks that they look like a train. You can’t wash or even eat. Whenever I try to complain, they say, ‘Who are you?’ When my house falls down I’m going to live in the town hall. The road looks like a camel’s back now. Let these trucks go by in peace or go by no more!” Like other blockaders, Pascuala demanded changes in the trucks’ daily negotiations with the earth – that they “go by in peace” instead of whipping the road into mud and dust that affected local bodies – and if not then she suggested that the municipality’s territory should be closed off to Congar, their trucks immobilized for good.

The notion of fluidity also appeared in a dispute over ownership and control of the territory itself. At issue was not only the fluidity of the road as it sloughed away under the truck tires, but also the fluidity at the heart of the *removability* of the terrain in Cruce Belén that was

destined to become the Pisiga highway. Residents of the municipality of El Choro argued that Congar's trucks should not take this material away without meeting their demands, framed in terms of collective indigenous territorial rights. In response, the highway agency and the departmental government appealed to the importance of national territorial integration through the road project and argued that it was in the national interest and all Bolivians would benefit. This was why, the project representatives said, the people of Cruce Belén as well as the broader municipality of El Choro could not be paid for the material that Congar removed. As a Congar executive said on the first day of negotiations, explaining why there was no monetary compensation, "Supposedly these materials should be provided to the project because the highway is in the national interest, to the benefit of all Bolivians." This idea of supporting the broader development aims of the state was also wrapped up in the notion of supporting the MAS-controlled national government, which was popular in the region. For instance, on the second day of blockade negotiations, Quirino, an authority from Cruce Belén who had consented to the removal of material in the first place, defended his decision to do so. Referring to another community in the same province, he said, "Why has President Evo Morales complained about that community? Because they wanted to sell their gravel! But here in my community, we don't sell it. We're giving a hand to Evo Morales and the process of change. But some people here are against the process of change."<sup>103</sup> The message was that the municipality of El Choro should freely contribute to the highway project, for to do otherwise was to stand in the way of national progress and therefore of national forms of territoriality.

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<sup>103</sup> The phrase that Quirino used to indicate the process of change, "*proceso de cambio*," was a political slogan that President Morales and the MAS-IPSP party used to brand their government's agenda, and as such, Quirino was evoking the broad reach of this agenda through the phrase.

This notion, however, was contested at the blockade negotiations, also on territorial grounds. Even though Quirino spoke in favour of his community's right to contribute material to the road building project, others argued that the community had no right to give away construction material without broader consultation with and benefits for the people of the entire municipality. This was due to the fact that the municipality was contiguous with a *Tierra Comunitaria de Origen* (TCO), a category of land ownership recognizing indigenous collective land rights established in 1994 in constitutional reforms implemented by the first administration of President Gonzalo (Goni) Sánchez de Lozada (Bottazzi and Rist 2012). As a registered TCO, the land of the municipality of El Choro was legally recognized as a collective indigenous property. It was difficult to see how this arrangement played out in daily life, for people in El Choro held individual property titles and worked their parcels individually. As the anthropologist Marcelo Lara of the Centro de Ecología y Pueblos Andinos (Centre for Ecology and Andean Peoples in Oruro, or CEPA) explained to me, collective ownership in the region had been systematically dismantled by the state after independence, and land reform in 1953 cemented the notion that highland farmers held title to their own lands.

Still, many people at the blockade appealed to the existence of the TCO to assert local collective sovereignty over the material that had been removed, reflective of a national debate over indigenous autonomy that took off in the Bolivian lowlands in the mid-1990s but had gathered strength in the highlands over the early years of Evo Morales's presidency (de la Fuente and del Campo 2010).<sup>104</sup> For his part, the owner of the hill itself where Congar was removing

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<sup>104</sup> As Jorge Resina de la Fuente and Esther del Campo explain (2010, 198–99), in Bolivia, the movement for indigenous autonomy has somewhat unexpected origins: it was born out of lowland conservative movements demanding autonomy in the early 2000s for the so-called *media luna*, or half moon (referring to their shape when

aggregate, a bespectacled man in a dusty sport coat named Baldomero, stood up during the morning blockade negotiations and insisted that Congar had damaged his property and had provided benefits, such as solar panels, to the surrounding community but had given nothing to him. He said he was willing to defend his land “to the death.” But many blockaders had little sympathy for Baldomero’s view and pointed instead to how Congar’s removal of material harmed the collective of the TCO. Several blockaders pointed out that the material removed for the road was irreplaceable. One indigenous leader, Tata Vidal, observed that the municipality of El Choro had only a handful of hills, and each one had its own history: “Our grandparents could tell us stories about them. Not one bucket more should be taken out!” Abilio, a community member, said that the hill was the patrimony of El Choro and argued for collective, rather than private, ownership, adding, “No one can own stones!” Both Vidal and Abilio’s comments suggest that the material itself had an affective capacity felt keenly as a collective sense of loss when it was removed. An irrigation zone president named Emilio argued that the blockade was “control of territory” aimed at ensuring benefits for the whole municipality of El Choro, because Congar cannot negotiate with an individual landowner, or a single community, to remove materials that belong to the TCO. This argument associated the landowner Baldomero more with Congar than the members of the TCO, suggesting that the TCO was precedent over Baldomero’s private property. In response to Emilio, Ingeniero Sala,<sup>105</sup> the representative from Congar, argued

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seen together on the national map) of lowland Bolivian departments that were resource rich and wanted to keep more of their wealth to themselves and out of La Paz. In 2006 indigenous groups started to echo the call and entered into negotiations with the still new MAS government of Evo Morales, eventually winning a place for indigenous autonomy in the 2009 Constitution. See de la Fuente and del Campo 2010 for a more complete history as well as Artaraz 2012; Cabrera 2011; Cervantes 2015; Fabricant 2012; Gustafson 2009.

<sup>105</sup> Ingeniero Sala is a pseudonym. However, the title *ingeniero*, which translates as engineer, matches the title of the Congar representative. In Bolivia, anyone with a bachelor’s degree in one of the engineering fields is properly

that during initial negotiations over access the authorities of the TCO were “missing.” He said that sometimes a TCO is “just a banner.” To Ingeniero Sala, it seemed that this territorial configuration had only recently emerged with any force. Ingeniero Sala let his exasperation show even more later in the negotiations, when several community members tried to add a demand that Congar assist with canal cleaning for El Choro’s irrigation system, an issue that was arguably tangential to the road dispute. “More requests!” he exclaimed. Referring to the previous blockades, he added, “Every term there are new agreements we have to make.”

In the end, after two days of negotiations, participants agreed to lift the blockade in exchange for promises that local authorities would form a commission to monitor the condition of the road and that Congar would carry out regular maintenance until their work was finished. Even so, over the following months local leaders complained that Congar’s maintenance was inadequate. As the rainy season faded away in late fall, and the Altiplano entered a long, dry winter, concern faded too, and there were no more blockades. Many people placed their hopes in the departmental government’s promise to pave the road within the next two years, a project that may have been accelerated by the March blockade. In mid-winter, surveyors were seen making measurements for the project although its conclusion would be, at best, several years away.

#### **5.4 Conclusion: Muddy Clashes**

At the road blockade, two conceptions of territory clashed: the national territory of the state and the collective indigenous territory of the people of El Choro. Underlying these

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addressed using the title *ingeniero* combined with their surname, or their full name. It is abbreviated as *Ing.* and included on correspondence as well. All participants at this meeting, then, addressed the representative from Congar using the title *ingeniero*. This practice had a kind of distancing effect between the representative and the largely non-college educated crowd, the majority of whom bore no such titles.

territorial forms, however, is the terrain upon which they are built, an assemblage of mud, gravel, roads, depressions, plants, bodies of water, and hills. It is the terrain's fluidity that is centred in the conflict: the wearing down of the gravel, the churn of the mud, the billowing of the dust into the lungs of children and livestock, the dump trucks hauling away one of El Choro's few hills. By discussing the fluid material underpinnings at the heart of the road blockade in El Choro, I have attempted to illustrate how the human body, situated in the mud and the fluidity of the terrain, may respond to material transformations in political ways that enter territorial conceptions and disputes. Steinberg and Peters write that "as we turn our attention to the volumes within which politics is practised and territory is produced we must continually rethink the borders that we apply to various materialities and their physical states" (2015, 13). This is important for understanding the muddy and dusty fluid terrain at the centre of the road dispute in El Choro, but I also add that this fluidity challenges the borders not only between materialities but also between porous bodies that are open to giving and receiving affects, increasing and decreasing the capacities of other bodies to act, sticking to the mud, breathing in dust, acting out of fear of future changes. Conceptualizing these relationships between bodies in terms of affect theory will, I believe, help us trace the political effects of the more-than-discursive material relationships that arise between human bodies and fluid terrain and how these emerge in the politics of territory.

If this is the case, then, the spatial transformations associated with climate change, such as the heavy muds related to intensified midsummer rains, may emerge in politics from within more-than-discursive relationships between bodies. Such affects enter an assemblage of discourse, ideology, political parties, personalities, and much more. Considering the daily interactions that people have with fluid terrain may help illuminate how climate change



influences people's daily lives in ways that initially escape attention. Thinking about how fluid terrain is centred in a dispute, such as the road blockade I discuss here, may point toward how climate change sidles into politics from unexpected directions.

But if climate politics can emerge in unexpected places, so can people's responses to climate change. Fluid terrain provides both limitations to and possibilities for human choice and creativity in response to climate change. Terrain has irreducible material properties, but it is also shaped and reshaped in daily life and relations with different bodies. It is more flexible than it initially appears. This is why I argue that by thinking about climate change in terms of the day-to-day affective relations that people have with the terrain, the different ways that terrain and people affect each other, and the politics that emerge from these relationships, we can sidestep reified notions of culture buckling under the weight of climate change, avoiding climate reductionism and recognizing that daily engagements with the terrain involve give and take, flexibility, and, most importantly, agency and creativity.

## Chapter 6: *Rayos Caídos* – Fear and Fragility Under the Open Sky

The sky was partly clouded in but did not look threatening when I accompanied Eduardo on a January afternoon to a field five kilometres northwest of El Choro. The field belonged to Moisés, an elderly man who owned a small general store and bicycle repair shop in the village. He planned on planting alfalfa and had hired Eduardo to plow the field with his tractor. This was January 2014, the peak of the rainy season. It was the time of year when a lot of plowing and planting had to be done, but mud, rain, and hail constantly threatened to make this work uncomfortable, complicated, or impossible. The day had been dry so far, and Eduardo wanted to plow as many fields as possible while it lasted. By the time we arrived at Moisés's field, he was behind schedule due to tractor breakdowns and thus in an even bigger hurry than usual.

As Eduardo began to plow, Moisés and I chatted on the edge of the field, laughing together at Eduardo's German shepherd, who ran a few laps up and down the field, following the tractor, before calling it quits and lounging on the ground beside us. I quizzed Moisés about recent rainfall, if it had been enough, and how rain had changed over time. He told me about two major changes in recent years. One was that rainfall had become much patchier, no longer falling everywhere at once, leaving some communities dry even if a major storm had hit nearby. Second, he said, storms now come on much quicker than they did before. While we spoke, the clouds overhead still looked thin. I was relaxed, enjoying the beautiful green countryside, flat and dotted by the outlines of adobe houses, corrals, walls, and herds of sheep and cows. I did not anticipate rain. But Moisés's comment about fast-approaching storms was about to be aptly illustrated, as if the sky had been listening to the conversation.



**Figure 10: A storm arrives in El Choro from the east.**

After a while Moisés said that he was going to get alfalfa seeds, and he walked across a muddy flat and quinoa field to an adobe house about 300 metres away. While he was fetching the seeds, I sat with Eduardo's dog. We watched the mood of the sky quickly change. Dark clouds moved in from all sides. They were particularly heavy from the east, the direction from which most of El Choro's summer storms arrive. Soon I saw lightning bolts strike the ground in that direction. The thunder lagged five or six seconds after the flash, indicating that the strikes were at least a couple kilometres away. Moisés returned with his sacks of seeds about 10 minutes later. By then the lightning strikes had moved much closer from the east, less than a kilometre away, but they were also striking to the north, west, and south. It was unsettling to be surrounded by

strikes while standing out in an open field with nary a stand of trees nor a hilltop within a dozen kilometres of our position. My eyes darted from strike to strike; in my head I counted the delay between flash and thunder, my alertness intensifying as the time I counted decreased. With no immediate shelter available, I lay down flat on the plain.<sup>106</sup> But when the sky opened up, and heavy raindrops began to fall, Moisés said that it was time for us to find shelter anywhere we could. We gathered the bags of seeds and started walking quickly across the mudflat and quinoa field toward the adobe house 300 metres away. The delay between flash and thunder now indicated that lightning was striking within 500 metres. Eduardo continued plowing. His tractor had a small roof but was not enclosed, protecting him from the rain but presenting him with a substantial hazard in case of lightning strike.

We struggled through the muddy field, our shoes caked. Halfway to the house, Moisés dropped the bicycle he had been pushing because its tires were immobilized by mud. We divided up the bags and buckets that he had been supporting on it to carry the rest of the way. To the east I saw several bolts strike the ground with no delay in sound. By now the roar of the thunder that accompanied each strike was deafening.<sup>107</sup> From this close, the pitch of thunder is much higher than you experience from a distance. It felt like an unbelievably enormous piece of corrugated tin shaken by a hurricane. It sounded as if the sky were being ripped apart by two giant hands over my head. The thunder had a hollow resonance, like it was bouncing off all the corners of the sky, rattling the atmosphere and earth.

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<sup>106</sup> I later learned that this was unwise because it increases your exposure to a possible strike. The best position, if you cannot take shelter, is to crouch with feet together. See <http://www.lightningsafety.noaa.gov/safety.shtml>.

<sup>107</sup> Thunder experienced up-close is about 120 decibels.

What happened next took only a fraction of a second. Thunder and lightning struck simultaneously, so close that we could see no lightning bolt: everything turned white all around us as we were encased in the sound of thunder. I later wrote in my notes that the roar “induced instantaneous claustrophobia, as if there were no longer a world outside of that envelopment of sound...” But then it was over. I realized that, although my heart and breath were both racing, I was still standing, still conscious, so I probably had not been struck. I turned toward Moisés to check that he was okay, and as I did so I let loose, “*¡Carajo! ¡Me asustó!*” Moisés looked at me, his wide eyes showing fear but also with a little mirth crinkled around the edges, probably at hearing the foreign anthropologist curse instinctively in Spanish. He looked okay, still conscious, still standing, so we hurried for another minute to the house, bent over against the heavy rain and, at least in my case, as a reflexive attempt to gain distance between body and sky. Teobaldo, the owner, let us in. He told us that just in that moment when Moisés and I had been so scared, the wires in his house made a loud buzzing sound, which he imitated.<sup>108</sup> I sat down on a bed, and Moisés and Teobaldo sat on wooden crates. Together we watched the storm through the house’s open door. My breathing was still fast, and I felt my heart still racing. Moisés said that his was too.

This was an early close call with lightning for me out on the Altiplano. There were to be many more, but this experience was one of the first to push me to explore the bodily intimacy that people share with the atmosphere and sky in the course of their day-to-day lives, especially during thunderstorms. For most people of El Choro, there was no way to avoid exposure to the

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<sup>108</sup> This buzzing, or at times humming, sound in metal objects is a frequently reported effect of close lightning strikes and is sometimes a prelude to a strike.

elements. Life is lived mostly outside. In the summer, this meant that during times of heavy rain, hail, and even lightning, it was difficult to make a quick escape, for work had to be done, sheep had to be tended, fields had to be plowed. For instance, even as Moisés and I made our delayed yet frantic escape from the field to a small house that provided no genuine safety from lightning,<sup>109</sup> Eduardo continued plowing, finishing the field as rain drops and lightning bolts fell around him. Another tractor operator, on a machine that did not even have a basic cover, also kept working through the storm in a nearby field. Over the weeks and months that followed, I spoke with farmers and herders in El Choro and it became clear that their engagement with the potential threat posed by lightning was an important part of their experience of place and the atmosphere. In fact, during my fieldwork, as I discuss later, one person was killed by lightning. Additionally, it soon became clear that lightning bolts regularly disrupted the local infrastructure, especially when they struck and destroyed the wooden poles that connect the village to the regional grid.

In this chapter, I will trace some of the ways that El Choro's farmers and herders experience their bodies' openness to the vast Altiplano sky through their exposure to lightning. I examine how local experiences of the atmosphere are embodied in the fear of lightning strikes. Much like mud, as discussed in the previous chapter, lightning and other extreme elements of weather in the Altiplano preceded climate change. But El Choro's residents see storms as stronger than before and the electrification of the sky as intensifying over previous years. What does it mean for local people, then, to have their bodies exposed to the atmosphere as the climate

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<sup>109</sup> A small house with no grounded wiring or plumbing, isolated out on the flat plain with nothing taller around, provides no safety from lightning. The psychological benefit of being indoors during the storm, however, is immense, and I experienced this even after I later learned that lightning can reach people through a thatch roof. And, of course, the house provides shelter from rainfall.

changes? And what does it mean for local politics when a community's key infrastructure, such as the power grid, is also open and exposed to the atmosphere? I will explore this in more detail, focusing on several relationships that develop with lightning: first, the potentially fatal experience of an actual meeting of lightning and body, the aftermath of which I documented during my fieldwork; second, the ripples that pulsed through the community and its politics when, time and time again, lightning strikes caused the local electrical grid to reveal its own frailty; and third, the embodied nervousness and fear that arises from exposure to storms and the ways that people respond to and try to manage these fears.

To begin, I will briefly review some the ways that lightning can be known: what is lightning from a meteorological point of view? What do we know about lightning from the history of the high Andes? And what happens when lightning and the human body meet?

### **6.1 “Lightning didn’t used to scare me...”**

One night in October 2014, waiting for a meeting to start, I talked with an elderly, lifelong resident of El Choro named Aurelio. He asked me about my work; as soon as I mentioned that I was researching climate change, he said, “Climate change is fucked up! There are lots of thunderbolts now!” This piqued my interest: “Really?” I asked. “More than there were before?” “Before there weren’t any!” Aurelio replied. His comment was a bit of an exaggeration that probably reflected the intensification of lightning storms that many residents of El Choro described to me, part of the broader trend of the concentration of rainfall into a shorter and

shorter period of time. Aurelio went on: “Lightning didn’t used to scare me, but now it does.”<sup>110</sup> He imitated a crashing noise with his voice. “Sssccchhh! It’s loud!” he said.

From Aurelio’s comments, we can start to pinpoint some of the different elements of lightning strikes as they are perceived locally: they are seen as frightening; loud; as probably increasing in frequency or at least intensity.<sup>111</sup> But while most people around the world have an idea of what lightning is, and have some experience with it, perhaps not everyone experiences its different elements as intimately as people in places like El Choro, where farmers and herders live so close to lightning’s explosive power.<sup>112</sup>

First, it is important to understand what a lightning strike entails. In most cases, thunderstorms originate in cumulonimbus clouds, white towers in the sky that form due to quickly rising pockets of warm, moist air (Rakov and Uman 2003, 67). Electrical polarization between the top and bottom of the cloud likely<sup>113</sup> develops as precipitation particles and small ice crystals in the cloud collide with each other in the upwelling air and develop a negative or positive charge, depending on the temperature (Rakov and Uman 2003, 86). This leads to a thundercloud that is positively charged at the top, negatively charged in the middle and toward

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<sup>110</sup> The word “scare” appears frequently in this chapter in the words of my interlocutors. In all cases it appears as a translation of the Spanish verb “asustar/asustarse” or the Spanish noun “susto.” People in El Choro frequently used these words in their conversations with me to refer to their emotions and experiences surrounding lightning.

<sup>111</sup> The intensification of rainfall in the Altiplano into a shorter period of time each summer is well-documented – see Thibeault 2010; Seth et al. 2010; Valdivia et al. 2013. However, the relationship between climate change and the frequency of thunderstorms in the Altiplano is not clear in the climate change literature. In general, increased temperatures are associated with increased frequency of thunderstorms around the world, but thunderstorm frequency also seems to depend local conditions related to humidity and aerosol availability – see Price 2009b; Price 2009a; Williams 2005.

<sup>112</sup> This is not unique to Bolivia’s highlands. There are many other places around the world with high rates of lightning injuries and fatalities, such as parts of India that suffered 93 lightning-related deaths over two days in 2016 – see Doshi 2016.

<sup>113</sup> Rakov and Uman (2003) argue that this is the most likely mechanism for cloud electrification, but as with many other dimensions of the physics of lightning, there is a lot of uncertainty over how all of this happens.



the bottom, and in some cases with positive charge at the very bottom (Rakov and Uman 2003, 68). While a human standing on the ground cannot see the electromagnetic charge as it builds, the cumulonimbus thundercloud is a familiar sight to anyone in lightning country: standing from three to twenty kilometres tall, they often have flat tops, like an anvil, where the warm upwelling air hits the temperature inversion of the tropopause and begins to spread horizontally. The sight of such a cloud communicates that lightning is coming. Until a strike, however, the charge in the cloud is invisible to the human observer.

The moment that the charge itself manifests to a person on the ground is that sequence of events called lightning, usually referred to by Chorenos as a *rayo*, or lightning bolt, but also understood to be encompassed in the word *trueno*, or thunder, which people in El Choro often use to refer to a lightning strike itself or the phenomenon of lightning in general. And indeed, for close observers, the materialization of electrical charge in front of their eyes also invades their ears. Cloud-to-ground lightning (which, distinct from cloud-to-cloud lightning, is of most interest to us here, for reasons that should be clear through the chapter) is initiated when, as a result of mechanisms that are not well-understood, an electrical discharge called a step leader makes its way from the negatively charged cloud toward the positively charged ground (MacGorman and Rust 1998, 118; Rakov and Uman 2003, 108–11).<sup>114</sup> As the step leader descends, the positively charged electric field on the ground increases until it sends upward-connecting leaders, often from the top of the tallest nearby object, to meet it. The two connect above the Earth's surface,

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<sup>114</sup> The description of cloud-to-ground lightning that I give here is somewhat simplified, necessarily abbreviated but also because it focuses only on a certain type of lightning discharge, the most common, known as a downward negative discharge to ground. Other types, all less common, involve a positive discharge downward to ground or positive or negative discharges upward from the ground. See Rakov and Uman 2003 for detailed explanations of all of these different types.

establishing the leader channel and giving a complete pathway to neutralize the cloud's negative charge to the ground in the form of the return stroke (Rakov and Uman 2003, 111). This return stroke is the explosive power that the ground observer sees and hears as a lightning strike: moving at one-third to one-half the speed of light, the return stroke conducts 30 kiloamperes of electricity and heats the lightning channel to temperatures over 30,000 Kelvin (Rakov and Uman 2003, 111). Thus, this rapid expansion generates a sonic wave, roaring and radiating outward at a speed of 340 metres per second, experienced by our observer on the ground as thunder and audible up to about 25 kilometres away (Rakov and Uman 2003, 374–75). The lag between thunder and lightning allows the observer to count the time between flash and thunder and determine the rough distance to the strike, 340 metres for every one second of delay between sight and sound.

The observer may be well-advised to make that count to determine if she or he is at risk from a strike. Belying the common comparison between lightning strikes and rare events that I often hear in North America (*e.g.*, “You are more likely to be struck by lightning than to win the lottery”)<sup>115</sup>, farmers and herders in a place like the Altiplano are aware that injuries and fatalities from lightning strikes occur around the region every year.<sup>116</sup> In general, lightning fatality and injury rates decrease in large urban centres, where much of the population works indoors. Still, lightning researcher Ronald Holle (2010) estimates that there are 24,000 deaths and 240,000

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<sup>115</sup> This does not mean that people in North America do not fear lightning. Parts of Florida, for example, have a relatively high rate of strikes and injuries (Adekoya and Nolte 2005). In the western United States, where I am originally from, people in rural areas fear lightning strikes a great deal during certain times of the year due to one of the most destructive capacities that lightning carries: the power to ignite forest fires.

<sup>116</sup> There are no statistics available for the Bolivian Altiplano in terms of how many lightning strikes and deaths there are each year. In my research I have examined numerous press accounts of lightning strike injuries and deaths around Bolivia, but many such incident are not covered in the press. Illustrating this, the lightning death in El Choro in 2014, which I discuss later in the chapter, never made the news.

injuries from lightning worldwide each year. These numbers illustrate a fact that anyone who has witnessed the violence of lightning up-close may not expect: the vast majority of strike victims survive. Victims of lightning strikes may suffer injuries related to blunt trauma, burns, memory loss, vision and hearing damage, nerve and brain damage, and cardiopulmonary arrest (Rakov and Uman 2003, 646–47). However, the ability for some victims to make seemingly spontaneous recoveries from a strike, or for quick intervention through cardiopulmonary resuscitation (CPR) to restart a victim’s heart, makes lightning what the physician Helen B. Taussig calls “a highly reversible death” (1969, 306). This is due in part to the fact that in cases where a lightning strike instigates cardiac arrest, if the heart starts again, whether on its own or through CPR, it will have a normal rhythm and will be able to effectively pump blood immediately. This contrasts sharply with other forms of high voltage shock, such as from power lines, that cause fibrillation, meaning that medical intervention (*i.e.*, shock applied with a defibrillator) is necessary to restore normal rhythm (Taussig 1969, 310). As I discuss later, I believe that the seemingly spontaneous resurrection of some victims from lightning strikes may inform one of the stories I encountered in El Choro about these occurrences.

Lightning is powerful, loud, and sometimes deadly. But these are not the only elements that inform the experiences, beliefs, and mythologies around lightning that have developed in the Andes over the centuries. In the days of the Incas, which incorporated much of Bolivia’s Altiplano from the late 15<sup>th</sup> century until Spanish invaders finished their destruction of the empire in 1533, lightning was given the name *Illapa* and worshipped alongside other atmospheric and astronomic bodies such as rainbows, the sun, and the moon (Staller and Stross 2013, 22, 28). *Illapa* was associated with fertility during the planting season, and annual rites, including human sacrifices, were performed to supplicate *Illapa* to send abundant rain for the

crops (Gade 1983, 775–76). Sites of lightning strikes, especially boulders that had been cleft in two by a bolt, were revered as *huacas*, or sacred places where Inca religious practitioners carried out rituals (Gade 1983, 776; Staller and Stross 2013, 45–46). Many such sites are still regarded with significance around the Altiplano today. Later, through their invasion, the Spanish brought their association between lightning and the Catholic saint Santiago to the Andes, and gradually highland indigenous peoples fused the figures of Santiago and Illapa together (Gade 1983, 778–79). Despite Spanish efforts to extirpate such beliefs during the late colonial period, Santiago is still revered in many towns in the Bolivian Altiplano, reflecting, as Gade writes, that “Lightning is more revered on the high plateau (of Bolivia) than elsewhere” (Gade 1983, 780). In more recent times, Gade notes that in some years “lightning is a veritable scourge to inhabitants” in highland Andean villages (1983, 772). As an example of this “scourge,” Gade reports on his analysis of death registers from the Bolivian Altiplano town of Patacamaya (approximately 150 kilometres northwest of El Choro), which showed that between 1900 and 1940, in any given year one to three percent of recorded deaths in the village were from lightning strikes. Gade notes that this count is probably low, as many deaths were never officially recorded (1983, 772).

To invoke lightning in the Altiplano, then, is to touch on different elements of material phenomena that evince relationships between bodies and sky: dark clouds, bright sights and explosive sounds, the potential for death and injury, the fertility of the rainy season. Altogether, these relationships between bodies and lightning also raise questions about the body in relation to the atmosphere. What does it mean to be a body living under the open sky? What does it *feel* like to live with this danger? I learned more about lightning and its deadly power through my own experiences with it and through conversations with people around El Choro.

## 6.2 Una Muerte Instantánea

The morning after a heavy October rainstorm in 2014, I was filtering and bottling rainwater that I had collected in buckets. Rufina, a local indigenous leader and also my landlady, came to my open door. “It has rained a lot,” she said. “You must grab water.” I told her I had collected all that I could during the night’s rain. “Was it a powerful storm?” she asked. “Because today there is a burial. They say he died in the storm. Was it yesterday? The day before yesterday?” Without waiting for an answer, she turned away and walked back toward the front house, but I followed her, asking, “Did lightning strike someone?” She turned around. “Yes,” she said, and she illustrated with hand gestures: “It entered here,” she said, raising her hand and moving it down, flat-palmed, onto the top of her head, “and it exited at his knee,” which she showed by moving her hand down onto her knee and raising it outward from her kneecap. “It was like fire. It burned him,” she said. “Was he out with sheep?” I asked, still not sure who she was talking about, although I later confirmed the victim was a local farmer named Benjamín, someone with whom I had not been acquainted. “Yes,” Rufina said, “his wife was with him, just next to him. He was standing. They say you shouldn’t stand because you’re like a *palo*.” *Palo* means, literally, stick, but in this case, she probably referred to the thin wooden poles that hold cables connecting individual homes to the power grid. I had seen poles like this that had been shattered by lightning. To stand straight in the storm, in other words, invited the same fate.

Over the hours and days that followed I gathered more details about Benjamín’s death. Moisés, the storeowner and farmer with whom I had shared the earlier lightning experience, and Lucas, Rufina’s husband (like her, also an indigenous authority), gave similar accounts to Rufina’s, even using hand gestures to illustrate where they said the lightning bolt entered Benjamín’s head and where it exited through his knee. But it was Eduardo who delivered the

most dramatic version, about a week after the tragedy. We had gone out into the countryside to track down a missing pig and found her hunkered down in a nest with a litter of 11 newborn piglets. We moved piglets and mother alike to a small, conical adobe shelter that would serve as a pig barn, and then we took a break in Eduardo's house. When we heard distant thunder, we stepped outside to see where the storm was. I told Eduardo that lightning still scared me, especially considering the tragedy that just happened with Benjamín. "Yes," Eduardo said, "What a shame." I gestured toward the northeast and said, "It happened more that way, right?" "No," Eduardo said, "It happened over there." He gestured due east, directing my attention to a power pole and a house just beyond it, a few kilometres from us. "He died in that house." I asked if Benjamín had been taken there after he was struck, and Eduardo said, "No, he was just outside of that house, pasturing sheep, when the lightning struck him." I asked, "His wife was with him, right?" "Yes," Eduardo said, "she was standing about this close to him" – with his hands he indicated where he was standing in relation to me, about 2 metres away. "And she was fine?" I asked. "Yes, she was *sana*" Eduardo said, "safe, just fine. She had said, 'Let's go inside, the lightning is getting close.' And he said, 'What is it going to do to me? If it is going to kill me, then let it kill me!' It was right then that the lightning bolt struck him and he fell dead."

Eduardo's comments, based on second hand accounts (he was not an eyewitness; I was not able to speak with Benjamín's wife about what happened) indicated that a legend of sorts was building up around Benjamín's death, one portraying him as defiant of the sky's power and paying the ultimate price for it. In Eduardo's telling, Benjamín refused to heed advice to get out of the storm, but the dialogue attributed to the scene by Eduardo also implies a sense of resignation underneath that defiance: for when lightning materializes from the sky, what can a

person do? If Benjamín's final moment included submitting himself to the sky in this way, maybe this did not reflect defiance so much as acceptance.

Through discussing what happened to Benjamín, I learned that there were other local legends about lightning and its material power. Two days after first hearing about Benjamín's death, I rode my bicycle to Santa Maria, 11 kilometres southeast of El Choro, for a meeting. My early arrival gave me the opportunity to chat with Darío, a gregarious farmer who knew I always had a bag of coca leaves in my backpack and asked for a handful every time he saw me. Baudelio, a soft-spoken man, joined us about twenty minutes into our conversation. Our talk wandered; without prompting from me, they began to discuss Benjamín's death with each other. Baudelio asked Darío if Benjamín had a cellphone with him when he was struck. "Yes," Darío replied, "he had it hanging around his neck," and he imitated holding a cellphone hanging on a lanyard. Baudelio said, "You have to turn the phone off and throw it away, because it attracts lightning." Then Darío said, "I'm glad that he died in *that* way. It was instantaneous death." "Without any suffering," I said. "Yes," Darío replied, "without any suffering." Darío brought his hand down on top of his head, saying, "It went in his head, and it must have gone out the sole of his foot." Darío held his foot off the ground and pointed at it. "He fell instantly," he said. "Not everyone dies such an instant death, without suffering. That is the way that I would want to die, wouldn't you?" "Yes," I replied. To provide contrast to such a quick, presumably painless death, Darío mentioned a recent case in the community of someone who died after a long illness. I wanted to know if there were more cases of lightning strikes, so I prompted him to speak more about it. "But some people survive lightning, don't they?" I asked. "Yes," Darío said, "*cuando nadie ve.*" This statement startled me. What did Darío mean by "when nobody sees"? I asked him to clarify: "When no one sees them?" "Yes," Darío replied, "when no one is there to see,

and someone is struck by lightning, they can survive.” I pressed him for further explanation. He continued: “When there is no one else there to see, a bolt of lightning strikes a person, and it takes their body apart.” He gestured around his body and moved his hands out to illustrate this, adding, “But then a second bolt of lightning strikes the person, and this puts the body back together again.<sup>117</sup> The person stands up and is alive again, but then he vomits grass.” With that he bent over a little bit to imitate the action of vomiting and pointed to grass growing in the plaza. He continued: “How did the grass get in there? The lightning must have put it in there. The person did not eat it!” He laughed. “No,” I replied, also laughing, “they don’t eat like that, like a sheep.” Then Baudelio interjected: “This happened to Roque’s mother, didn’t it?” “Yes,” Darío said. “Only the person who experiences this can tell about it, because no one else sees.” Our conversation about lightning wrapped up a few minutes later, when someone pointed to the blue sky overhead and, referring to the weather and the intense storms of the last few days, said, “It has calmed down.” “Yes,” Darío replied, to some laughter, “it got scared. ‘I killed someone, I’m getting out of here!’”

What can we make of the accounts of Benjamín’s tragic death? First is the focus on the body: death occurred at the intersection of lightning, body, and earth, and this intersection was clearly portrayed by all of my interlocutors, including gestures and descriptions focused around specific body parts that channeled the strike. Benjamín’s body posture and position put him in a perilous relationship with the sky: he stood straight in the storm, like a pole, ignored his wife’s advice to seek shelter, and kept his cellphone with him rather than casting it away. In other

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<sup>117</sup> Gade (1983, 772) briefly relates a tale about a man in Cuzco Department, Peru, who struck down by lightning but then resuscitated by a second strike.



words, the stories trace a spatiality of lightning that encompasses relationships between body, earth, and open sky. These stories simultaneously present scales of risk and a sense of inevitability. The uncertainty when you both can and cannot prevent your own death by lightning resides in part in the lightning bolt's stealth materiality, its now-you-see-it, now-you-don't quality that makes a strike both avoidable and inevitable. It is an apparition, a haunting of the open sky where human beings are bound to life in the atmosphere but in doing so are also bound to atmospheric terror.

This sense of haunting shows through Darío's story, which speaks to another act of embodiment, a connection made between the sky, the earth, and the body, wherein life can be given again to the lightning strike victim at just the right time, through a second strike, "as long as nobody sees." The idea of the second strike bringing the victim back to life may reflect the fact that, as discussed above, some lightning strike victims seem to make a spontaneous recovery after losing consciousness or even going into cardiac arrest. In another way, Darío's story about a person's belly filling up with grass is imitative of the animals whom herders stay out in the lightning to protect in the first place. The story reflects how earth, human, and animal are mutually bound under the open sky, with lightning as a leveler that puts animal and human bodies at risk. If, as Ingold (2007) argues, the atmosphere gives the possibility of life, it also gives the possibility of death.

Lightning, however, does not only affect people's lives through its deadly material power. For the people of El Choro, lightning was also highly disruptive, and even loomed over local political debates, when it connected with the municipality's fragile power grid.

### 6.3 Hopes and Fears under the Open Sky

During the rainy season of 2013-2014, the village of El Choro and its environs lost power every couple of days. Every time I heard thunder, I prepared myself for a cut, and like most other people I kept candles around my room at the ready when I was home and a flashlight with me when I went out at night. While strong winds occasionally knocked out the power, the most common correlation, by far, was with lightning strikes in the area. In the flat plain of the Altiplano power lines are particularly vulnerable to strikes. While they are not tall enough to initiate their own strikes, like a skyscraper or radio tower can,<sup>118</sup> power poles and lines in flat, open topography are apt to be hit when there are lightning strikes in the area due to their height (Rakov and Uman 2003, 617). The damage of such strikes ranged widely. On one occasion I saw a power pole north of El Choro that had been completely shattered by a direct strike. Frequently, though, strikes blew one or more of the fuses, called cut-out fuses, which serve to protect transformers from power surges. Replacing the fuse usually had to be done by Hugo, the municipal electrician. This was a complicated job for several reasons. First, Hugo, of course, would be at great risk if he headed out and tried to fix the lines in the dark or while the storm was still raging. So if power cut in the afternoon, he usually did not attempt a repair until the next day. Second, once it was clear enough for him to go out, his primary transportation was a motorcycle, the inexpensive and simple model with poor ground clearance and light tires that most motorcyclists in El Choro had. These did not handle mud well, and during the rainy season, it was very difficult for Hugo to reach the power poles, even to perform a simple fix like

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<sup>118</sup> A structure over 100 metres in height can initiate upward lightning strikes, which would not have occurred otherwise if the object were not present – see Chapter 6 of Rakov and Uman 2003. However, power poles and lines are not tall enough and merely have a tendency to be struck first if lightning was going to strike in the vicinity anyway.

replacing a fuse, because the lines did not follow any roads. Rather, they took the shortest possible path across the countryside, which in some places put them several kilometres away from gravel roads. Beyond mud, cross-country travel was complicated by irrigation canals with poor or non-existent bridges. Add to this the fact that Hugo, like most people in El Choro, often traveled to Oruro on overnight trips. The result was that most power outages lasted at least 24 hours but some stretched into several days.<sup>119</sup>

As the rainy season went on, then, frustration over these power outages built throughout the municipality. Rainerio, El Choro's *corregidor* for 2014, expressed the community's frustration to the mayor at a municipal-wide budget meeting in El Choro. Rainerio said, "The electrification is terrible. One night it's there, another night it's gone. In any minute it can be cut. We ask for the conversion from single-phase to three-phase." Rainerio's use of the word *electrificación* encompassed not only electricity as supplied but also the ongoing maintenance of old lines and construction of new lines: electricity as process rather than only as product. This related to his last point, in which Rainerio referred to a source of perpetual frustration for Choreños: a long-delayed project, first planned in 2005 and now nine years late, to replace most of the electrical grid feeding into the municipality with new poles and lines bearing three-phase rather than one-phase power. Three-phase power is more efficient, more potent and allows machinery to do more with less power and less conductive material.<sup>120</sup> Beyond replacing the aged power grid, which the mayor of El Choro said was reaching the end of its lifespan, three-

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<sup>119</sup> The longest power outage I ever experienced in El Choro was when I lived there in 2007, when the power was out for over six weeks. This was due, in part, to an injury suffered by the man there who was charged during that time period with repairing the lines. As he recovered from his injury in Oruro, no one else was willing or available to make necessary repairs following a lightning strike, and the village remained dark and without water.

<sup>120</sup> For a simple, short overview of the difference between one-phase and three-phase, see <http://electrical-engineering-portal.com/single-phase-power-vs-three-phase-power>

phase power, which some people in El Choro referred to as industrial power, was better suited than one-phase to operate machinery and water pumps. Many people saw it as essential for El Choro's development and saw the delay in implementation as impeding El Choro's progress. People also blamed the frequent power cuts for harming health and education in El Choro, interrupting computer classes at the school and keeping the health centre and its patients in the dark. While I attended some community meetings lit by candlelight, power cuts often diminished attendance or led to outright cancellation of scheduled events.

Widespread concern over lack of progress on the three-phase power conversion project led to its incorporation into the demands made by blockaders during the March 2014 road blockade recounted in Chapter 5. While the project's inclusion in that blockade was a bit tangential (the main focus was on preventing damage to the road by a highway contractor's dump trucks, and the highway contractor had nothing to do with the electricity project), nevertheless blockaders helped to draw attention to the issue when representatives from the Oruro departmental government arrived to negotiate an end to the blockade. Whether that made a direct impact or not, a few months later trucks started dropping new cement poles for the project into stacks along the new route. At the end of the month, the governor of Oruro, Santos Tito, visited El Choro for an elaborate event to officially launch the project, ceremonially breaking a bottle of champagne on a single new power pole just outside the village that had been hastily put up in time for that purpose. However, even as people were excited at the prospect of an electrical supply that was more powerful and more resilient against lightning and wind, Eduardo added a sobering perspective that morning, as a group of us chatted prior to the ceremony about the advantages of the new system. After someone mentioned that the new cement poles would not rot as quickly as the old wooden ones, Eduardo said that they could still be damaged by salty

water underground, which was pervasive in El Choro's lands. "*Sal come el cemento,*" he said. Salt eats cement. The fragility of the power infrastructure would not truly be overcome. Power poles were destined to be pressed between earth and sky.



**Figure 11: Indigenous leaders welcome Santos Tito, the governor of Oruro, at the ceremonial launch of the project to replace El Choro's fragile power grid.**

In an article on the anthropology of electricity, Akhil Gupta (2015) reflects on an idea first elaborated by Susan Leigh Star (1999), writing, “When they are functioning as intended, infrastructures tend to disappear into the background: they become invisible” (2015, 557).<sup>121</sup> At

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<sup>121</sup> See Larkin 2013 for an overview of many dissenting views on infrastructure in relation to visibility.

first glance, the political debate over the electrical grid in El Choro seems to reinforce this argument: Choreños were motivated to speak out on this subject, in part, by frequent breakdowns to the grid, background made foreground by dark lightbulbs and inert television sets. But there were many other reasons that the materiality of the grid in El Choro could not be ignored. For one, even when it was functioning, there was much discussion about electricity in El Choro because the Bolivian national government's rural electrification efforts were continuing to reach out to far-flung homesteads. These projects moved in fits and starts, and some people told me that they didn't see much point in installing so many kilometres of line just to connect what were for many people part-time dwellings. As Jacobo, an elderly farmer who had lands in areas undergoing electrification, told me, "No one lives in those communities full-time. People don't really need power out there." Still, many other people with houses in these dispersed unlit communities clamored to be added to these projects. Thus, electricity remained very much in public consciousness through these efforts and debates around expanding people's connection to the grid. But there was something else for the grid to contend with that made it visible as infrastructure, whether functioning or not, and that was the materiality of electricity itself. Contrary to Akhil Gupta's assertions (2015, 556) that "there is no sensual way to experience electricity" because it is "immaterial," and that electricity has "no existence in nature," lightning constantly manifested the materiality and ubiquity of electricity to the people of El Choro, making what was usually invisible to the naked eye visible, exemplifying a world of "energetic entanglements" where electricity is not only confined in wires (Anusas and Ingold 2015). While lightning strikes exposed the fragility of El Choro's power grid, shattered poles on the Altiplano also served as a reminder that even with improvements, the electrical grid is always vulnerable to atmospheric forces. Electrical infrastructure in El Choro, then, always carries with it the

possibility of its own failure, which no one could ignore, even when it was functioning properly. At the same time, the upgrade of the system to three-phase power, long delayed but finally underway, gave new prospects for development in El Choro. At community meetings, I heard hopes that three-phase power could bring an abandoned milk pasteurization plant online and allow for the reestablishment of potable water in the village with a new three-phase pump (to be installed wherever a reliable groundwater source was found). El Choro's power grid encompassed the related hopes and fears of the populace, hopes and fears that can be located, in part, within material relations in the open sky.

We have seen, then, that lightning enters peoples' daily lives through its material power that is both deadly, as in the case of Benjamín's tragic death, and disruptive to daily lives in ways that could enter local politics, such as in the public discontent over the delayed upgrade to El Choro's power grid. In more mundane ways, however, as the following section will show, lightning led to a variety of reactions, reflections, coping mechanisms, and avoidance strategies on the part of people in El Choro.

#### **6.4 Scream and Turn Off Your Cellphones**

In the days and weeks following the close encounter with lightning alongside Eduardo and Moisés recounted at the beginning of this chapter, a new conversation about how people coped with these kinds of experiences in El Choro opened up for me. This was in large part thanks to Eduardo, who enjoyed recounting the story to other people, always emphasizing with a laugh that "Clayton was so scared!" I laughed along; I find that humour can be one of the best ways to nullify fear, at least for a moment. But Eduardo's mirth about the event also led to other people opening up about lightning, and I realized how much life during the rainy season is tinted

for many people by such close encounters, or at least by fear that such an encounter could happen. But while in some ways this fear was similar to the fear of past and future floods that I discussed in Chapter 4, in other ways the fear of lightning was much more visceral. Unlike floods, which could be anticipated and even partly controlled, at least to an extent and with great struggle, lightning was out of control, difficult to predict, and often more deadly.

This emerged in conversations that I had about lightning the day after the encounter in Moisés's field, all of which were spurred by Eduardo's teasing. That morning I was chatting with Eduardo and Roque on a street corner in El Choro about how we could get Eduardo's car unstuck from a muddy road east of the village, where he and I had abandoned it the night before (even beyond the lightning strike, the previous day had been eventful for us, ending with a 5-kilometre hike in the rainy darkness after his car became hopelessly stuck during the prolonged rainstorm that followed the afternoon lightning). Hugo, the municipality's young (which in the rural area meant around my age) electrician, joined us to talk over solutions to the stuck car. As our conversation drifted, Eduardo told Roque and Hugo about the lightning strike the day before and how it had scared me. Roque and Hugo chuckled, and Hugo commented, "Clayton must just not be accustomed to the lightning yet." But then Roque related a brief story: some years ago there had been a lightning storm that terrified El Choro. For 20 or 30 minutes, he told us, lightning bolts struck right in the village. Roque said that when it was over, two people had died, a man and a woman. Later in the afternoon, after the vehicle problems had been resolved, Eduardo and I went to Pánfilo the baker's house for a snack of cheese empanadas and Coca Cola. When we arrived there we encountered some former residents of El Choro who were long-time friends of Eduardo's, a middle-aged couple, Jacinto and Catalina, along with their children. They were visiting from Buenos Aires, where they had moved from El Choro 30 years prior. We sat



together in Pánfilo's front parlor and shared beers and conversation. After a while Eduardo told them the story about the lightning strike the previous day and how it had scared me so much. But then Eduardo added some details that he had not mentioned before: he told us that he found out that this strike had hit the house of a woman who lived close to where we were working. He said that her two children were in the house and that the strike came through the open door, but no one was hurt. He went on to say that there was a lightning storm in the last year that killed a young woman in the countryside just outside of El Choro; her body was discovered naked, her clothes burned off by the strike. Upon hearing these stories, Jacinto and Catalina shared that the day before, they had been driving in the countryside and had been caught in intense lightning, possibly from the same storm as us, and it had scared them. Catalina told us that four strikes hit very close to them while they were driving, and they were so frightened that they screamed out loud and tried to drive away as fast as they could. Catalina said, "If you scream when the lightning is striking close then it will not hit you." She also told me, "Since you had a scare with lightning yesterday, you need to go back to the place where you were scared and eat some of the earth. This will prevent you from getting sick." While we were doing all of this talking, a huge storm opened up, and heavy rain erupted, with loud thunder crashing overhead.

Screaming was not the only possible response to a close lightning storm. The openness of the sky, and the inevitability of lightning, could also impart a sense of resignation, or helplessness, in the face of the atmosphere's power, but there were opportunities for humour. A couple of days after the lightning strike out on Moisés's field, Eduardo and I attended a *novena*, a mass and wake held nine days after a death, for Ceferino, a man who had died, after a long illness, at the age of 65 in his home in the countryside south of El Choro. The *novena* took place in that same home, which we reached by driving Eduardo's tractor as close as possible and then

walking the last half kilometre over canals and through muddy fields. In the small adobe house, we joined the black-clad mourners for conversation and lunch. A few minutes after we finished our plates of roast mutton, beets, carrots, tomatoes, onions, and potatoes, the sky burst open outside, driving the women who had been washing dishes in the yard back into the house. Hailstones started bouncing in the doorway, left open because it was the only source of light in the windowless, non-electrified house, and rolling across the floor. Thunder crashed overhead. One of the mourners looked out the door at the storm and said, “*Se ha enojado*” (It’s gotten angry). Eduardo said that Ceferino was crying because he did not want to be dead. He turned to me and said, “You’re not scared of the rain anymore?” Then he told the story of our encounter with lightning once again. Despite the solemnity of the *novena*, the atmosphere permitted joking, and many people laughed at the story. Having heard Eduardo tell it several times, I became more engaged this time in drawing out the humour of what had happened to us. When Eduardo said, “Clayton was fearful, and he was even lying on the ground when the lightning got closer,” I replied, “I was scared because lightning always seeks out the tallest thing around, and I am usually the tallest thing when I am outside.” People laughed. One person commented, “Yes, it strikes power poles and makes them fall.” Eduardo replied to more laughter that I could be his “life insurance” and that he would stay close to me so that the lightning would strike me rather than him. However, when Eduardo told everyone that the bolt had struck a nearby house with children inside, there was some silence around the room. Someone mentioned that another house nearby had recently been struck. There was a resigned tone to some of the comments – one man said, “If lightning strikes you, then it’s just your time, there’s nothing you can do about it.” Another man added, “Yes, but it’s very serious when that happens.” As we talked the storm continued to rage outside. Through the open door I could see roosters and chickens walking in

the rain, standing up as straight as possible to minimize their bodies' exposure to the heavy drops and hailstones. Soaked dogs kept peering their heads in the door, and one or two tried to enter but were shooed back out into the rain. We sat in the porous shelter of the house, hailstones bouncing across the floor, watching the yard in front of it fill with water. Once the lightning had passed, Eduardo and I hurried back to his tractor and returned to the village.

Despite the resignation transmitted in that conversation by some local men, I soon learned that many people did see ways to protect themselves from the violence of the sky. On a morning in late March, 2014, I had a 17-kilometre bike ride from El Choro to a site where members of one of the local canal zones planned to dredge out a canal junction by hand. The weather forecast that morning had called for another day of thunderstorms, but when I arrived at the worksite it was still dry. Soon Guillermo and Cleto arrived too. Guillermo greeted me and said, "So you rode your bike up here?" I replied that I had and that I hoped that there would not be any rain for the ride back. "Yes," said Guillermo, "and that there isn't any lightning. It is the lightning that is dangerous. Lightning strikes scare me." He continued: "Just yesterday during that storm they were scaring me while I was out in my field. Lightning was striking very close to me." Then Guillermo asked me, "Do people get killed by lightning in Canada?" I replied that they did but that it was rare. To that he said, "They get killed here. In fact, in my home town, two families were killed this year, whole families." He was referring to deaths that took place in the nearby municipality of Toledo, where he was born, and where local media had reported that year that several lightning deaths had occurred.<sup>122</sup> Guillermo continued: "Lightning scares me because

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<sup>122</sup> See *La Patria* 2014b, which discusses the lightning-caused deaths of a mother and her two daughters while they were out pasturing sheep. I was unable to find any reporting on the second set of deaths to which Guillermo referred. As mentioned elsewhere, not all such deaths are reported in the local newspaper in Oruro.

I don't want to die! I had a friend who was killed right over there by lightning" – he pointed to the southwest – "He had just talked to his daughter in Cochabamba on the phone. He said that he was coming in from his fields. His land is about as far from the village as we are from Crucero Belén." He gestured toward the village of Crucero Belén to the east of us, about four kilometres away. "Two weeks later," he continued, "I was talking to a woman in the village, and she said, your friend was killed by lightning. They found him out there. He had his cellphone and his radio." Upon hearing that, Cleto, who had been silent up to that point, said, "That's dangerous, you have to turn off your cellphone and radio." I said, "What's really dangerous is being out with your sheep and cows, isn't it? Because you can't abandon your animals?" "Yes," Guillermo said, nodding.

Exposure to the sky, then, such as working in the fields, tending animals, or riding a bicycle from the countryside to the village, can leave a person vulnerable to lightning. This was reflected in Guillermo's fear. But an additional hazardous activity was to possess a cellphone and a radio out under the open sky, because these were perceived to attract lightning. Guillermo and Cleto's comments on the matter were the first I had heard in El Choro, but later that afternoon the idea came up again at a moment when lightning was no longer merely a topic of conversation but rather was striking on all sides of us. Our work in the canals had been interrupted by close strikes and the onset of heavy rain. We took shelter in Marcio's passenger van<sup>123</sup> that was parked up on the road. It filled with the ten workers from the canal, but the van's sliding door was open until a young man shouted, "Close that door! *Corriente* (electrical current) can get in!" and

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<sup>123</sup> A fully enclosed vehicle is one of the safest places to be in the event of a lightning strike, because the metal frame and body direct the energy of a strike around bodies inside and to the ground. For once during my fieldwork I had found a safe shelter.

someone shut it. From the seats of the van we could see lightning bolts striking the ground to the east and the north of us, with minimal delay before the thunder. Everyone seemed calm, although a particularly close strike, a bright bolt instantly accompanied by a loud roar, elicited a collective “whoa!” I was sitting next to Lino, a middle-aged farmer with a nose made crooked by some long-past injury, and I could not help but notice that he had turned his cellphone off as soon as he sat down next to me. Shortly after that, when a bolt struck close by, he shouted, “Everyone turn off your cellphones!” At that, some of the men pulled their phones out to shut them off. I had already done so at the first sign of lightning.

According to lightning safety researchers, cellphones or radios do not attract lightning strikes.<sup>124</sup> But I think that turning off a cellphone could give a sense of control or protection in a situation that lacks either, especially when people feel that they have little choice over whether or not to be exposed to the storm. As a sheep herder named Ramona told me, as we chatted while watching a distant lightning storm, “It’s ugly to be out there. But you have to stay behind your animals, even if there is lightning.” In the absence of shelter, you want to give yourself every chance you can to make it through. With lightning exhibiting a capacity to materialize in a way that seemed otherwise random, to locate some of lightning’s powers in an object kept in the pocket like a cellphone, or hung around the shoulder like a radio, might bring at least a little of the fear from the sky to heel.

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<sup>124</sup> See <http://www.noaanews.noaa.gov/stories2006/s2645.htm>. NOAA advises on their lightning safety webpage that cell phones are safe to use and do not attract strikes, but hardwired telephones are hazardous because they can conduct the current from a lightning strike to the person holding the handset. See also <http://www.nws.noaa.gov/os/lightning/resources/lightning-safety.pdf> Note that the very existence of these bodies of information indicates that this belief in cellphones attracting lightning is not unique to Bolivia.

Indeed, these different coping mechanisms related to me by people like Catalina, Guillermo, and Cleto seemed to reflect the ambiguities that lie at the heart of lightning's apparitions. Such ambiguities include what Michael Taussig characterizes as its "miasmatic mix of invisibility and materiality" (2004, 231), and what Gordillo identifies as its "disruptive *and* affirmative discharge" (2014a, 189 emphasis in original). In other words, lightning enfolds these tensions that lie, in part, at the heart of its terror: that it encompasses both a temporary invisibility that is made momentarily, shockingly, and randomly visible – no one can see a lightning bolt until the milliseconds during which it exists, and thus it approaches with a certain degree of stealth – and a powerful, deadly materiality, attested to by the splintered power poles, burned houses, and even injured and dead human bodies that are left in its wake, even as its presence and illuminative power affirms the fertility and liveliness of the rainy season. What these accounts of people's encounters with lightning show is that in their embodied responses to lightning, many people engage in an effort to neutralize lightning's stealth and destructive power and, in some way, try to manage the terror and danger it causes. This might be through the reaction of Catalina's screaming: warding off lightning in the moment of its threat through an embodied response, both as reflex and as rational. Or her idea of eating earth from the spot of the strike, reflective of a popular local belief, suggested that the lightning strike was already embodied, in the form of looming sickness, and now the only antidote was further embodiment, this time of the earth, to ward off further harm. Or as Guillermo and Renato related, a lightning attractant – a potential closure of the electrical circuit linking earth and sky – could be neutralized by turning off a cellphone and not carrying a radio in stormy conditions. In these cases, new material relations are brought to bear to try and manage other disorderly material relations.

## 6.5 Conclusion: Atmospheric Tensions

The atmosphere creates the possibilities for life as we know it. But, as the experiences of people in El Choro illustrate, atmospheric phenomena such as lightning can also sow terror and even political discord through intersections with bodies and infrastructure. The openness of the sky and different bodies on the earth alike create pathways for fear, hope, life, and death, leading to affective tensions between them. We see this tension between life and death in the Inca figure of Illapa, a god of both lightning and agricultural fertility (Gade 1983, 775). This tension is captured again in the morning conversation I had with Rufina, listening to her recount the tragic story of Benjamín's death from lightning while I bottled badly needed rainwater that fell during that week's thunderstorms. And this tension is felt in the need for tractor operators, farmers, and herders to work in the fields while the storms rage around them, because fields need plowing and planting and sheep need tending, and these dangerous thunderstorms also deliver much needed rain in a land of frequent water scarcity.

This tense lightning-infused atmosphere, bringer of life and death, is beset by climate change. Many people in El Choro told me that they perceived the rainy seasons in recent years as intensifying, with more rain falling into a shorter period, and many reported that with this heavier rain came increased electrical storms. While it is difficult to measure exactly how climate change affects the intensity and frequency of lightning in a place like El Choro, nevertheless the air that vibrates with electricity for most of the summer is also charged with the anthropogenic carbon produced by the political economies of human past and present. No one breathes unaltered air or lives under an unaltered sky. In this way we see that global politics can materialize in the local in ways that we might not expect, such as refracted through lightning and

its effect on local infrastructure and bodies. Still, lightning moves through a multiplicity of bodies and relationships that are difficult to trace through their criss-crossing, multi-directional trajectories.

The lightning strike is a moment of bodily intimacy with the sky, whether the strike directly reaches us or not, as our hearts pound, as we scream, as we hurriedly turn off or toss away our cellphones. As climate change is refracted through the material assemblage of the atmosphere, even if it is through a complex and difficult to outline relationship, it too reaches our bodies in this intimate way. This suggests, then, one way that climate change is viscerally *felt*.



## Chapter 7: Climate of Uncertainty – Looking Toward the Future

On a cold morning in May 2014 I awoke on a straw mattress in the *quesarilla*, a room dedicated to cheese-making, of Fabián, a farmer and elected authority in the canton of Chaytavi, 11 kilometres northwest of the village of El Choro. The day before, I had arrived on my bicycle to help him construct a barn using materials provided by a government-sponsored sheep improvement project. The project had trucked in most of the materials for the barn's roof, and Fabián's contribution was to provide the locally available components: *tepes* (sod bricks) for the walls, roof insulation made of mud, dung, and straw, and labour. I joined Fabián, his two brothers, and his neighbour to finish the barn by building the top third of the walls and putting on the roof. Fabián had told me we would finish in a day, but it ended up taking three. This was no bother, however. I bundled myself into dusty wool blankets in his *quesarilla* at night and tried to learn everything I could during the day.

That morning, as Fabián delivered a breakfast of warm milk and *buñuelos* (fried dough), he also delivered the kind of surprise that will quickly wake up a sleepy anthropologist: "So you said the other day that you wanted to interview me, right Clayton?" He sat down on the straw mattress next to me. "Well? What do you want to know?" Over the next hour I listened intently as Fabián wove his family history together with that of Chaytavi and El Choro. In doing so, Fabián discussed some of the different trajectories that have met the people of El Choro in recent decades, illustrating how some of the issues that have been of great concern to me in this project, including climate change and out-migration from the countryside, were lived out before the present day.

He began by telling me how, during his grandparents' time<sup>125</sup>, Chaytavi was "a desert," and no one lived there. "Back then," Fabián said, "the vegetation was different than it is now. There were not many plants that were useful for livestock forage, and the *paja* (spiky straw-like plants usually knee to waist high) was taller than you." In fact, he explained, the *paja* plants were so tall that they would have obscured the view from his home to the village of Chaytavi, 500 metres to the south, and they even helped block the strong winds of the Altiplano. "During my grandparents' time," he went on, "people from Crucero Belén<sup>126</sup> looking for new lands settled in Chaytavi and established livestock herding here. Over time the vegetation changed to be more suitable for grazing." He went on: "In the 1960s and 1970s, the Catholic charity CARITAS<sup>127</sup> and other organizations introduced new forage crops as well as genetically improved breeds of sheep and cows, like Hampshire and Holstein." This was a big change from their *criollo*, or mixed, animals. These improvements came at a time when, he said, "the climate was much better, *el sol más agradable* (the sun more agreeable), for agriculture. But starting in the 1980s the climate began to change and the sun became stronger, burning everything more easily, and rainfall and freezes started happening out of season. The wind became stronger too and now is much worse than it used to be. Look at this area, it is completely flat, there is nothing to stop the wind as it runs across the land. The *paja* used to be tall enough to stop the wind, but it isn't anymore." Like many other people with whom I had spoken about these topics, Fabián saw such environmental changes as one reason for why people move out of the area and into the city now. But there was another important reason for why people left, which he explained was the nature

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<sup>125</sup> According to my own estimate based on Fabián's age of 59, this would have been around 80 or so years prior.

<sup>126</sup> Another village in the present-day municipality of El Choro; see Chapter 5.

<sup>127</sup> This organization carried out a lot of US-funded aid projects during this period of time; see Chapter 3.

of land inheritance and how it resulted in subdivided plots. “Part of the problem,” he said, “is that when children inherit land, it is divided up, so one piece of inherited land may go to six children, and then the piece that each one had is too small to do much with.” He continued to explain: “For example, this land we are on right now was my father’s, and it was split between me and my brother. So people can’t make a living in the *campo* because their land is too small. Also, production is dropping here. So it is harder to make a life in the *campo*.” Another change that had occurred, he told me, was that in the days of his grandparents, everyone in the area spoke Quechua. “But after the 1952 revolution, language began to become more *castellanizado* in Oruro department, with more people learning to speak Spanish, and Quechua and Aymara both developing into mixes with Spanish.” He said that during the time of his grandparents, people in the municipality of El Choro made all their own clothes, spinning and dying wool and weaving shirts, pants, skirts, and shawls. “Now clothes are machine-made and come from elsewhere,” he said. He concluded: “Now we don’t even know if we’re *originarios* (indigenous) like Evo (Morales, the president) says we are or if we’re *criollos* (of mixed ancestry, implying a stronger European influence) because we do not wear wool clothes made here anymore but rather machine-made clothes from elsewhere, and we do not speak pure Quechua anymore but rather Spanish.”

In Chapter 2, I discuss many of the different trajectories that came together in El Choro over time to form it as the broadly interconnected place that Choreños know today. Some of these different trajectories emerge once again in Fabián’s narrative. However, the question of interest for this chapter is what Fabián’s life and stories about the past suggest to us about El Choro’s future. The people of this village now live in an age that some scholars characterize as the *Anthropocene*: the time when humanity’s impact on the Earth is so singular, so massive, so

unprecedented, that we can consider humankind to be the dominant geological force on Earth (Waters et al. 2016).<sup>128</sup> Indeed, Fabián’s narrative points in this direction: as he told me, as early as the 1980s there were distinct changes in the Altiplano’s weather, unpredictability in precipitation and freezes started to intensify, and the sun was no longer as “agreeable” for agriculture as it used to be. Even before that, Chaytavi experienced changes in vegetation, landscape, and even weather through the introduction of livestock grazing – in a sense, humans were already a geological force. In the meantime, El Choro underwent other interconnected sociocultural processes – changes in language, clothing, and residency, among others – that leave Fabián questioning whether or not the people of the region should still think of themselves as *originarios*. But does this mean, then, that the people of El Choro face an inevitable future of decline and decay? After all, despite some of the pessimism reflected in Fabián’s narrative that morning, he also provided his own hopeful counterexample with what we had come together to do: he was building a barn, the first of two, sponsored by a government project to improve sheep production in El Choro and other places. He continued to invest in his life and livelihood in the countryside as part of broader efforts to improve the lives of people out there. This chapter will show, then, how stories like Fabián’s and others that I explore lead me to characterize the experience of environmental change in El Choro as an experience of uncertainty over the future: pushes and pulls, pressures and tensions, and confusions that at least complicate the narratives of declining lives in the countryside that have arisen in earlier chapters.

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<sup>128</sup> There is vigorous debate in the social sciences over the concept of the Anthropocene. Some scholars argue, for example, that defining the current era as the Anthropocene is too human-centric and that it ignores complex inter-species and inter-material relations (Haraway 2015; Moore 2015) and that it eclipses the possibility of reconceiving humanity’s relationship with other species and with the planet toward one that is cooperative and non-exploitative (Crist 2013).

In the pages ahead I will show how the uncertainties and confusions that come together in the era of climate change emerge in how people try to envision and build their futures in El Choro. First I will look at times when environmental issues are addressed in public events: what happens when people come together to debate their community's well-being and future during a time of environmental change? What kind of pictures of the environment emerge and how do these relate to conceptions of El Choro's future? Second, I will look at how some Choreños are building their futures out in the countryside with the encouragement of different government projects and the tensions raised over the visions for the future reflected in these actions. Although, as explored in earlier chapters, many people expressed pessimism to me about the future of El Choro, stating at times that it is no longer possible to make a living in the countryside, this chapter will emphasize the implicit cautions that I see emerging in Fabián's story. To explain: first, while Fabián did at times express pessimism for the future, he also, through his actions, expressed a certain hope, for he was, after all, building a barn for his sheep. His life, as it was, remained in the countryside, and he told me that he always saw it there. Second, Fabián's history of Chaytavi and the municipality of El Choro shows that, as explored in Chapter 2, people in the area have long dealt with change and indeed have long had an impact on their surroundings. This chapter, then, cannot start with the assumption that this current era of environmental change is wholly new or that it inevitably represents an existential threat to the lifeways and culture of the people of El Choro.<sup>129</sup> Rather, I show that, as climate change

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<sup>129</sup> In a landmark article on anthropology and climate change, Susan Crate (2008) suggests that climate change could profoundly change the lives of indigenous peoples and alienate them from their homes in ways similar to the displacements that different indigenous nations suffered under colonialism. While she makes a powerful and timely call for anthropologists to delve into these issues and seek ways to help communities as they face climate change impacts, she also presents culture, at least in the Siberian community where she does research, as continuous and

intersects with other changes, patterns, and trajectories, like those discussed by Fabián, it makes for experiences of environmental change that are marked by confusion and uncertainty. At the same time, as Massey argues, dynamic, mobile, and heterogeneous space makes for a future that is open to possibility (2005, 10–11). While it is dangerous to downplay the impacts of climate change and overemphasize the resilience of people facing environmental disaster, there is a danger too of portraying humanity as simply at the climate’s mercy, because, as Mike Hulme writes, it “downgrades human agency and constrains the human imagination” (2011, 265). In this spirit, then, this chapter will explore some of the ways that the people of El Choro see and plan for their futures with an eye toward such openness.

## **7.1 Looking Backward and Forward**

Meetings and presentations led by NGO representatives from outside of the community were a common venue for the people of El Choro to learn about different issues. Over the course of my fieldwork I attended workshops on diverse topics, from health to sheep production to water management. Only a small number of these workshops attended in-depth to environmental problems, but even so, such workshops represented an important opportunity for people to learn more about the rapidly changing landscape in which they lived. But, as I will show, the picture of

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unified, as something that is rigid and concrete enough to be damaged by climate change. In light of the kinds of changes that Fabián and many other people in El Choro described to me, and the patterns and trajectories I have explored throughout different chapters here, particularly Chapter 2, I do not find this to be a useful way of framing the experience of climate change in El Choro. Even before the days of Spanish colonialism, the people of the Altiplano have faced and adjusted to major changes. While there is a danger of using this history of change to downplay the extent of climate change impacts there today, there is also a danger of trying to freeze the community in time, or portraying El Choro as a place that is at risk of extinction only because it is changing.

the environment that emerged was sometimes murky, leaving unclear implications for how the people of El Choro should manage their futures under profound environmental transformation.

### **7.1.1 “We can recover this knowledge, right?”**

On a cool, moonlit evening in June 2014, members of a nearby community called Japo, a collection of dispersed homesteads and agricultural plots just north of El Choro, gathered at their new brick meeting house in the village. The occasion was a workshop on climate change and disaster management sponsored by an NGO based in La Paz. It was a calm, clear night, but the power cut around 6:00 PM, just before the meeting’s start time. Eventually a small generator was wrangled to light the meeting house. The NGO presenters, a pair of men who had driven a pickup truck from La Paz, handed out guidebooks and pencils and taped butcher paper onto the wall. Over the next several hours, the lead presenter, a man in his late 20s from La Paz named Jhoel, led the crowd of about 30 people through a series of exercises designed to construct a comprehensive plan to manage climate-related disasters in Japo. He began with a discussion over how the climate had changed in recent years and what the consequences were for local producers, asking people to share their observations and experiences.<sup>130</sup> Participants responded that in the past different weather phenomena happened at predictable times of the year, but now they occur out of season. Water was clean before but now it is contaminated. People did not move away from El Choro before but now they do. Quinoa and potato production, in the words of the indigenous leader Mama Ruperta, “used to be normal,” but it is not anymore. Summarizing, Jhoel said, “So, what can we do? We have said that before conditions were better, that the weather had precipitation, rain, freezes, hail, and all of this had its time. Now everything

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<sup>130</sup> Comments that Matías made during this exercise are discussed in Chapter 2.

has changed, right?” “*Totalmente*,” Mama Ruperta replied. “So what can we do?” Jhoel asked the room, and then he answered his question: “What we can do is make a plan, a community agricultural risk management plan.” He then read out a paraphrase of the workbook’s definition of “risk management,” a long definition describing the combination of policies and strategies that come together to strengthen a community’s capacity to reduce the impacts of “natural and anthropic threats.”<sup>131</sup>

But how can the people of Japo distinguish between “natural” and “anthropic”? In the time of climate change the dividing line between the two is not clear. This emerged in a sense through the discussions of the workshop. Participants did not make any distinction between natural and human-caused in the types of problems that they identified and discussed, but Jhoel tried at times to demarcate the boundaries between the two concepts. For example, later in the workshop he asked participants to identify “threats” to the community, drawing on a definition of threat given early in the workbook: “an external risk factor originating in nature or from human activity.” He explained the relationship between such external threats and the human conditions that they encountered, which he (and the workbook) identified as potential “vulnerabilities.” When he was explaining how to identify vulnerabilities in the community, he said that they were “more about people,” as opposed to threats like “drought or hail, which are things we cannot control because they depend on nature.” Later in the discussion Jhoel asked participants to list “threats” to agricultural production in El Choro. Mama Ruperta quickly mentioned pollution, which had come up many times in the discussion already, but Jhoel

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<sup>131</sup> Here’s the full text of the definition in the workbook: “La Gestión de Riesgo es: el conjunto de decisiones administrativas, de organización y conocimientos desarrollados por las comunidades para implementar políticas y estrategias que les permitan fortalecer sus capacidades para reducir el impacto de amenazas naturales y antrópicos.”



countered that pollution was not a threat for the purposes of this exercise because “it is caused by us, by people, and it can be controlled.” Participants went on to give the types of answers he was looking for: frost, hail, drought, and flooding. Presumably, then, these phenomena were not “caused by us” and thus were out of human control. By making this distinction Jhoel was inadvertently absolving humans of their responsibility for climate change, for he implied that changes in frequency and intensity for frost, hail, drought, and flooding was not related to human activities.

Jhoel and the workbook also made this absolution-by-omission when presenting possible futures under climate change as a way of highlighting the importance of having a risk management plan. He showed everyone a graph in the workbook that presented two possible agricultural scenarios by plotting an X-axis of time (moving through areas labeled as past, present, and future) against a Y-axis of agricultural yield. Two possible agricultural futures were represented with two different lines on the graph: one labeled as “agriculture with risk reduction” that showed continued increases in productivity, and one labeled as “agriculture with no risk reduction,” showing declining productivity as the climate continued to change. “If we don’t plan, we’re going to lose our crops,” Jhoel explained. “So we need to adapt ourselves to climate change. Adapting ourselves means learning to live under these changing conditions, right? That it starts raining from December to May, that it hails at any time, we have to adapt ourselves to these conditions. If we don’t adapt, then we’re going to lose, and that is why we’re making this plan.” I was surprised, though, that neither Jhoel nor the workbook ever mentioned why climate change was happening in the first place. It was a force to be reckoned with, to which people needed to adapt, seemingly filed more under a “natural” phenomenon in the parlance of the workbook. Everyone at the meeting seemed to agree that the climate was changing, and no one

objected when Jhoel read out the workbook's delineation of the current climatic period as one of "*variabilidad climática*" (climatic variability) compared to what it called the "*clima constante*" (consistent climate) of the past. But no one mentioned *why* the climate was changing.

Perhaps, then, this explains in part the reaction of workshop participants when Jhoel asked them, "With regard to climate change, what action can we take so that it doesn't affect us so much?" There were some murmurs around the room, but no one spoke up, possibly because the connection between climate change and human action still had not been made. Finally Guillermo, sitting to my right, said: "To avoid the cold, you can burn diesel, or tires." There were a few chuckles, but Jhoel ignored this suggestion; he paused and then said, "Perhaps we can recover the knowledge that they used before, right? Before they knew the climate better, they used terraces, they used more varieties of crops. If we have a mix of crops, if there's a drought, it could be that the drought attacks some crops but not others, right? We can recover this knowledge, right?" There were some murmurs but no one responded. He wrote on the paper taped on the wall "*recuperar conocimientos tradicionales*" (recover traditional knowledge). He went on: "Right now we only plant one kind of potato, but before they planted many different varieties, right? For example, *las papas amargas* (bitter potatoes) resist freezes and droughts really well, right, and this they (our ancestors) managed really well before." He went on: "Or maybe we can add that we should be trained more about what climate change is and what we can do about it. And we also need to form an early alert system, with SENAMHI (the national meteorological agency), with the municipal government, so that they inform us more." The two points that Jhoel left as actions for climate change, written in front of the room and copied into everyone's workbooks, were to recover traditional knowledge and to hold trainings on climate change. These ideas were all Jhoel's. During this section, no one spoke up except for Guillermo,

at the beginning. Indeed, Guillermo later told me during a side conversation at the workshop that his suggestion to burn diesel and tires was a technique he had successfully used in the past to protect quinoa from freezing. He told me that such burning could be used to “*deshacer*” (unmake) hail before it falls. He seemed to be annoyed that his suggestion was not taken seriously.

Jhoel’s words about ancestral knowledge in relation to climate change reflected a certain tension within climate change education that I heard many other times from this NGO and others.<sup>132</sup> That is: on the one hand, the workbook for the Japo workshop described the past climate as “consistent.” Indeed, the description should be read in full to show how the past is depicted in contrast with the present day, when high variability is taken as a given: “In this period (the past) the climate did not have many changes, so agricultural activities could be carried out with normality; since climate was more or less constant it allowed our ancestors to implement diverse agricultural activities.” Despite this consistency, Jhoel and other NGO workers resorted to telling farmers on the Altiplano that one of the most important adaptations they can make in the face of climate change is to restore ancestral technologies and practices that had been lost over time. The workbook claimed that these practices had been developed under conditions of climatic consistency, although Jhoel mentioned that past farmers used them to manage variability. Could those techniques work now that the weather year-to-year was marked by an unprecedented degree of variability? And was the past climate really as consistent as the

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<sup>132</sup> I am deliberately not naming Jhoel’s (a pseudonym) NGO, nor any others that I saw put out similar messages. The point is not to directly criticize the methods of these organizations, which overall are doing great work to help people in places like El Choro deal with climate change and other environmental problems. Rather, I wish to show just how fraught with confusion the conversation about climate change can be, and to explore reasons why this may be the case that emerge directly from the experience of climate change itself.

workbook stated? Some sources indicate that farmers in the high Andes have had to deal with a great deal of climate variability and transformation over recent generations as well as past centuries (Denevan 2001; Dollfus 1986; Zimmerer 1999). And the spectre of crop failure at the hands of such phenomena as hail, frost, and drought continually stalked highland agriculture long before the current era of climate change (See Murra 1980, 7). Would Guillermo's suggestion of burning diesel to ward off freezes and hail count as an ancestral practice? While I often heard broad suggestions like Jhoel's of restoring past practices, there was rarely any discussion of which specific practices were the most useful, what other practices could be left behind, and how to make effective determinations between the two. While Jhoel made a relatively specific suggestion of restoring crop diversity in order to withstand climate variability, he later told me during an interview in La Paz that market pressure encourages farmers in places like El Choro to plant a limited number of marketable crops. This appeal to ancestral knowledge, then, did not point toward a clearly illuminated path. It harboured an ambivalence between the old and the new, between finding a fresh path forward in unprecedented times of environmental change while also turning back the clock, in a sense, to practices from times that were depicted as more prosperous and stable.

The point is not to call out Jhoel's organization nor his work as ineffective – indeed, based on my experience in 2014, I do not believe any other organization was helping the people of El Choro deal with environmental change as much as the one he represented did. Rather, the purpose is to highlight how climate change itself contributes to confusion and imprecision when it comes to addressing it at the local level. Compared to water pollution, which for El Choro has clear culprits (mines discharging waste and ineffective government regulators) and therefore clear solutions, even if they are difficult to achieve, climate change remains amorphous, vast, and

difficult to trace to its origins, even if it is, in many ways, easy to see. The chuckle around the room at Guillermo's suggestion to burn diesel during freezes reflects this difficulty, for what Guillermo saw as a possible solution (to protect from freezes) other people in the room may have seen as contributing to the problem (burning fossil fuels). Where does that leave the people of El Choro, then?

### **7.1.2 “We need to think about the future”**

The Japo workshop, however, was not the only way that these kinds of issues were addressed in formalized settings in El Choro. On a morning a few days after the Japo workshop, I rode my bike down to Santa María, in the far southwestern corner of the municipality of El Choro, for a community meeting. About 25 people gathered on the dusty ground floor of Santa María's *corregimiento*, the two-storey adobe headquarters of the *corregidor*, or elected community overseer. In addition to the usual topics of discussion (updates on construction projects, discussions on the condition of the water system, and so on), a young NGO worker from Oruro named Manuel came to give a presentation on health policy and oversight. He arrived on a motorcycle and set up a laptop and projector at one end of the long room. After a 45 minute presentation on the intricacies of Bolivia's new health policies, Manuel asked the room, “Is everyone in a hurry, or can I show a film?” Hearing assent from the *corregidor* (the rest of the room was silent), Manuel said that the film (actually a slideshow) he was going to show was about the environment. He cued a set of timed PowerPoint slides entitled “*Nuestra Madre Tierra*” (Our Mother Earth). The title card stated that the presentation had been produced by an El Alto-based NGO called Fundación Comunidad y Acción [*sic*], but that was not Manuel's organization. The general format of the slideshow, as it proceeded, was to show slides with observations, facts, quotes, or themes about the Earth and environmental degradation

interspersed with series of illustrative photos. Manuel read most of the slides aloud as it went on and occasionally gave the name of an animal pictured or a place that was shown. He added some commentary but generally had to speedread to keep up with the pace of the slides, sometimes trailing off as the slide changed. The slideshow started with an image of Earth as seen from space, with the caption, “Our planet is so beautiful!” This was the most positive note from the presentation; what was to follow was a series of images and assertions about all of the different ways that human beings were damaging and destroying the planet. When a slide asked, “What are we doing to Mother Earth?” Manuel put this question to the audience, and someone responded, “*Destrozando*” (destroying), which Manuel repeated in agreement. This led into a series of images of clear-cut forests, as well as statistics about the global extent of deforestation, which Manuel read out with a tone of surprise and awe at the sheer scale. Certain images, such as of vast open pit mines, elicited audible reactions from some members of the audience, such as gasps or “Wow!”

As the presentation proceeded, very few of the shocking images had any kind of geographic location. One photo, during a section on air pollution, showed gridlocked traffic in a city recognizable as El Alto, and Manuel told everyone that was where it was. Another photo showed the thick grey smog surrounding smokestacks, the kind of image often characteristic of discussions of pollution in China, although it gave no location. An ex-authority named Artemio turned in my direction and said, “That’s your country, isn’t it Clayton?” He repeated that comment a couple of other times in response to other slides showing pollution – he seemed to be trying to needle me a bit, although of course I could not dispute my home country’s outsized culpability for these problems. There were a pair of slides on climate change. One stated that the Earth’s average temperature had risen 0.8 degrees Celsius over half a century (Manuel

incorrectly read it out loud as 8 degrees). Another had three photos that illustrated the loss of snow and glacier cover on the iconic Bolivian mountain Illimani, showing the shrinkage of its snow cap by comparing an historic picture with one from the present day, and also including a picture projecting how it will look in 2050: brown all the way to the top of the 6,438 metre peak. This was one of the few sections that made direct reference to Bolivia; other sections were very general, such as on trash, which gave global statistics on trash production, causing more gasps as Manuel read statistics out loud using the pronoun “we” to indicate collective culpability for throwing out so much. Likewise, Manuel used “we” when editorializing on a series of slides that argued that the desire for money is the big villain behind these various problems. “We all want money,” Manuel said, “and everyone has their cellphone now, right?” There were nods and murmurs in agreement. “It wasn’t like this before,” he added. The slides continued to a new section entitled “Mother Earth Reacts” featuring images of natural disasters, including the aftermath of a tsunami. “Mother Earth responds to all of this with hurricanes and tidal waves,” Manuel said. As the slideshow worked toward wrapping things up, it said that our problem today is a lack of ethics and compassion, concluding that we need to develop ethics in order to assure life for everyone. The slideshow ended on a quote: “*Cuándo el corazón siente, la cabeza piensa*” (When the heart feels, the head thinks). That was the end. I later wrote in my notes, “After all the buildup as to how miserable the world is, the ending seemed rather rushed and short.”

After the slideshow ended, Manuel invited attendees to reflect on what they had just seen, although no one said anything but him. “We are not far from this,” he said. “For one, El Choro doesn’t even have water. And where is everyone putting their trash?” A little later Manuel said, “We need to think about the future. We always think of today, I’m okay today, so we don’t think

about the future. But we need to think about our grandchildren.” He packed up his projector but stayed through the rest of the meeting, which lasted another two and a half hours.

What Manuel had presented to the people of Santa María was, in effect, a tour of the environmental problems around the Earth. But it was a confusing tour. Many of the issues that the presentation raised were decontextualized from any geography, or were vaguely located in some faraway place like “Africa.” Not many slides referred to Bolivia, even though the presentation had been prepared by a Bolivian organization. This made environmentalism seem somewhat exotic, as if all of these concerns were only connected to distant places and peoples. Still, Manuel did at times loop the attendees into the circle of responsibility for these issues by using the pronoun “we” to indicate collective responsibility for certain problems such as trash production and greed. But this was confusing too: were these farmers, many of whom pieced together their livelihoods from growing quinoa, raising sheep, and fishing in Lake Poopó, really damaging the planet through their greed? When someone occasionally directed some of the blame my way by saying, in response to a disturbing image, “That’s your country, isn’t it, Clayton?” I could not deny my part in it. But the message delivered to the Santa María farmers that day made environmental degradation both very close (you’re responsible because you’re greedy) and very far away (nameless cities in other places are polluted and full of garbage). At the end, despite Manuel’s call to think of our grandchildren, the attendees had no actions to take nor program to follow to build a better future. The meeting moved into a discussion on canal control gates.

The point, once again, is not to place blame on Manuel for the presentation, but rather to show that such vast environmental issues can get messy and confusing when under discussion. In the examples from Japo and Santa María, the notion of responsibility for climate change and



other environmental problems is unclear and vague. The question of who was at fault for the environment changing was more or less unanswered in the Japo climate change workshop. In the Santa María workshop, Manuel and the slide presentation alternately blamed all present (“*We throw out this much garbage*”) and distant places like the United States (one slide compared how much people in the USA spend on pet food to the prevalence of hunger worldwide). Peter Rudiak-Gould (2014, 366) identifies two different senses of responsibility for climate change as “industrial blame,” pointing the finger at high emitting northern countries, and “universal blame,” placing responsibility on the whole of humankind. As these two examples from Japo and Santa María show, it is possible to mix all senses of blame together in a discussion on environmental problems, or even to ignore the idea of blame altogether.

Why was there this lack of clarity and sense of confusion in discussions about climate change? The scale and spatiality of the phenomenon may, in part, be to blame. Climate change is enormous,<sup>133</sup> and with its indeterminate point of origin, it is difficult to pin down geographically. Where does climate change come from? Must it be from far away? The elements of climate change are all around us, such as transformations in air and water. And our bodies are intimately connected with these changing media. Yet in a rural agricultural area like El Choro, people remain spatially distant from the most polluting hubs and bear very little responsibility themselves for the kinds of emissions that are changing their climate. As the different discussions described in this chapter, as well as the previous chapters, illustrate, climate change occurs in El Choro as part of a vast socio-material assemblage of material, human, and

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<sup>133</sup> Climate change is so vast that Timothy Morton uses it as his prime example of a “hyperobject,” that which is massively distributed in space and time relative to humans and as such have their own special properties. Critically, hyperobjects are “not simply mental (or otherwise ideal) constructs, but are real entities whose primordial reality is withdrawn from humans” (Morton 2013, 15).

nonhuman dimensions intersecting in space to form El Choro as a place. As Fabián described in the chapter opening, there are many different reasons that people leave the area that are unrelated to environmental change. As Ruperta and others stated in the Japo climate change workshop, there are many other environmental problems, including ones with origins very close to home in the upstream mines of the Desaguadero watershed, that cause the people of El Choro headaches and heartaches.

This diverse assemblage makes for a complicated search for solutions to build a better future. But looking at El Choro's present, there are strong signs that many residents are not ready to give up their lives in the countryside, despite the struggles that they described to me and that I have relayed throughout this work. It is to these signs that I now turn.

## **7.2 Opportunities and Uncertainties**

Since the environment in El Choro is changing, putting pressure on farmers, and leading to pessimism for the future, what are people going to do? As discussed in Chapter 2, many are leaving the area, trying to make new lives in Oruro or elsewhere, or engaging in part-time residency or other strategies to diversify their livelihoods. However, there are also indications that many people are working hard to stay and that they still see their futures as residing in the countryside. Here I will give two examples of ways that people are working to take advantage of new opportunities to build lives in the *campo*: through a popular government housing project, and through an ambitious but untested microenterprise project. These examples reflect signs of hope for the future but also show uncertainties. Will projects like these help people build their futures in the countryside? Will they be enough to work against other trajectories that push and pull people away? Are these stories of vision for the future or of myopia because of the projects?

limitations? The answers to these questions, of course, are still uncertain. But while these are not necessarily clear stories of hope, they are, at least, stories of hopefulness, as some people in El Choro continue looking forward to a better future, even under climate change and the other challenges that the municipality faces.

### **7.2.1 “Hay que aprovechar”**

One of the biggest surprises I encountered when returning to El Choro in late 2013 after a seven-year absence was that the village was undergoing a sort of architectural renaissance. The El Choro I left in 2007 had, by my estimate, perhaps a third of its mud-constructed buildings slowly melting, abandoned to the elements by people who had moved away. After seven years I expected to find this gradual process much farther along. But while El Choro still had plenty of abandoned houses, I also found a new set of brick houses under construction. I learned that starting in the year before I arrived, many Choreños started enrolling in a new government dwelling project that constructed subsidized houses for beneficiaries. The project provided the design, some of the materials, and project management at the hands of a *maestro*, or construction master, while the homeowner provided other materials and contributed his or her own labour. There were several of these houses under construction when I arrived and another fifteen or so started over the next year in the village and surrounding countryside. All followed the same standardized single-family floorplan of two bedrooms, a kitchen, a living room, and a bathroom. The architecture was novel for the village. Rather than adobe, or sod bricks called *tepes*, the houses were constructed out of factory-produced hollow ceramic bricks. Eschewing the small (and at times nonexistent) wood-framed fixed windows of older earthen houses, the new houses had large, multi-paned, metal-framed windows that opened to the outside air. But the biggest architectural change might be the floorplan. In the past most houses in the village were built as a

series of rooms opening onto a courtyard. A front room facing the street might be used as a store, but otherwise most rooms shared the central courtyard as a space of productivity, storage, animal husbandry (pigs and chickens were often kept there), food preparation, and socializing. In an architectural form more familiar to many North Americans, the new subsidized houses face inward, onto interior space. The bedroom doors open into a small nook just off of the living area. While the kitchen has an exterior door, it also opens into the living room, and the bathroom only has an interior door. The houses are built without any patio or courtyard, and in many cases, since the houses were shepherded into unused plots or portions of land (I never saw anyone demolish their old home to build a new one; rather the new ones were squeezed into whatever space was available), they had very little of the customary exterior space that people used for everything from cleaning quinoa and butchering animals to drinking and dancing during holidays.

Even if these houses tended to break with architectural convention in El Choro, and separate some families from each other when in the past they shared a courtyard, construction was booming under the generous subsidy terms. The eastern edge of the village looked like a budding suburb with so many of the uniformly designed and painted peach-coloured houses sprouting up along the Poopó road. It appeared to me, though, that there was not very much cooperation and mutual exchange between family members and neighbours to get these houses built. Over the year I visited many construction sites, and I helped with four of the houses. In every case I found that most of the labour was done by hired hands, paid for by the project, alongside the homeowner, who was required to participate. Even so, the homeowner mostly served the role of assistant in the work, leaving the more complicated tasks to the *maestro*, who usually came from another community. While most country residents had some construction

experience, many had never built a brick structure before and were left to tasks like carrying materials, shoveling, and mixing cement. The most important role for the homeowner was that of providing the *contraparte*, or beneficiary counterpart, for the project. While the government subsidy for the house was generous, the homeowner had to make a significant investment: he or she was required to provide all bricks, sand, gravel, and stone, while the government provided cement, wood, corrugated metal roofing, tile, plumbing, rebar, plaster, windows, doors, paint, and other finishing materials, as well as the labour of the *maestro* and usually another worker. While the value of the government subsidy was significant, this beneficiary counterpart was still a barrier to entry for anyone who did not have the hundreds of dollars on hand to purchase all of those materials at once. As such, the houses tended to go toward more well-to-do members of the community, some of whom flouted the project's requirement that they be full-time residents of the village.

One such part-time resident building a government-subsidized house was Renato. In his late 40s and single, Renato and I first met at El Choro's village-wide Christmas celebration at the end of 2013. It was late in the day, and we were both deeply into the crates of *Huari*, the ubiquitous beer that flows freely at all village celebrations. I did not know who he was when he first called out my name as I walked on a quiet side street near the main plaza. "You were Prudencio's friend, right?" he asked. I said yes – he was referring to an elderly man, who passed away in 2007, with whom I had worked for over a year on water quality improvement projects for his homestead in the countryside. "I'm his son!" Renato said. I had never met Renato before, but after my return, people told me that Prudencio's homestead was standing abandoned in the countryside, his old house losing its roof and crumbling under the wind and rain. Just a few days before, in fact, an indigenous leader and Protestant pastor named Domingo told me about

Prudencio's crumbling homestead and said that while Renato had occasionally visited the community, he had no interest in making a life in El Choro.

As I came to know Renato better, however, I found that this was not the case: after years of absence, his ties to the community were becoming stronger. As evidence for this, first, in early 2014 he was elected vice president of the Japo canal zone and became deeply involved with the zone's projects. He was even elected to serve on Japo's emergency management committee, established through the climate change management workshop discussed earlier in the chapter. Second, he did, in fact, end up planting some of his father's land with quinoa that year, even though he had told me at our first encounter that he was not interested in doing so. In fact, over time I learned from Renato that his previous livelihood, running a jewelry shop in the city of Oruro, had fallen on hard times. With the shop now closed he was spending more of his time in El Choro. Finally, he started building one of the government-subsidized houses in El Choro, right next to Prudencio's long, low, tin-roofed adobe house. I went to help him with construction a few times, cutting up rebar with a hacksaw, carrying bricks, and hauling water and buckets of mortar. On other occasions, maybe a half dozen times, I ran into Renato while he was in the midst of a construction-related task, such as hauling bags of plaster, and he jokingly complained that the work was exhausting ("*Ya no hay fuerza Clayton!*"). One day, in fact, when I chatted with him about the house and how he had completed the important stage of putting the roof on, he said with a smile and laugh, "Clayton, I wish that you had suffered through this project instead of me!" But he was happy with his new house, telling me it was warmer and more comfortable than the old one. When I talked to him, early in the work, about why he was building it, he told me, "*Hay que aprovechar, ¿no?*" (You have to take advantage, right?). This opportunity at a new house should not be passed up.

By the time I finished my fieldwork, in late 2014, many of the houses in this project were nearing completion but still were not occupied full-time. El Choro's lack of potable water meant that some of the houses' advantages were not operable; while workers dutifully installed the toilets, sinks, laundry tubs, and roof tanks that were included with the project, there was nothing at the moment with which to fill them. But the houses remained in high demand, a source of constant discussion at meetings, and later in the year, another round of construction was announced, with people scrambling to join the project. In other words, even if the village had seen net population loss in recent years, there was much more to the story of El Choro's population than just a march out of the countryside and toward the city. There were new opportunities for some people to build closer connections to the village. *Hay que aprovechar.*

Another example of people trying to build their future in El Choro involved, once again, Renato. Not only did residents seek new homes; they also sought new opportunities to make some cash. But first new skills had to be learned.

### **7.2.2 Chorizos y Salchichas**

At a meeting of the Japo canal zone in late fall 2014, Renato, the vice president of the zone, announced a new program to promote economic opportunities for the women living in the zone. This was a sausage-making project sponsored by the municipal government. It began with a series of workshops held at the Japo meeting room in El Choro. I arrived early at the first workshop, and Renato set me to hauling water and cleaning equipment as other participants arrived. The workshop series was overseen by a chef from Oruro named Haraldo. He split his time between running the kitchen at one of Oruro's few large hotels and leading such microenterprise workshops in the countryside. Before the day's workshop began, Haraldo showed me the equipment that had been purchased for the project, including an industrial meat

grinder imported from Brazil and a large syringe-like device used to fill sausage casings. The project also had a chest freezer/refrigerator for storing ingredients and finished product. Pots, bowls, measuring cups, and pitchers were stacked in one corner of the meeting room. We hung a meat scale from the ceiling. In all, it did not take us long to transform Japo's meeting house into an industrial kitchen.

The workshop proceeded with a group that waxed and waned in size throughout the day but had about 12 participants, almost all women, at its peak. As a dust storm raged outside, sending puffs of earth under the closed door, Haraldo explained the purpose of the workshops: the women of Japo were to learn how to make sausages, and other products, and over the weeks ahead they would learn how to turn their new knowledge into a small cooperative business. Once the participants had pooled their money to pay their share of the project cost (which was Bs. 3,000, or US\$432; the rest was paid for by the municipal government), the equipment and business would belong to them and no one else. Then over the next many hours he explained all of the equipment and demonstrated its use, gave a thorough discussion of the recipe for the day's product, *chorizo* made of llama, sheep, and pork, and set us to work preparing and mixing ingredients, grinding meat, and filling sausage casings. The participants ranged from several young women in their early 20s visiting from the city to older women who herded sheep and ran small stores in the village. At first most of the workshop participants were shy, but after a few hours they were getting their hands on the equipment, giving each other instructions, debating courses of action to take, and joking and laughing together. In general the younger women were more assertive and quickly volunteered for different jobs, while the older women in the group sometimes sat together as the work went on, chatting until Haraldo came over and gave them something to do.



In the afternoon Renato and Haraldo explained more about how to turn this into a small business and calculated on a piece of paper taped on the wall just how much each kilogram of sausages cost to produce and for how much it should be sold. Haraldo discussed some sales opportunities he might be able to connect them with around Oruro Department and even in other departments, where, he said, demand for his meat products exceeded his ability to produce them. The Japo zone president, Cristián, explained that the women needed to form a leadership structure, which included electing a president and vice president. He argued (with the group agreeing) that the project probably should not admit more than ten people as it could become unwieldy otherwise. He also expressed his optimism that the project was going to work out, because unlike Japo's recent failed milk pasteurization project, this one did not require a local source of clean water, which El Choro still lacked. The day of work capped off with Renato barbecuing and serving up the day's sausages. They were delicious, and participants bought up all the remaining sausages at cost.

Over the following weeks and months, there were more workshops, and the chef taught us how to make more products, including *salchichas* (a pre-cooked sausage more like a hot dog), and even ice cream and yogurt. Soon these products turned up for sale at events in El Choro, including a soccer tournament and the yearly agricultural fair in September. Renato announced at a meeting of the Japo canal zone that the women had been split into four groups and had started to divide up sales opportunities. The project was moving, but where it was headed, no one yet knew.



**Figure 12: El Choro's annual September agricultural fair, which transforms the village's soccer field into a market.**

These two examples, then, of new houses and a new sausage and dairy product project, show another side to the ongoing negotiation between the people of El Choro and their uncertain future. The time, energy, and money that people spent on building their new homes in El Choro, or learning how to establish a new kind of cooperative business, provide a counter-story to the pessimism I often heard about the village's declining agricultural productivity and continuing environmental struggles. Even as many people told me that the countryside was losing population, with farming and herding losing appeal to younger generations, some commitments to life in the *campo* were enduring, or even in the case of people like Renato, undergoing a sort

of renewal. These examples certainly warrant some skepticism: will the sausage-making project really succeed in bringing new economic opportunities to the women of Japo? Is it going to be, to use a favourite buzzword of international development, sustainable? Will the new houses around the village all have full-time occupants, or are they eventually going to decay in the wind and rain like so many other houses of the village? The answers remain open, but the point is that there is no single story of decline for El Choro. Rather, the push and pull of challenges and opportunities continued to lend themselves toward uncertainties for the future that leave the door open to hopefulness.

### **7.3 Conclusion: Let It Be Better**

As part of the climate change and disaster management workshop that Jhoel led for the people of Japo, he asked participants to visualize the future that they wanted for their community. “How do you want Japo to be?” he asked. “Better!” responded Mama Ruperta. “Free of pollution!” called out Guillermo, who quickly added, “And with more plants!” More answers came from around the room: “El Choro has no water.” “Having good health.” “Education.” “Having good electricity.” “Better irrigation.” Jhoel wrote these items up in front of the room and asked if everyone agreed with the list. No one objected, so Jhoel read the list out in the form of a summary statement, which he asked everyone to copy down in their workbooks: “Let Japo be a community that is free of pollution, with abundant vegetation, that everyone has potable water, health, education, and care for the environment, with access to good roads and a better irrigation system.” Later Jhoel had this vision statement printed up on a vinyl banner, which he brought back to the community when a delegation of NGO leaders and funders visited the community to see the results of the project.

What will it take for the people of Japo to realize their modest yet hopeful vision for the future of their community? Is it a matter of everyone working together and cooperating to create a disaster management plan? Do the right people, motivated budding leaders like Renato, need to be attracted back to El Choro through programs like the housing construction project? Will programs like the Japo meat product micro-enterprise project provide enough new opportunities so that people can keep their lives, and livelihoods, in the countryside? Seen side-by-side, these questions point toward different pieces that may or may not fit together, along with many others, as the people of El Choro plan for the future. People will continue to follow fragmented paths; as Renato, and others, find their commitments in the countryside increasing, others, like the son of my long-time research collaborator Eduardo, will only be able to see their future path as one taking them away from the *campo*. As I have emphasized in this chapter, however, these varied paths mean that there is no single story that encompasses El Choro's trajectory into the future. Climate change and other environmental problems are influential but not irresistible, dangerous but not determinative.

## Chapter 8: Conclusion – Negotiating Atmospheric Politics

Eduardo needed help. He wanted to build a new house out in the *campo* toward the Desaguadero River, near a field he had planted with quinoa as well as pastures where he kept his cows and sheep for part of the year. So at 6:00 AM on a cool April morning I headed out with him in his battered red sport utility vehicle along with Brunilda, his friend Roque, two young construction workers named Tomás and Lope, and Tomás's two-year old daughter, Ema. The car was piled high with wheelbarrows, shovels, hoes, a gas canister and stove, pots and pans, and bags of potatoes and vegetables. What it did not contain, however, were construction materials. These were to mostly be found *in situ*. We were going to build a traditional *tepe*, or sod, house.

Part of the new house, however, was to be salvaged from an old one. Our first act of the day was to pull corrugated metal sheets and beams from another small *campo* house that belonged to Eduardo. He no longer used this house for anything; when we arrived we found the door open and the sole window devoid of glass. I ducked on my way in and out of the house to avoid a spider web built across the top of the door that was full of flies. When I stepped inside, I saw that there was very little there, just an earthen platform that was once a bed, nooks and cubbyholes in the wall, scattered pieces of wood, but no sign that anyone had lived there for quite a while. The beams had sleepy, immobile flies plastered all over them. Tomás and Lope climbed to the roof and started pulling nails out. They passed the materials down, and soon we had the small house's entire roof piled on top of the car, flies and all. The four walls stood open to the sky. Over time the wind and rain would turn this house into a new ruin, one of the hundreds of low mounds found all over the plain.

When we traveled over to the new house site, I saw that it was to be built on one of these old mounds, which marked that a house had once existed there. Eduardo told me that his *abuelos* (grandparents) had built their house there 100 years ago, on land that his grandmother had inherited from her grandmother. The house had long since melted away, leaving a thick central rise with low remnants of walls and several small domes that had been used for cooking and storage. “I’m building a new house here. The other one, where we removed the roof, floods every year, and you get water up to here” – Eduardo held his hand up to his knee – “but it never floods here. So my grandparents were wise to build here. Also it is surrounded by *cebada*, which is good forage.” Eduardo later told me that his grandparents must have been good architects, to have so much of the house site intact after 100 years.

As we got started on construction, Tomás mentioned multiple times that he thought we should have been building this house out of bricks, not *tepes*. “If we did that we could have two people build it instead of six,” he said. Eduardo told me, though, that the sod house would be warmer than a brick house. “A *tepe* house can be expected to last 50 years,” he told me. Even though we were going to install a corrugated metal roof, he told me that thatch roofs were superior, lasting 30 years compared to a metal roof’s 20 years.

At mid-morning, we took a break. I did not realize that a proffered cup of tea had a shot of alcohol in it, and I quickly drank it down. Since I did not know it was alcohol, I had not made the traditional offering to Pachamama before I drank. I apologized to Eduardo for the lack of ceremony. “Here,” Eduardo said, reaching out with a pitcher to pour another cup. “Make an offering to Pachamama and another one to my *abuelos* who built their house here.” I spilled out some drops for Pachamama, and then I spilled more and said, “This is for the *abuelos* who had the wisdom to build their house here where it never floods.”

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Everyone needs shelter. As Eduardo's comments on the house site reflect, in El Choro this does not only mean a roof against rain but also high ground against flooding. People find themselves between the earth and the sky, and at times they need protection from both. Still, the mixing of earth and sky, as Ingold (2007) reminds us, creates the very possibility for life. This muddy fertile plain, prone to flooding and drought, swept by wind, rain, and hail, gouged by lightning, and hardened by the sun through the thin mountain air, is the foundation for people's livelihoods. But it is full of hazards, and according to people's experiences and observations these are more capricious than ever before due to climate change. Throughout this work I have tried to evoke the tension between peril and prosperity that people live out in the Altiplano and the ways that farmers and herders try to walk the thin line between excess and exiguity. The soil is fertile but encrusted with salt; irrigation canals bring river water to cultivated fields but they also bring toxic chemicals and floods. The earth and sky give, but they also withhold.

The people of El Choro, as we have seen, respond to these kinds of pressures in many different ways. But I have deliberately avoided using the term "adaptation" throughout most of this work. Adaptation is a prominent concept in climate change literature and in studies of people's relationships with environmental change in general (Barnes et al. 2013; Crate 2011; Peterson and Broad 2009). In 2014 the American Anthropological Association's (AAA) Global Climate Change Task Force included a general definition for adaptation in their report on climate change and anthropology. It is worth quoting in full:

Adaptation generally refers to changes in beliefs or behaviors in response to altered circumstances to improve living conditions, including a culturally meaningful life; this includes adaptation to natural, socio-cultural and institutional (political, economic, and civil society) circumstances. Human beings perceive and adapt to such changes consciously, through a cultural lens of individually and collectively interpreted

knowledge and meaning, to make decisions and respond, including the deployment of technology. (Fiske et al. 2014, 42)

This notion of adaptation emerges in certain instances in these chapters, such as the climate change adaptation project discussed in Chapter 7. However, the concept of adaptation has long been contested in anthropology. For Appadurai, in an early critique of the concept, the notion of adaptation to an environment is part of what confines indigenous peoples to place in much anthropological literature – as he puts it, “Natives are those who are somehow confined to places by their connection to what the place permits” (1988, 37). Nicole Fabricant (2013) identifies this as a problem that continues with projects that promote “climate change adaptation” in Bolivia today, many of which, she argues, focus on an ethno-territorial model that presents indigenous peoples as if they are all in rural areas and ignores Bolivia’s rapidly growing urban indigenous populations. In addition, much literature on adaptation leaves out discussions of histories of colonialism and contemporary political-economic power imbalances (Cameron 2012). There is an ongoing debate around adaptation, then, but even so, it remains a central concept for climate change studies and projects (Crate 2011; Fiske et al. 2014).

When thinking about how people respond to environmental change, in this work I have found negotiation to be a more fruitful concept than adaptation. While both adaptation and negotiation are ongoing, the latter emphasizes mutual entanglement between people and their environments, which, as Ingold argues, shape each other over time through never-ending processes (2000, 20). These processes entail give and take and responses compounded upon responses, such as the management regime discussed in Chapter 4 that irrigators struggled with to prevent flooding in their irrigation canals. In this case people had to negotiate with the rising floodwaters and the materiality of water itself, responding to movements both large (overflowing



from the river) and small (breaching earthen barriers on individual fields), while also negotiating with each other over management of the irrigation system. What I hope to have shown is that the politics of these negotiations flow together, arising from water and water user alike, illustrating the “unavoidable challenge of negotiating a here-and-now” that “must take place within and between both human and nonhuman” (Massey 2005, 140).

In addition, while the AAA definition of adaptation focuses on what people and individuals “consciously” do, I believe that to think through human-environmental relations in terms of negotiation better encompasses the conscious and unconscious without making the distinction between them that adaptation implies. To explore this, I have drawn on affect theory – particularly on Spinoza’s notion that bodies act on other bodies and increase and decrease their capacities to act – to think through the ways that different bodies relate to each other in space and thus how they experience environmental change. These kinds of affects arise in people’s emotional expressions but become particularly important in people’s actions. Thus, across these chapters, I have tried to think through ways that changes in space affect people and attain expression in politics, from the pressures that annoyed *residentes* put on the municipal government because they are not happy with how the village looks and feels (Chapter 2) to the annoyance and fear of mud and diminished mobility behind the uprising that Choreños waged against the dump trucks that were destroying the main access road (Chapter 5). Across these stories run bodies affecting other bodies. I do not assert that these are the sole vehicle of politics in El Choro, but I do argue for their significance amongst the multiplicity shaping this place’s political dynamics. In short, affects help enfold all the different bodies and relationships that enter into ongoing negotiations with and over materiality and space.

Thinking in terms of negotiation as a response to climate change also helps to encompass the contradictions built into politics in Bolivia. As discussed in Chapter 3, the farmers I worked with were benefiting from a variety of new investments in the countryside from the central government. High gas and mineral prices, coupled with renegotiated foreign contracts and the expansion of resource exploitation to new corners of the country, were filling the government's coffers. This bounty was shared with the rural areas. At times it seemed that there were more projects than the local farmers and herders could manage. Were these programs, then, helping the farmers to better negotiate with the changing environment? Farmers did, after all, express their deep frustration with the central government's unwillingness to rein in water pollution in the Poopó basin, which left many fields too contaminated to even plant. Indeed, water pollution remains one of the biggest strains that farmers face in the countryside of El Choro. As water rhythms in the region continue to experience disjuncture (see Chapter 4), managing the consequences is a matter of negotiation, between farmers and each other, farmers and water, and farmers and layers of government. Even as the central government directly funds climate change adaptation programs, including part of the one discussed in Chapter 7, it also remains a significant obstacle to farmers as they struggle to manage environmental problems. As the uncertain politics of climate and water continue swirling around El Choro's farmers, day-to-day they must face negotiations wherein obstacles and resources are entangled and sometimes come from the same place, *e.g.*, from the central government as it hinders and helps.

Climate change and environmental strife, then, are experiences of multiplicity and contradiction. This emerges in critiques of the concept of the Anthropocene. Currently the International Commission on Stratigraphy is considering a proposal to formally designate the present geological epoch as the Anthropocene – the age of humans – marked geologically

distinct by the mass proliferation of enduring manufactured materials, such as aluminum, plastic, and concrete, the dispersal of particulate matter from carbon combustion, mass deforestation and movement of sediments, radioactive fallout from nuclear testing, and, of course, the accelerated concentration of greenhouse gases, such as carbon dioxide and methane, in the atmosphere (Waters et al. 2016). As geologists deliberate this designation, social scientists have been debating the significance of declaring humans to be a geological force. This debate calls humanity's place in the world into question: as Dipesh Chakrabarty (2009; 2012) argues, to redefine the current era as "the age of humankind" is to collapse the long-made distinction in European and North American scholarship between human and natural history, redefining the human both as an agent that makes choices to act but also that collectively acquires momentum as a geological force acting outside of conscious choice. But what is missing from the concept of the Anthropocene is the fact that, as Donna Haraway says, "the contemporary world is not a human species act" (Haraway et al. 2015, 539). Humans do not act alone. Rather, all life is part of a diverse interconnected biomaterial assemblage composed of what anthropologist Amelia Moore (2015) calls "earthly relations." Moore writes, "Human species-being...is not autonomous but is instead comprised of relations with other organisms moving within geochemical processes held together by diverse forms of dependency and love" (2015, 39). Haraway argues that a better name for this era should encompass such assemblages; for her this is "Chthulucene," a name that "entangles myriad temporalities and spatialities and myriad intra-active entities-in-assemblages—including the more-than-human, other-than-human, inhuman, and human-as-humus" (2015, 160). The Anthropocene, then, is a time of multiplicity, no matter how overwhelming the influence of a single species, *Homo sapiens sapiens*, appears to be.

For the people of El Choro, then, tasked with navigating the complex assemblage of what some want to call the Age of Humans, the necessity to negotiate atmospheric politics stands in contrast to the progressive direction and sense of finality indicated by adaptation. While adaptation implies, in some ways, acceptance that the status quo of climate change is simply a force to be reckoned with, to think of environmental change in terms of constant negotiation with transforming space leaves numerous possibilities for the future open. People and environments shape and affect each other but never reach the end of their mutual negotiations. Much like Eduardo's new house on an old site that never floods, the people of El Choro have the old and the new to draw on as they craft responses to the changing climate. To be attuned to these negotiations means tracing all the different trajectories that meet in a place, like salvaged parts of the roof from an old ruin, new sod blocks cut from the earth, the memories of ancestors who chose a wise house site, or past and future floods that drive a farmer to higher ground. Where will they go next?

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Eduardo's new house was built right out of the ground. Severo, who had joined the work party a little later in the morning, cut the *tepes* from the hard-baked surface of the earth. He took a wide hoe called an *azadón* and cut long parallel lines, about 40 centimetres apart. Then he moved along a pair of such lines, slamming the hoe into the ground two or three times until it had bit deeply enough to pull up a sod brick about 25 centimetres wide. The top of the *tepe* was flat; the bottom had a root where it had been ripped from the earth. Roque and I loaded wheelbarrows with these sod blocks and pushed them up to the house site, where Tomás and Lope arranged them in layers and leveled their uneven tops using an *azadón*. As they worked

they applied very little mud mortar, mostly just in the corners. The weight of the *tepes* did most of the work to hold the walls together.



**Figure 13: Severo preparing the ground to cut out tepes.**

The weight of the *tepes*, however, was wearing Roque and me down. We hauled wheelbarrow after wheelbarrow up into the house site, stacking them by the growing walls or placing them up on top. As the afternoon wore on, I often had to take a couple of minutes of rest at one end or the other of my trip. Pushing the wheelbarrow up the rise of the house site left me short of breath, and lifting and unloading were getting difficult. Roque started commenting on how tiring the work was, and after a while, when we were both loading up new *tepes*, he said, “Should we sit down Clayton? Do you think *el jefe* (the boss) will see?” I laughed. “I don’t think

he's looking at us," I said. So we tilted our empty wheelbarrows down, their handles resting on the ground, and sat in them like comfortable lounge chairs. We were only there a few minutes before Eduardo spotted us. "Clayton! Roque! Come here!" he called. We thought he was calling us back to work, so we quickly loaded up our wheelbarrows and pushed them up to the house. But Eduardo wanted us to take our break with him. He beckoned us to sit and eat grapes off of an inverted plastic garbage can lid. We gladly did.

We returned to work early the next day. I was sore and still exhausted, having slept only four hours, and starting to feel sick. I took a rest by a mound mid-morning. Eduardo came over and held out an object that he had found in the dirt on the house site. It was about ten centimetres long and rectangular, and it had some kind of slot in the middle that had been deliberately crafted. Severo saw Eduardo holding this out and said, "That must have been a hammer." The object did resemble a hammer head, but Eduardo said, "No, it's ceramic." It looked to me like it could have been part of an old ceramic vessel, a jug or a pot of some kind. Eduardo picked up another piece of ceramic from the ground, a jagged red shard, and he used it to scrape earth off of the first ceramic piece. He said, "Anthropologists study things like this, right? This could be in a museum or something." After cleaning it for another minute, he looked like he was going to hand it to me, but then he set it down on the earthen mound that I was leaning against. Before this conversation I had not thought very much about the little shards of pottery that I had seen around the worksite. I started to notice them everywhere, emerging from the dirt and littering the house site. They looked like broken red roof tiles, but I guessed that they were likely the remains of vessels that were used scores of years before. They were traces of earlier inhabitation, returning out of the earth to remind us of the history saturating the landscape. After inspecting these few pieces, we left the rest of them where they lay.

The morning that we began the work, Severo brought a sheep from Eduardo's flock. As Tomás and Lope began preparing to construct the walls, Eduardo crouched over the sheep on the ground and cut its throat with a short knife. I watched as he finished the slaughter and disassembled the sheep's carcass into meat, hide, and organs. The sheep was to serve as that day's lunch for the work party. But there was more to it. The next day I became ill while working and could not continue. Eduardo drove me back to the village so I could rest in my room and visit the health post. As he drove, I asked Eduardo if the sacrifice of the sheep was a necessary part of building the house. "Yes," he said, "that is our way of asking Pachamama for permission, because we are building the house out of the earth." I told him I thought it would be a lovely house. Eduardo smiled and said, "This is a way to restore the place where my great-great-grandparents once lived." He pulled up to my house and dropped me there, telling me he would check on me later. Then he bid me farewell and drove back into the countryside to make memories come alive out of the earth.

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