

**LIVED REALITIES: CLIMATE CHANGE, NEOLIBERALISM, AND LIVELIHOOD STRATEGIES ON THE
SOUTHERN ALTIPLANO OF BOLIVIA**

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Abstract

This thesis examines the cumulative effects of climate change, neoliberal reform, resource extraction, and global quinoa demand and their implications for the livelihoods of villagers in the southern altiplano community of San Pedro de Condo, Bolivia. I argue that, due to their spatial and temporal overlap, the effects of these phenomena are mutually reinforcing and have together transformed the local environment, traditional knowledge of and relations to the environment, agricultural production, and livelihood strategies. I contend that in response to such transformations, Condeños have engaged in various strategic economic activities that have become increasingly articulated with and connected to the global political-economic system. This thesis presents significant contributions by analyzing climate change as part of a broader world-system, rather than in isolation, and thus avoids what Mike Hulme (2011) has called “climate reductionism”. Finally, I have provided an extension onto the concept of “dispossession by accumulation” put forth by Tom Perreault (2012), by highlighting the effects of dispossession that climate change has in the community of Condo, therefore advocating for an expanded understanding of the analysis of dispossession and capital accumulation and the ways in which the natural environment is enrolled in such processes.

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Chapter One - Introduction

It began as a typical day on the altiplano with the early morning sun rising over the mountain peaks to the east and a light wind that blew across the *pampas* (fields) from the west. Upon returning from helping Don Justino clear some garbage that had plugged up an irrigation ditch near his field, I was greeted by a very motivated Doña Isabel who was adamantly in need of my assistance. As if time were of the essence, she hastily ushered me into the room of her *tienda* (store) and asked me to begin loading what seemed like a truck-load of beer into her nephew's pickup. Caught off guard with her urgency, I quickly loaded over thirty cases of beer, a table, a large umbrella, and a few stools into the back of the truck and hopped in. We made our way towards the soccer fields just south of town where we encountered what, for me, had been an unforeseen setting throughout my time in the community; a significant gathering of people. Much to my surprise, the soccer fields were full of men and women setting up vending stations and preparing large quantities of food and drink for an upcoming event.

A medley of aromatic smells emanated from the variety of foods that were being prepared. Foods such as *chicharron* (fried llama meat), *buñuelo* (a type of fried bread), *api* (a warm, purple colored drink made from corn and spices), and Huari beer permeated the air along with the collective energy of the many men and women who were setting up their makeshift bars and cooking areas that morning as well as those who had opted to begin their festivities early. Over the course of two months living in Condo, not once had I seen a vendor selling food or drink as I had only ever known a very quiet, slow, and sparsely populated town mostly characterized by an absence of energy and a dearth of social life outside of the confines of adobe and brick walls. However, the town blossomed throughout the day and into the night as the community of Condo transformed itself into a bustling center of social activity ripe with a sense of joviality that seemed to invigorate the sleepy town and its rocky, dirt roads. In fact, vendors were set up throughout the

town selling a variety of foods and drinks to the many temporary residents who had just arrived, as hundreds of people filtered into Condo that day from various places, both near and far, to attend an annually-held soccer tournament. There were suddenly vendors selling street food commonly found in the cities such as *salchipapa* (a mix of french fries, sausage, and cheese), newer vehicles parked on every street corner, and a wealth of decisively 'modern' individuals clad in the most up-to-date attire complete with smartphones. As the day progressed, more people continued to arrive. Kids ran loose throughout the streets while hordes of men gathered in groups bickering, laughing, and conversing with one another whilst passing bottles of beer. Music could be heard from the furthest edge of town and for the first time throughout my stay in Condo, the town was lively.

The date of August 6th marks the Bolivian day of Independence and throughout that week festivities are held as the community of Condo comes together to celebrate not only the birth of the nation-state to which they belong but also their ties to kinfolk and the social connections that play integral roles in their lives. Following the celebration of Bolivian independence was the annual soccer tournament, where twenty-two male soccer teams and twenty female basketball teams competed. Each team is associated with a particular *ayllu*, and most everyone with a distant connection to Condo come from all around to rekindle their relations with extended family members and friends while cheering for their favorite teams and partaking in one of the most extensive social events of the year. Without exaggeration, the population of the community multiplied at least six times over, if not more. Where previously one in every four or five houses was occupied, every single house and adobe structure was suddenly filled with families and every street corner had a vehicle parked on it. The community of Condo literally transformed itself over night.

Because the soccer tournament was certainly a significant social event, it also proved to be an insightful ethnographic moment as it presented the opportunity to gain a deeper understanding of the community and the vast number of migrants who maintain their connections to it. Indeed, it was during this event that I was able to learn, through conversations with returning migrants, of the extensive and distant networks that people from Condo have developed through migration. Throughout these conversations I learned of multiple reasons why people have chosen to emigrate. Such justifications included the lack of sufficient economic opportunity provided through agricultural production, a changing climate that has increased the difficulty in sustaining an agricultural livelihood, or a desire to live a more modern lifestyle. In fact, when speaking with those who had only recently migrated they often cited the interconnections between economic opportunities in the community and the impact that climate change, including the lack of available water and decreased rainfall, has had on their decision to leave the community. For a number of reasons including but not limited to those I have just listed, several people who previously lived or were born in the community have chosen to emigrate to larger cities such as Oruro, Cochabamba, Sucre, and occasionally La Paz or El Alto.

Although I spoke to many who had altogether left the countryside to carve out lives in city-centers, be they in Bolivia or elsewhere, I also encountered a different category of migrants, ones that had maintained their rights to land in Condo. While certainly many migrants have chosen to live in the cities permanently, others have chosen to migrate seasonally where they can labor on larger, industrial farms in the *oriente* (eastern lowlands) or in neighboring countries such as Chile and Argentina while maintaining their connections to the community of Condo and partaking in specific, strategic forms of agricultural production. In fact, the cultivation of quinoa seemed to be a sort of adaptive strategy employed alongside various forms of migration by many Condeños as the combined effects of neoliberal economic reform, the impacts of climate change through

changing rainfall patterns, and an overall lack in availability of water, left many residents without viable opportunities to sustain a livelihood through local agriculture alone. Undeniably, the topics of climate change, quinoa production, economic opportunity, and migration came to dominate my research throughout the three months I spent in the community from June to September 2015.

This thesis examines the combined effects of globalized processes and the ways in which they together converge both temporally and spatially to impact the livelihood strategies of residents in and around the community of San Pedro de Condo. Topics of concern throughout the thesis include climate change, neoliberal reform, resource extraction, and global quinoa demand which have collectively engaged and affected the livelihoods of *campesinos* and other community residents throughout the greater Condo region. More specifically, I analyze the interconnections of these globalized processes and their ramifications for the ecological health of the environment, agricultural production strategies, traditional knowledge of and relations to the environment, and livelihood strategies.

In this introductory chapter, I lay the theoretical and contextual foundation for the remainder of the thesis. I begin by highlighting the relevant historical, geographical, and political-economic background of the community of San Pedro de Condo before I dive into a wider discussion involving World Systems Theory (Wallerstein 1974) and Bolivia's position on the periphery of the world economy. I then transition into a discussion of climate change where I present a theoretically driven segment that justifies the need to conduct localized, place-based research into both the material and social impacts of climate change. After a brief section on neoliberal reform in Bolivia, I outline the primary contribution of this thesis to the broader literature on capitalist processes, the role nature plays within it, and its implications for the rural peasantry. In conclusion, I present the methods employed to conduct the research that informed the bulk of this thesis before presenting the order and content of its chapters.

San Pedro de Condo, Oruro, Bolivia

The community of San Pedro de Condo is located just 10 km southeast off the shores of Lake Poopó on the dry and treeless altiplano of southern Bolivia at 19° south and 67° longitude. The town is only 18 kilometers from Challapata where Condeños sell their agricultural products, roughly 136 kilometers south of Oruro where many Condeños live at least part time, 350 kilometers from Cochabamba and over 500 kilometers to the *Chapare* where many residents migrate seasonally to labor on larger farms or grow coca. Condo is the name of the *cantón* (county), which is the smallest division of political districts in Bolivia, but also the *de facto* name of the village whose full title is San Pedro de Condo. The village itself is set against a backdrop of the hills and mountains of the *Cordillera Azanaques* and nestled at the mouth of a river valley that shares the same name. The village of Condo is at an approximate elevation of 3800 meters (12,500 feet) while the surrounding peaks rise to 5200 meters (17,000 feet).

The altiplano, meaning “high plain” in Spanish, is an intermontane plateau that sits between two Andean mountain ranges, the eastern and western *cordilleras*, and stretches throughout the Andean region from Peru in the north to Chile and Argentina in the south with an average elevation of 3,750 meters (12,300 feet). It is characterized by intense sunshine, cold temperatures, strong winds, and periodic droughts that have become more common over the past few decades. The southern altiplano is particularly harsh as it is colder, drier, and more barren than the northern altiplano and its soils contain high concentrations of salt and sand. The difference in temperature between night and day are some of the highest in the world and the high plateau experiences quite a range of temperatures as it can drop to minus 18° Celsius (-4° Fahrenheit) on winter nights (potentially colder in some locations) while annual summer highs can reach 27° Celsius (80° Fahrenheit) with an average annual temperature of 10° Celsius (50° Fahrenheit) during the day (Seth et al. 2010; Sikkink 1994). Further, the annual cycle of the

altiplano is marked by a rainy season from November to April with an approximate average of 466 mm of precipitation per season, and a dry season where precipitation is negligible from May to October (Sikkink 1994).

Archaeological evidence suggests that inhabitation of the greater Condo region predates the Inca empire, dating back as far as AD 1000 (McEwan 1991 cited in Sikkink 1994), however the nucleated settlement of San Pedro de Condo that exists today was founded sometime between 1524 and 1564 at the behest of the Spanish colonial empire and their campaign to establish consolidated settlements known as *reducciones* (Sikkink 1994). Briefly, the *cantón* of Condo was originally established as such because of its status as an indigenous unit. In fact, the greater Condo region (also referred herein as “wider Condo”) contains several different *estancias* (hamlets) scattered throughout the territory that constitute much of the population of Condo. Sikkink (1994) estimates that during her time in the field there were roughly 2,720 people scattered throughout the wider Condo region. Further, she counted 344 family houses in the village of Condo and estimated that roughly 73 families inhabit the town permanently; putting the town’s population somewhere around 365 people if one were to assume an average family has five individuals (Sikkink 1994). Although I was not able to collect census data on the population of Condo in 2015, I would estimate that throughout my time in the community there were less than 50 families who were there permanently, the vast majority of whom carve out a living through various forms of subsistence and market-oriented agricultural production as well as pastoralism throughout the *pampa* (flat plain) of the altiplano and high hills of the *cordillera*.

Although many people on the southern altiplano are not able to cultivate much beyond quinoa, the community of Condo enjoys a unique location that provides more advantageous conditions for agricultural production. Located on the southernmost banks of what was Lake Poopó in a *rinconada* (corner) of the hills, the community of Condo has greater potential for

agricultural production than other areas throughout the altiplano, as the sandy soils that characterize much of the southern altiplano run up against the hills of the *Cordillera Azanaques* which grant the community a more protected climate, better soils, and a more reliable water supply (Sikkink 1994). Even so, agricultural production remains a risky endeavor for Condeños as the region is prone to periodic drought and frost can occur at almost any time of the year. Condeños cultivate a variety of agricultural products on the upper part of the *pampa* near the village, throughout the river valley, and along the hillsides. Cultivated crops include potatoes, fava beans, quinoa, barley, maize, peas, *oca* (tuber), wheat, *papa lisa* (tuber), and *isañu* (tuber). Because agriculture is impossible in the higher elevations, pastoralism is a widespread practice throughout the hills of the *cordillera* where llamas and, to a lesser extent, alpacas are left to forage. Cows and sheep herds graze lower down on the uncultivated *pampa* and donkeys are used to transport cargo.

Although agricultural production has long been central to the agrarian-economy throughout the greater Condo region several challenges over the past four decades have had ramifications for the environment and economic activities on which Condeños depend. The first of which was the opening of the María Teresa tin mine in the hills of the *Cordillera Azanaques* just ten kilometers upstream from the village. Starting operations in the 1930's and remaining open until the 1970's, the mine posed consequences for the agricultural landscape of Condo as it drew large sums of water from the Azanaques River and occasionally released contaminated tailings downstream, subsequently entering the fields of many *campesinos* and eventually reaching Lake Poopó. Several Condeños lamented the contaminating effect of the mine during Sikkink's time in the community in 1990 and multiple community residents told me about the consequences of the mine as well. Referencing water pollution that stained river rocks a rusty red and that caused the

deformation of crops as well as the long-term loss of agricultural plots, the effects of the mine remained in the minds of many Condeños because of its adverse effects on land and water.

In addition to the mine, the community of Condo was confronted by neoliberal economic reform and climate change, both of which had consequential impacts on the rural peasantry. The combined effects of a severe drought throughout 1982 and 1983 coupled with an economic reform in 1985 that cut back subsidies and drastically reduced the domestic, niche markets for which Condeños produced encouraged a massive wave of out-migration from the altiplano, including Condo. Subsequent neoliberal reform throughout the 1990's and on-going climate change furthered these challenges as natural resources were privatized and several rural communities were expropriated of natural resources including water. Moreover, the effects of climate change began to stack up on themselves thus increasing the marginality of water sources and causing a slew of other environmental issues including unpredictable and irregular weather patterns that disrupted agricultural production and even caused the erosion of hillside plots, among other transformations.

Condeños have responded to the challenges they face from economic reforms and environmental changes by engaging in economic out-migration and by adopting quinoa as a cash crop. Quinoa has become a major cash crop throughout the altiplano in the last 30 years, as global demand for the crop has risen sharply. It is also a crop that can be accommodated within the rhythms of economic out-migration, meaning that migrants can return home to plant, fumigate, and then harvest the quinoa crop, providing them with a second source of income while allowing migrants to maintain ties to the community.

Anthropological Approaches to Peasant Communities: A Brief Overview

The community of San Pedro de Condo is predominantly comprised of self-identified *campesinos* and *campesinas* whose primary political economic engagements center on

subsistence and household agricultural production. As such it is necessary to briefly outline anthropological approaches to peasant communities and the ways in which scholars have perceived the rural peasantry. Briefly, Eric Wolf (1969) described peasant communities as populations that are existentially involved in and making autonomous decisions about cultivation. In Latin America, specifically, Wolf identified three basic criteria for establishing peasants as a social category: (1) retaining a primary involvement in agricultural production; (2) having effective control of land; (3) and having a primary orientation towards subsistence rather than reinvestment (1955). In fact, throughout the modern era of anthropological thought, from the 1960's through the 1980's, anthropologists perceived peasant communities and lifeways as timeless, traditional peoples who exist outside of the flow of modern history (Starn 1991).

Throughout this era, the primary focus of anthropological research in peasant communities was centered on ecological and symbolic analysis and their implications for adaptation, ritual, and cosmology. This analytical trend was driven by and indeed further entrenched beliefs of an essential Andean mentality, often referred to as Andeanism or '*lo andino*' (Starn 1991). Andeanism invokes a sort of 'folk mentality' (McNeish 2002) that is ubiquitous throughout the Andean cultural landscape and firmly grounds all Andeans within a timeless, preconquest past whereby life has remained nearly unchanged since the time of the Inca. This concept proved to be an attractive analytic as anthropologists tended to frame the persistence of traditional Andean culture as resistance against colonial and neocolonial forces (Salman and Zoomers 2003) that predicated on social and economic closure from outside forces including the national economy or participation in agricultural markets. In the name of autonomy and self-determination it was thought that Andean communities purposefully excluded themselves from political, economic, and social institutions attached to the nation-states within which they are positioned as an assertion of their own, distinct cultural identity (see Isbel 1985).

However, the misguided preoccupation of Andeanism and the idea of traditional, unified, and closed corporate communities blinded anthropologists to the impacts and influence of external forces that led to the culmination of *Sendero Luminoso* and the Peruvian civil war (Rivera Cusicanqui 1993; Starn 1991). This led to a critique of Andeanism within the scholarly literature ripe with accusations of a sort of Andean 'Orientalism' that produce what Gupta (1988: 8) calls "a set of dichotomies...bequeathed from colonial discourse", including distinctions between modernity and tradition, indigenous and Western, global and local (Walsh-Dilley 2013). The consequential development of *Sendero Luminoso* and the underlying discontent within the peasantry that went undetected by the many anthropologists working throughout the Andes at the time sparked a moment of reflexivity within anthropological theory that advocated for an epistemological transformation in the ways that agrarian communities are studied by anthropologists. Rather than study peasant communities in isolation, Kearney (1996) as well as others (see Bebbington 1999; McNeish 2002; Rivera Cusicanqui 1993; Starn 1991) suggested that any genuine anthropological approach to rural communities must theoretically situate them within global contexts and must attend to the history of the nation-state and its position within global society (1996: 2). This transition accepted the fact that peasants are not locked into a uniformly static corporate acceptance of their world, but often refashion their social structures and institutions to meet their current needs and position themselves within strategic political and economic positions (McNeish 2002).

Working off this theoretical framework, I firmly ground my research within the epistemological approach that positions peasant communities within a broader global context by analyzing the ways in which Condeño peasants have engaged with the national Bolivian political economy and other international markets. In doing so, this thesis contributes to the broader ethnographic literature that attempts to understand how local rural communities in Latin America

think through the manifestation of the global in the local by approaching a locality as deeply embedded in both the national and international rather than in opposition to it.

Globalized Phenomena: Intersections of the World Economy & Climate Change

Because this thesis centers on processes of globalization it necessitates the incorporation of critical discussions on capitalism and the environmental consequences of capital accumulation. As such, the impacts that various processes and phenomena such as neoliberal economic policy, resource extraction, and climate change have had on the rural environment of Condo and the altiplano more generally are addressed in depth throughout the thesis. When treated as separate phenomena the connections between resource extraction, resource vulnerability, climate change, and neoliberal reform may not be entirely evident, however they share both temporal and spatial characteristics and their residual effects are mutually reinforcing. More to the point, positioning these phenomena within a global model may provide the conceptual and analytical framework necessary to extricate them from the rather opaque veil that is our world's political-economic system as a means to make their connections understood. To do so, I turn to theorist Immanuel Wallerstein's "World-System" model which he defines as a social system with boundaries, structures, member groups, rules of legitimation, and coherence (1975; 1979). He asserts that to date, there have only ever existed two such world systems: world-empires in which there is a single political system that rules over most of the area, or a world-economy. Wallerstein identified capitalism as the driving force behind the current world-system which has persisted, in a multitude of forms across spatial and temporal scales, for over 500 years (1975; 1979).

Wallerstein further adds that while capitalism is pervasive throughout the world the division of labor is correlated with geographical location in part because of environmental circumstances but also due to the social organization of work, or rather the ability of particular groups within the system to exploit the labor (or resources) of others. He identified the different

geographical areas that constitute the world-economy as core, semi-periphery, and periphery; all of which have different class structures, use different modes of labor control, and profit unequally from workings of the system (1975: 162; see also Amin 1974). Core states are those countries most advantaged by the world-system as they produce capital-intensive consumer goods derived from the surplus produced through the labor and/or natural resources in peripheral and semi-peripheral areas which are typically resigned to the exploitation of natural resources and production of raw materials. It should be noted that because of the largely post-industrial economy that we live in today, core states are no longer dependent upon the manufacture of consumer goods as they once used to be, but rather engage in much more “white collar” activity such as the consolidation of banking resources, lending platforms, and other economic forces that are tied to the accumulation and allocation of financial resources. However, the role that peripheral states, such as Bolivia, hold in the world-economy have largely remained the same.

I find Wallerstein’s World Systems Theory relevant to my thesis because of the peripheral position Bolivia inhabits in the global economic system and its long history involving the exploitation of natural resources at the behest of foreign countries that exist at the core of the world economy. Mining has long been a defining feature of Bolivian political economy and national identity, even before it became an independent nation (Perreault 2012). Throughout the colonial period the silver mines of Potosí were once the richest in the Spanish empire, while in the early twentieth century the tin mines in the department of Oruro made Bolivia a leading exporter of tin (Nash 1993). In fact, the María Theresa tin mine was in operation in the hills above the community of Condo from 1930 through the 1970’s (Sikkink 1994). This dependency of resource exploitation of various forms has persisted into the current era for Bolivia, indeed for much of the Global South and other peripheral nations, and while the extracted resources have generated

immense sums of wealth, these activities have done little to foster local or regional development. Oruro and Potosí remain the poorest regions in the country to this day.

Such illustrations of the global economic connectedness that Wallerstein envisioned for the capitalist world system shares similarities with that of climate change and global warming, which is also an integrated, global phenomenon. Further, the impacts of global warming, which have been felt on an ever-more intensifying scale in the last 40 years, has coincided temporally with the Washington Consensus and the spread of neoliberal economic and social policies across much of the globe. While this temporal convergence may be coincidental, their intermingling has made the effects of one exacerbate the consequences of the other, and vice versa. As such, treating neoliberal transformations and climate change together allows me to shed light on how economic and environmental forces coalesce, in this instance, with severe consequences for indigenous peasants of the altiplano.

Global Climate Change & The Necessity of Localized Research

Climate change has had a wide array of impacts throughout the world as changing weather patterns present unique, and often, negative implications for the various peoples left in its wake. One of the countries hardest hit by climate change has been Bolivia, especially in the high Andes and the altiplano region. In fact, Bolivia is currently enveloped in the most severe drought the country has faced in the past 25 years prompting the Bolivian government to declare a state of emergency in the city of La Paz and El Alto. Prolonged periods of drought combined with receding alpine glaciers that have historically been crucial for feeding local water supplies have put serious strain on the aquifers that supply the drinking water to millions of residents throughout the two cities. As I write this in March of 2017, the primary reservoir serving La Paz and El Alto is registering at under 1% capacity while the two secondary reservoirs are currently hovering near 8%. In response to public protests, military officers have been deployed to distribute

water, emergency wells have been drilled, and an emergency pipeline is being constructed to pump water from the nearby Kairuni River. Some 400,000 residents of La Paz are currently under a strict water rationing measure. Taps are turned off for up to 60 hours at a time followed by a 12-hour period where residents can replenish their supplies. In other neighborhoods, tanker trucks that were previously used to transport gasoline have been emptied and are now delivering truckloads of water to residents throughout the city who are allowed to fill two five gallon buckets at a time. Critics claim that while climate change is certainly part of the issue, the lack of water has been exacerbated by development projects and mining companies who use large quantities of water that would otherwise be used by city residents.

Although Bolivia is currently facing severe repercussions from changing weather patterns, it is not the first time the country has been gripped by extremely harsh environmental conditions associated with climate change. For instance, due to a strong El Niño during the rainy season of 1982-1983 the Bolivian altiplano experienced one of its most severe droughts to date. While uncharacteristic and extreme weather patterns were widespread across the country, the effects of severe drought were concentrated in the altiplano. Unprecedented in its intensity and duration at the time, the drought led to the loss of over 85% of the potato crop and 50% of both quinoa and broad bean crops; an unquantifiable number of livestock died; and water sources dried up (Mariscal et al. 2011). Total losses were estimated to be over US\$400 million as national farm income fell 22% and the GDP dropped by 8% (ibid). Additionally, the average caloric consumption dropped from 2100 calories per day to just under 1200, and for the first time the government was forced to import basic foodstuffs at a cost of over US\$150 million (ibid). Importantly, the 1982-1983 drought is widely regarded as the first instance that climate change began to manifest itself in a significant manner. In subsequent years, El Niño patterns have become more pronounced,

not always in intensity but in duration and frequency, and thus have compounded the effects of resource vulnerability on the countryside and in Bolivia more generally (Mariscal et al. 2011).

Because of events such as the current water crisis and previous environmental challenges presented above, the topic of climate change is something that has spread throughout the world as a major issue that poses a threat to global society. International teams of experts have compiled numerous scientific reports which irrefutably confirm that not only is climate change currently taking place but that it is very likely caused by human activity, a clarifying point made by the Intergovernmental Panel on Climate Change (IPCC 2007). Scientists assert that while the earth's climate has always experienced natural climate cycles, the current warming trend is unprecedented in comparison to the natural cycles of the past 650,000 years (as informed through ice core records from Antarctica). The ramifications of such drastic transformations are far-reaching as Earth's various ecosystems are hit with a warming climate as well as a warming ocean, shrinking ice sheets, declining arctic sea ice, glacial retreat, decreased snow cover, ocean acidification, and an increase in extreme weather events. While the physical, scientific understandings of climate change have been well-developed through research the social implications of a globally changing climate are less developed.

Throughout the past two decades anthropologists and cultural geographers have become involved in climate change research as more of the place-based peoples with whom the discipline works begin to experience changes in their local environs (see Boillat and Berkes, 2013; Crate 2008; Crate and Nuttall 2009; Cruikshank 2005, 2012; Fabricant 2013; Paerregaard 2013; Strauss and Orlove 2003). While one catalyst behind this recent surge in climate research and its social or cultural implications has been informed by local concerns regarding livelihoods, a secondary motivation has been to understand climate change as a lived reality that has, at times, complicated the mainstream scientific narrative which often assumes a deterministic relationship between

humans and the environment. These views, fueled by anxieties regarding the impacts and implications of future anthropogenic climate change, have granted the climate some of the former powers attributed to the environment over peoples and societies in antiquated deterministic arguments (Hulme 2011). Hulme, defines climate reductionism as

“A form of analysis and prediction in which climate is first extracted from the matrix of interdependencies that shape human life within the physical world. Once isolated, climate is then elevated to the role of dominant predictor variable” (Hulme 2011, 247).

He argues that climate reductionism is but one form of thought that has become dominant in the analysis and subsequent predictions of both present and future environmental change through what he calls “epistemological slippage”. Such “slippage” occurs when one domain of knowledge, for instance climate modeling, is given predictive authority over a separate domain of knowledge, let’s say the impacts that climate change may have on social, cultural, or economic structures, without the appropriate theoretical or analytical understandings (Hulme 2011). Such a methodology, he argues, has emerged through the hegemony held by the predictive natural sciences over human attempts to understand the future due to the supposed “knowable” variable produced through abstract measurement and climate modeling. Therefore, because climate modeling has produced a “known” variable in an otherwise unknowable future, such algorithmically-derived virtual climates have been elevated above other unknowable variables such as future ecology, economic activity, social mobility, human behavior, adaptation, and even cultural change to determine the trajectory of peoples, cultures, and societies interacting with a changing climate.

In a similar fashion, anthropologists have critiqued scientific approaches to understanding climate change and the impacts it may have through the use of abstract measurement and climate models due to its quantitative bias and failure to accommodate sociocultural elements (Crate 2011; Krauss 2009). Following Tsing (2005: 1) both nature and climate are “universals” as their

“global connections are everywhere”. However, Tsing (2005: 101) also notes that universals have particulars as well, and one of climate’s particularities is that “global climate is a model”. Due to our dependency on scientific models to envision climate change, the issue of localizing climate change and what it means for specific localities becomes problematic as the process of “localizing” within a scientific model is an arbitrary process (Krauss 2009) in that it requires a procedure of “downscaling” from global climate models. Though often times aided by more regionally-appropriate data, this process is nonetheless a calculation derived from other large-scale calculations that make up global climate models. In sum, quantitative scientific models have little relevance for the particular localities that they attempt to target due to the lack of contextual information and sociocultural elements which hold surprising ramifications for the outcomes and impacts that climate change may have on a specific locale (Krauss 2009).

While it is clear that climate change works on a global scale through the accumulation of greenhouse gases and various processes attached to the global economic system, it is equally evident that much of the individual phenomena that underlie microenvironmental processes, economic activity, resource use, and population dynamics arise at a local scale (Wilbanks and Kates 1999: 602). In a similar argument to that of Krauss (2009) which I have drawn out above, Wilbanks and Kates also highlight the fact that “the bulk of the research relating local places to global climate change has been top-down, from the global toward the local, concentrating methods of impact analysis that use as a starting point climate change scenarios derived from global models” (1999: 601). Therefore, it becomes necessary to understand how environmental change is perceived from below and how global warming is imagined and experienced as a local phenomenon within a specific locality that, viewed from the emic (inside) perspective as opposed to that of the etic (outside), is the epicenter in people’s life-world rather than a unit in a geographical yardstick (Paerregaard 2013: 293). In order to carry out such a research endeavor,

one must identify and examine the local as integrated in but separate from the global in that it is continuously being realized (Lambeck 2011: 209; Paerregaard 2013). This implies a necessary refocus of analysis from “scale and connectivity” (Paerregaard 2013: 293) to “acts and the circular ripples of their consequences” (Lambeck 2011: 206). Following this framework, this thesis attempts to understand local impacts and understandings of climate change in the community of San Pedro de Condo through the discourse and perspectives of individual community members who at once belong to the same locality but are people variously positioned within local political economies and environments.

Resource issues such as the current Bolivian water crisis presented above are becoming more widespread as the consequences of climate change continue to confront unprepared and ill-equipped regions of the world who remain highly vulnerable to climatic variations. Alongside the marginalizing effects of climate change are broader social and economic developments that often complement the negative outcomes of changing weather patterns. As such, to understand the multiple and varied implications of climate change it is necessary to analyze them within a broader socio-economic context in which disparate transformative processes are understood as mutually exacerbating. By situating climate change within the complex web of social, economic, and material relations that mediate people’s interactions with their environment, rather than treating it in isolation, this thesis attempts to provide a more nuanced understanding of the impacts that both globalized and localized processes have on the lifeways of specific people and the broader societies within which they live.

Neoliberalism: The New Economic Policy & The Plan for All

Contrary to the vacuum sealed setting of some scientific models that attempt to quantify and rationalize the potential impacts of climate change on human populations, the global phenomena occur within a specific temporal period where in, depending on the place, other

processes of change and transformation are simultaneously occurring. Having recognized that climate change occurs in conjunction with processes of globalization, O'Brien and Leichenko (2000) coined the term "double exposure" to refer to the process where a particular region, sector, ecosystem, or social group is confronted with the impacts of both climate change and economic globalization (O'Brien and Leichenko 2000: 227). Through the recognition that the effects of climate change are influenced by socioeconomic trends as well as the structural economic transformations that occur under "economic globalization", which the authors define as a set of processes whereby production and consumption activities shift from the local or national scale to that of the global (2000: 225), O'Brien and Leichenko (2000) opened new space for an investigation into the ramifications of global processes that, among others, influence social and economic change.

In the case of San Pedro de Condo, and Bolivia more generally, the double exposure of climate change and economic globalization occurred through neoliberal reform and the implementation of Structural Adjustment Programs (SAP's) in 1985. Amid a swelling foreign debt, declining gross domestic product, and an astounding rate of hyperinflation among other factors the newly re-elected MNR party implemented a set of structural reforms mandated by the World Bank and IMF (Perreault 2005; Sanabria 1999). The New Economic Policy (NEP) was the name given to the Bolivian style of Structural Adjustment Programs (SAP's) rolled out under the neoliberal reforms of the 1980's and entailed the closure of state-owned mines, privatization of state-owned industries, and the devaluation of currency (Kohl 2006; Perrault 2005; Sanabria 2000). Major cutbacks were made to state-run industries that resulted in the layoff of over 35,000 manufacturing workers as well as some 20,000 miners who lost their jobs due to the closure of the mines, with devastating effects on mining communities throughout the departments of Oruro, La Paz, and Potosí (Arze and Kruse 2004; Gill 1997; 2000; Kohl 2006; Sanabria 1999; 2000).

Additionally, the New Economic Policy also involved the dismantling of trade barriers that were meant to protect domestic, small-scale producers in favor of commercial liberalization and heavily-subsidized agricultural imports (Arze and Kruse 2004; Chaplin 2010). The Bolivian state altered terms of trade with small-scale producers and their products destined for internal markets by cutting back subsidies and economic safeguards which ultimately led to a decline in domestic crop production that largely came as a result of increasing production costs and the arrival of cheaper imported agricultural goods from neighboring countries (Sanabria 1999). This development persisted throughout most of the neoliberal period in Bolivia leaving peasant producers devoid of economic opportunity as prices of products produced in the western highlands declined by more than 30% from 1985-2001 while the annual value of agricultural imports, which substituted for national production, multiplied tenfold from \$1 million in 1982 to \$10 million in 2001 (Arze and Kruse 2004). In sum, neoliberal reform diminished the economic viability of crop production for domestic markets and provided at least one of the driving forces behind the wave of out-migration that occurred in the community of Condo as I presented in the introduction of this chapter.

Such a drastic loss of jobs in the mining sector and the diminished economic viability of small-scale agricultural production sparked a major episode of out-migration from rural communities and mining centers to various locations including the Chapare, where migrants could engage in coca production, as well as the newly established immigrant city of El Alto among other places (Arze and Kruse 2004; Gill 1997; 2000; Kohl 2006; Sanabria 1999; 2000). Ultimately, the New Economic Policy (NEP) of 1985 restructured the Bolivian economy and opened its doors to foreign investment thus furthering their participation in global markets as it laid the foundation for decentralization and more sweeping economic reforms that were to come (Kohl 2006; Perrault 2005; Spronk 2007). After a few relatively stagnant years under a leftist government a new wave

of neoliberal reforms were implemented under President Gonzalo Sanchez de Lozada's *El Plan de Todos* (The Plan for All), which held significant ramifications for resource governance and water in both urban and rural settings (Perrault 2005; 2006).

Although the *Plan de Todos* consisted of seven major components there were three specific laws that held potentially contentious consequences for rural water resources including the *Ley de Participación Popular* (Law of Popular Participation; administrative decentralization), *Ley de Capitalización* (Law of Capitalization; privatization of industry), and the *Ley INRA* (agrarian reform law) (Perreault 2005). Briefly, the 1994 Law of Popular Participation (LPP) transferred the duties of administrative governance to the municipal level and scaled back the federal government's role in local governmental affairs. Thus, municipal governments were granted authority over development planning, infrastructure construction, and financial decisions as they were allocated 20% of the national budget (Albro 2006; Kohl 2002; 2006; Perrault 2005). Although the LPP granted municipalities authority over the establishment and maintenance of micro-irrigation systems as well as the authority over springs and streams, due to structural constraints municipal governments often lacked the funding necessary to ensure the monitoring and regulation of water quality and water sources (Perreault 2005). Furthermore, the Law of Capitalization in 1994 partially privatized five major industries in Bolivia but more importantly for the discussion of water it strengthened the institutional framework that has advanced the privatization of some water sources while encouraging foreign investment in mining and agriculture. Thus, the Law of Capitalization did not directly privatize natural resources but it did help to further implement an institutional and ideological context in which resource privatization is encouraged and facilitated (Perrault 2005; 2008). In addition, the Agrarian reform law (INRA) of 1996 granted local governments authority over surrounding rural communities, lands, and resources thus rescaling land-tenure relations and solidifying the necessary conditions for

accumulation as land and water management was consolidated under the INRA law (Perrault 2005) and thus made more responsive to local governance; an arm of the government which is easily manipulated by corporations with private interest attached to global markets.

Accumulation by Dispossession and Dispossession by Accumulation

In effect, neoliberal reforms in Bolivia ripened the conditions for foreign investment through processes such as administrative decentralization and economic liberalization (privatization) which gave transnational corporations nearly unfettered access to much of Bolivia's natural resources and thus further entrenched the processes of accumulation by dispossession (Perrault 2006; 2008). According to Harvey, accumulation by dispossession is merely a continual form of primitive accumulation through which crises of overaccumulation are relieved by "releasing a set of assets (including labor power) at very low (and in some instances zero) cost and turning them to profitable use (2003: 149). Just like Marx's conceptualization of primitive accumulation, accumulation by dispossession is a way to accumulate capital without the use of wage-labor, thus it is accomplished through extra-economic means. Although primitive accumulation and accumulation by dispossession typically focus on the process of divorcing producers from the means of production (subsistence) accumulation by dispossession can take other forms as well. One alternative form of producing profit under accumulation by dispossession is accomplished by privatizing, commodifying, or devaluing assets that were previously held or used by others such as the state, peasant/indigenous communities, or the general public (Perreault 2012). Due to crises of overaccumulation and through the dispossession of previously unincorporated "assets" in the global economy such as land, resources, and labor the near cost-free acquisition and enclosure of these "assets" provides new opportunity for investment and accumulation (Kaup 2013; Perrault 2012). Such a process occurred through the neoliberal reforms of the 1990's which restructured the Bolivian economy and transferred the command of natural

resources as well as other important economic sectors from state to private control (Perrault 2006).

Textbook examples of accumulation by dispossession have occurred in Bolivia with the privatization of previously collectively-held resources such as water and the state-owned resource of natural gas, both of which were either privatized and sold back to the original users or exported to global markets in pursuit of profit (see Baer 2008; Perreault 2006; Spronk 2007; Spronk and Webber 2007). The case of water privatization in Cochabamba is illustrative of these processes in that the municipal water service, SEMAPA, was sold to a transnational consortium called Aguas de Tunari which was controlled by the US-based firm, Bechtel (Perreault 2006). Upon taking control of the municipal water supply, Aguas de Tunari increased water rates by more than 200% without making improvements to infrastructure or the access that residents had to a reliable water source. What's more, much of the existing infrastructure, including pipes and wells, had been dug by hand and put in place by local residents who had set up water cooperatives that had no affiliation to the municipal water service prior to its privatization (Perreault 2006; Spronk and Webber 2007).

Unhappy with these developments, residents of Cochabamba organized marches and road blockades that quickly escalated into a regional movement involving groups of people who were and who were not customers of Aguas de Tunari. Coca growers, *campesinos*, and peri-urban residents among others joined in the struggle against the privatization of the traditionally commonly-held and communally-managed resource as they gathered to fight the granting of exclusive property rights over water to the private operator which held a number of ramifications for water users. Ultimately, the Water War of 2000 was successful as it resulted in the repeal of the contract between the city and Aguas de Tunari, the return of municipal water services to public

control, and the amendment of Water Law 2029 which permitted these type of concessions (Perreault 2006).

Similarly, In the case of natural gas, under the leadership of then president Gonzalo Sanchez de Lozada, the Bolivian government privatized the state-owned energy firm of YPFB through the Law of Capitalization and the 1996 Hydrocarbons Law. Production rights were turned over to a consortium of transnational energy firms known as Pacific LNG (Perreault 2006) and, thus, the Bolivian state experienced a significant reduction in royalties, taxes, and fees previously afforded to them. Consequentially, the vast majority of wealth generated from the production of natural gas flowed out of the country and into foreign hands much in the same way that gas was piped out of the country destined for North American markets. Following the approval to build a pipeline through Chile to the Pacific coast a groundswell of national protests swept through the country that demanded the repeal of plans to export Bolivia's natural gas as well as the reintroduction and strengthening of state-control surrounding natural gas production to facilitate greater social development throughout the nation (Perreault 2006). Ultimately, what became known as the Gas Wars of 2003 was successful and, together with the Water Wars of 2000 and a briefer Water War of 2005, led to a series of popular unrest that ousted two presidents and contributed to the rise in popularity of Evo Morales, leading to his election as President in 2006.

Although touted as an end to the neoliberal era, the election of the first indigenous Bolivian president, Evo Morales, did not lead to a decline in extractive development in the Bolivian rural countryside. In fact, resource extraction under the MAS government has accelerated throughout Morales's three terms in office as the government reinstated state control (at least partially) of the mining and hydrocarbons industries to generate revenue for the state while also allowing for the increased exploitation of the country's natural resources by foreign multinationals, but with a higher tax structure to contribute to social welfare programs

(Bebbington 2009; Gudynas 2010; 2011; Kohl and Farthing 2012; Postero 2013a; 2013b; Svampa 2015). Additionally, the MAS government further exacerbated the issue of resource vulnerability among peasant communities with the passage a new mining Law in 2014. The new law grants mining companies the right to expropriate communities and towns of land, water supplies, and other resources. It allows the use of large volumes of water for extractive processes that result in toxic discharge and the contamination of the land and waterways in the surrounding area. In effect, this law dispossesses communities of a resource that is pertinent to their livelihood for private economic gain. As an example, the San Cristóbal open pit mine near the Salar de Uyuni extracts zinc, lead, and copper and thus requires a significant amount of water for its project. The Regional Federation of Peasant Workers of the Southern Altiplano (FRUCTAS) asserts that the mine uses 15,000 cubic meters of water a day – 600 liters every second – from the underground aquifer without paying for it. As a result, local communities claim that streams have dried up, rivers have been polluted with toxic refuse, and the agricultural fertility of the land stifled (Postero 2013b). Therefore, although the policies that have been implemented under Evo Morales and the MAS are more equitable than their neoliberal predecessors, they nonetheless have exacerbated resource vulnerability for rural communities who are increasingly affected by both climate change and resource extraction.

Tom Perreault (2012) inverted the concept of accumulation by dispossession by reexamining the extra-economic processes through which dispossession occurs. Insofar as Harvey places the emphasis of accumulation by dispossession on processes of enclosure as opposed to proletarianization, as was the case with Marx, Perreault argues that Harvey's reformulation of the concept provides a useful analytic for examining the dispossession of rights to land, water, and other natural resources (2012). As an extension of Harvey's ideas rather than a critique, Perrault advocates for a close examination of the extra-economic means through which dispossession

occurs and the ways that nature is enrolled in these processes (Perreault 2012: 1054). To do so, he highlights how local peoples in the altiplano community of Huanuni are dispossessed of their livelihoods through separate processes of accumulation directly linked to resource extraction occurring in the hills above the community. Specifically, Perreault (2012) identifies three processes of accumulation that are contributing to the dispossession of land and livelihood through extra-economic means including (1) the communal dispossession of water through the accumulation of water rights by mining companies used for intensive withdrawals for mining activity, and its subsequent contamination which “remove it from the public sphere and effectively enclose it” (1051); (2) the accumulation of toxic sediments in previously fertile floodplains; and (3) the accumulation of land as the “spatial footprint” (1051) of mining activity grows over time.

Similarly, the community of Condo has had a comparable experience with resource extraction. Beginning in the 1930’s, a mine by the name of María Theresa opened in the hills just ten kilometers upriver from the community of Condo where it extracted tin well into the 1970’s. As informed through her doctoral research, Sikkink (1994) asserts that water from the Azanaques River was used to process the ore and that the mine operators would occasionally allow the contaminated tailings to wash downstream. The contaminated water would spill into the fields, subsequently decreasing soil fertility and hampering agricultural production. Indeed, throughout my time in the community several people still referenced the consequences the mine had on the water and agricultural plots throughout the valley.

Although the community of Condo has been directly affected by resource extraction much in the same way that Perreault (2012) presents with Huanuni, given the fact that extraction has not occurred in the hills above the community for over forty years, I do not position this at the center of my analysis. Rather I use this evidence as supplemental to more recent processes occurring in the community that result in the dispossession of land and water. Drawing from

Perreault's (2012) concept of dispossession by accumulation, I propose to examine the extra-economic role that climate change plays in processes of dispossession of both land and water in the community of San Pedro de Condo. I employ the concept to illustrate the ways in which the cumulative effects of climate change accumulate over time and effectively dispossess Condeños of significant resources such as water and land that ultimately result in the dispossession and/or transformation of particular livelihood strategies. More specifically, I use the concept to show the impacts that consecutive years of drought or repeated events of heavy rainfall and landslides may have on the livelihood strategies employed by peasants and their capacity to affectively respond to the challenges presented by climate change. The examination of nature's role in processes of dispossession sheds light on the manner in which primitive accumulation, as well as accumulation by dispossession, entail not only the dispossession (and sometimes privatization) of the means of production but the ecological means of production as well.

Working within this framework, I present climate change as representative of dispossession by accumulation while analyzing it alongside neoliberal reforms that eliminated the economic viability of agricultural production for domestic markets and which have also further marginalized resource vulnerability by granting mining operations the rights to water sources, both surface and subsurface, that *campesino* communities throughout the altiplano depend on. This overlap of dispossession by accumulation (climate change) and accumulation by dispossession (neoliberal reform and resource extraction) is representative of the "double exposure" (O'Brien and Leichenko 2000) presented earlier. Although it may be difficult to accurately identify just exactly when climate change began to negatively affect communities throughout the altiplano, for the purposes of this thesis I use as a reference point the severe drought that occurred in 1982-1983 as the marker in which the manifestations of climate change bore its ugly face in the globalized era. Such an event complemented the beginning of

hyperinflation that had already begun as the harsh realities of boom and bust cycles associated with global commodities confronted the Bolivian market in the way of tin prices and subsequently prompted the implementation of a neoliberal Structural Adjustment Program (SAP) in 1985. Thus, I analyze climate change in conjunction with neoliberal reform and its subsequent effects on the rural population of Bolivia to make intelligible their interconnections.

To grasp the depth and interconnection of local, national, and global change I draw upon recent anthropological theories on globalization from various authors. One of which is Anna Tsing who encourages anthropologists to focus on zones of cultural friction, or “zones of awkward engagement” where words mean something different across a divide even as people agree to speak. Tsing goes on to say that “zones of cultural friction are transient; they arise out of encounters and interactions. They reappear in new places with changing events” (2005: xi). Moreover, Tsing’s “ethnography of global connections” (2005) refers to an “accounting of the global array of connections, in the case of global climate change, both physical and socio-cultural, that yield a specific climate change situation and inform local to global understanding and action” (McKenzie 2005: 157). In the case of Condo, the temporal and spatial convergence of globalized processes creates “frictional encounters” (Tsing 2005) that not only bear socio-cultural implications but that lead to the enclosure and dispossession of land, resources, and livelihood. Therefore, following Paerregaard (2013), I approach globalization and the subsequent processes connected to it as a complex web of phenomena involving social, cultural, political, and economic engagements. By paying attention to this entanglement of “frictions”, or “grips of worldly encounters”, as Tsing (2005) has called them, I am able to approach climate change and globalization as a complex encounter between communities, agronomists, engineers, migrants, and various other external actors who represent disparate perspectives on global processes. Furthermore, by analyzing climate change as a “global assemblage” of material, collective, and

discursive relations that mutually shape each other (Collier and Ong 2005) rather than a single, one-way process in which human activities in the developed world impact the life and the environment in the developing world, the space opens to ethnographically explore how these encounters produce new ways of perceiving, understanding, and addressing environmental issues as well as envisioning the future (Paerregaard 2013: 292).

Methods

I arrived in La Paz, Bolivia in June of 2015. Upon my arrival, I immediately began Spanish lessons at a language school in the city while introducing myself to Bolivian culture by exploring various neighborhoods and markets throughout La Paz. The first three weeks of my research were spent attempting to identify and locate a community in which I could conduct my research. Because my original research interests were widespread, partially involving different political and indigenous organizations, I began by contacting the divided indigenous organization of CONAMAQ and Organic CONAMAQ. After two difficult weeks with very little progress, in part due to the language barrier as well as the contentious nature of politically-oriented research in Bolivia and the reluctance of many to express their views to a suspect gringo, I chose to hone in on the issue of climate change and its effects on the peasantry. Taking advantage of a connection that would facilitate a smoother transition into a communal network, I contacted my previous professor, Lynn Sikkink, who had conducted doctoral research in the community of San Pedro de Condo in the 1990's. She put me in contact with the youngest son of the family she had stayed with throughout her time in Condo, a man now in his mid-40's, who graciously invited me to stay with his parents and provided detailed directions for how I might make my way to the community. A few days later I packed my bags and headed for the bus terminal, arriving in Condo near the end of June 2015.

I arrived in the community on the "*Santiago*" bus, which services San Pedro de Condo, at 6:00 pm, just before the sunset. Unfortunately, Justino and Isabel, Ravi's parents, were not home

and I was stranded in a community that had no form of accommodation. Thankfully, Doña Crescencia, the woman I sat next to on the bus, invited me to stay in her home for the night as she expected Justino and Isabel to arrive back in town the next day. After the arrival of the Santiago bus the following morning I returned to the house where I met the elderly yet welcoming Doña Isabel. After a brief explanation of who I was and what I was doing, emphasizing my connection to Lynn, Isabel welcomed me into her home where I would stay for the following three months. That same night I attended a community meeting where I presented my proposal to live and conduct research in the community to some thirty community residents, including all six *caciques* (indigenous authorities) from the different *ayllus* throughout the greater Condo region. Upon receiving approval from the community members in attendance, I was formally granted access to the community and so began my research.

My arrival in Condo occurred at an inopportune time to conduct research regarding the effects of climate change on agricultural production. There was nearly no agricultural activity going on at the time, nor was there throughout the duration of my research since it was the middle of the dry season when I arrived. Temperatures were on the chilly side and the atmosphere was almost always as clear and blue as the sky can be. During this time, I learned that many residents were elsewhere throughout the country, mostly men but some women too, engaging in seasonal migration to labor on larger farms in the *oriente* (eastern lowlands) or in city-centers where they engaged in wage labor. For these reasons, those who remained in the community were the residents that lived in Condo and the surrounding area year round and many of them were older, 50 or above, except for a few individuals. While this may have been disadvantageous for the breadth of participants engaged in this study, it allowed me to form close relationships with a smaller number of individuals and thus gain a more qualitative understanding of their livelihoods and the ways in which people of Condo went about their days.

Much of the data that I collected was gathered through participant observation, the hallmark of anthropological field methods. When I first started doing research in the community I would often walk up and down the rocky road that led to the various communities located within the greater Condo valley where I would encounter individuals working in their fields or with their animals. These encounters provided a starting point for my relations with many Condeños and proved to be beneficial for meeting and interacting with *campesinos* throughout the community. Although there wasn't significant agricultural activity occurring, many community residents were engaged with off-season tasks that I participated in and which proved to be insightful for the research project. For instance, for the first two to three weeks Justino and others were busy making chuño, a freeze-dried potato that constitutes a staple of the Andean diet. Weather conditions are pertinent to the process of making chuño as it requires a strong sun during the day and cold nights below freezing. As such, the production of chuño provided ample opportunity to discuss changing weather patterns and the ways in which the changing climate has made the production of the freeze-dried potato less reliable. I also participated in the separating, cleaning, and bagging of crops such as fava and barley to be taken to the market. During such activities, the topic of harvest quantity and quality was often discussed, implicating the ways in which last year's environmental conditions negatively affected the harvest. This provided avenues for me to further inquire into previous years' harvests and how weather patterns have come to effect agricultural production. Additionally, I helped clean irrigation ditches and till soils which provided insight into changing water availability and recent issues with pests and other nuisances in the soil structure, respectively.

Further, I accompanied Doña Isabel and occasionally Don Justino at the Sunday market in Challapata where they sold their goods. Through such interactions with various market vendors I learned of the different prices for agricultural products and how they have fluctuated over time. I

also went on two hunts into the mountains surrounding Condo where I walked across a barren talus field that once held permanent snow and ice and that, to this day, remains a significant spiritual figure in the lives of many Condeños. It also provided a vantage point where I could see the shrinking Lake Poopó, once Bolivia's second largest lake, and the vast salt flats that were left behind as the water turned to vapor. Finally, I shared many meals with several different families and partook in festival activities. Both of which shed light onto the numerous Condeños who are scattered throughout the country and, indeed, the world. Through such quotidian interactions, I was able to share countless conversations with community members that proved to be insightful into many of the daily challenges that Condeños face and the different ways in which they have come to understand and address such transformations.

In addition to participant observation, I conducted semi-structured interviews to more concretely address the issues of climate change and the perceptions behind its causal factors. I found that through interviews I could direct the conversation in a more focused manner to the topics of which I was investigating, specifically climate change. Throughout my field research, I met over 55 individual community members with whom I had significant interactions, engaged in semi-structured interviews/conversation with 21 people; and recorded the audio of 9 interviews after receiving oral consent to do so. Although it is possible to find trilingual, bilingual, and monolingual speakers as Spanish, Aymara, and Quechua are spoken throughout the community I did not have the time to learn the indigenous languages. Thus, I conducted all my research through the moderate command that I have of the Spanish language. Over the duration of my stay in Condo I compiled over 250 pages of field notes and an unquantifiable amount of "mental notes" and recollections that proved invaluable throughout the process of writing this thesis.

Presentation of the Chapters

In this introductory chapter I have presented both a historic and contextual background of the community of San Pedro de Condo. I've also highlighted the pertinent theoretical framework regarding the interconnections of globalized processes and the ways that they affect livelihoods of peoples and communities while justifying the necessity for providing a more nuanced understanding of the social impacts of climate change and other temporally relevant processes tied to Capitalism. Further, I have put forth an analytical extension for a new lens through which we can analyze the combined effects of such processes in the form of dispossession by accumulation that ties environmental transformations to the broader political-economic world system which has come to engage various societies across the globe and thus better understand the mutually exacerbating realities of global phenomena. As such, this chapter reviewed the relevant contextual and theoretical literature, and thus, has laid the foundation for what is to follow.

Chapter Two of this thesis deals more with the observations of localized climate change and the perceptions Condeños hold towards the causal factors of both a locally and globally changing climate. By drawing attention to the observational capacities of local, place-based peoples I highlight the significance of Traditional Environmental Knowledge (TEK) while also laying out the ways in which localized climate change presents significant hurdles to the utility of traditional readings of the environment that inform when to perform agricultural tasks. Furthermore, I present the transformative effects on the landscape that climate change has had in the greater Condo region and the socio-cultural, economic, and material implications of such alterations to the environment. Finally, I address the different ways in which Condo *campesinos* perceive and understand climate change and how the mainstream, scientific discourse has

entered the consciousness of community residents and subsequently influenced how Condeños think of their local positionality in a globalized world.

Chapter Three explicitly draws out the interconnections between neoliberal reform, resource extraction, and climate change and how such globalized phenomena have together impacted the overall environment of the greater Condo region and the livelihood strategies employed therein. I further draw out the implications of neoliberal reform throughout the 1980's and 1990's and connect it to the broader political-economic world system of Capitalism. More specifically, I emphasize the impacts of accumulation by dispossession on rural water sources and the peasantry and its temporal intersections with climate change, which I assert have the combined effect of dispossessing rural communities from vital resources such as land and water. Further, I connect such transformations of the environment and livelihood strategies to the global demand for quinoa and the ways in which the three interrelated processes attached to globalization coincide and encourage a shift in production and livelihood strategies among *campesinos* in the Condo valley. In conclusion, I present the very recent challenges that the rural peasantry face as the market price for quinoa has fallen significantly over the past two years and as they continue to experience the consequences of climate change and resource extraction that further marginalize the critical resources on which they depend.

The thesis concludes with a final summarization of the critical points presented throughout this thesis as well as its contributions to the broader anthropological and cultural geographical literature. Further, a brief discussion addressing the agency of Condeños and on-going efforts to curb negative economic and environmental transformations within the community is incorporated before concluding with how the study might be improved and future directions for similar research projects.

Chapter Two – Climate Change: Local Experience & Global Discourse

Anthropologists have approached the study of climate change among place-based peoples in a variety of ways with several different foci (Crate and Nuttall 2009; Crate 2011; Roncoli et al. 2009). One such area of focus is that of the perceptive and observational capabilities inherent in traditional environmental knowledge (TEK) systems and their epistemological frameworks. This type of knowledge-practice-belief complex, known as traditional environmental or ecological knowledge (TEK), has served as the primary means for understanding weather patterns and adapting to a changing climate throughout time due to its processual nature and openness to change (Berkes et al. 2000; Berkes 2012; Vidaurre de la Riva et al. 2013). In fact, forms of traditional knowledge have been the target of several anthropological and cultural geography research projects working within the frameworks of resilience and adaptive capacities (see Berkes et al. 2000; Boillat and Berkes 2013; Roncoli et al. 2009). Moreover, anthropologists have conducted several studies that highlight the empirical nature of traditional and local environmental knowledge, from the socialization of nature in Phillippe Descola's (1996) work with the Achuar of the Amazon, to extensive Inuit understandings of the arctic environment (McDonald et al. 1997) and the corroboration of Andean ethnoclimatology with Western science (Orlove et al. 2002). Traditional environmental knowledge (TEK), also referred to as local science, has the epistemological framework necessary to observe and understand place-based changes in weather through specific cultural lenses. Folk epistemologies often share a foundation of longevity in their exposure to and observations of their place of residence. While most forms of traditional knowledge systems do not consciously hold a formal hypothesis, and conduct randomized trials to test it, local actors continually experiment, observe, and adapt to the conditions in which they live. Thus, seeing and knowing are closely related in the epistemological framework of traditional knowledge systems (Roncoli et al. 2009) and such knowledge is passed down through oral history

and the amalgamation of accumulated lore (Sillitoe 2007). Paying attention to place-based observations, perceptions, and understandings of climate change has the potential to expand the discussion beyond the broader spheres of climate science and political policy which can potentially avoid reductionist thought and present disparate ontological understandings of environment.

To begin the process of merely attempting to understand the cognitive reverberations and cultural implications of a changing climate among Condeño *campesinos* my research began by delving into local observations of recent weather patterns to see if and how they differ from the recent past. On a calm, cool morning under a deeply blue sky with the altiplano sun having just shone through the cracks of lofty peaks overhead, shrinking the shadows of giants and gracing the fields with the warmth of sunshine, the opportunity to shed light onto this topic of local observation presented itself in the form of a short, squinty-eyed man dressed in well-worn coveralls who went by the name of Don Felix. We were on our hands and knees clearing off a small patch of hardened dirt that would serve as our surface for separating and bagging this year's harvest of barley. As we were loading old sacks, each with roughly 100 pounds of barley, Don Felix expressed discontent with the size of his harvest. He claimed that last year the weather was not good for the barley crop, the rain was not dependable and the crop was hit with an untimely frost. I asked him if this was normal or if the weather had been changing much recently and Don Felix replied:

“Well before it used to rain here in a very nice manner, it used to rain softly and it wasn't as strong as it is now. Now the rain arrives very strongly and sometimes with hail which deteriorates our lands and has affected our crops greatly over the past few years. The frost and rains don't come in their right times as they should. After the rains, there are droughts, then rains, then frosts that can come rapidly.”
(Felix Perez Mamani)

This account by Don Felix fits well within the ethnographic literature on climate change and the impacts that it is having on the agrarian economy in place-based communities throughout much of the Andes as well as other locations across the globe including the Circumpolar Arctic and

the Pacific (Crate and Nuttall 2009). Throughout the Andes, seasonal variation has become more pronounced and general trends in weather patterns have changed further marginalizing the availability of necessary resources and presenting challenges to the livelihoods of those dependent on resource availability and dependable weather patterns (Bolin 2009; Boillat and Berkes 2013; Vidaurre de la Riva et al. 2013). The more I spoke to the farmers of Condo the more I began to realize the connections between a disrupted rainy season and the increasing vulnerability of resources, most notably water. Throughout my three months in Condo the salience of precipitation patterns and the availability of water as a grave concern presented by a changing climate permeated conversation such as the following statement by *cacique* Germuncindo, or indigenous authority of the *ayllu* who consistently sported his green poncho, a traditional form of dress, and the whitest teeth in all of Condo, which he owed to his perfectly clean set of dentures.

“Well it used to rain more and it wasn’t quite as hot, it used to be cooler. Now, with every year it is getting a bit hotter. In September, October, November the sun is very strong and the water dries up much quicker now which has affected our irrigation capabilities...Before the rain used to come in December, January, February, and March, it used to come throughout these four months. However, now it only rains for one or two months and that’s it. The rainy season has been cut short and it is also more brutal with hail and very strong rains. The weather has changed in this manner because before normal, softer rains came.”
(Germuncindo Medrono Huarachi)

Germuncindo’s comments were reiterated in various forms throughout my stay in Condo, as I spent a lot of time asking individual farmers if they had noticed a general change in the weather over the past few decades, which elicited relatively consistent responses. Condeños overwhelmingly agreed that the strength of the sun was more intense than in the past and temperatures were generally higher than what they were accustomed to. While most participants agreed that the temperature was warmer than before, several people also emphasized that daily extremes in temperature were becoming more pronounced. Furthermore, the people of Condo

agreed that the occurrence of frost was becoming less predictable and could now arrive at just about any time of the year with potentially devastating effects on crop production and subsequently Condeño livelihoods. In sum, Condeños have experienced a myriad of changes in their local climate that they are able to articulate such as increasing solar radiation, warmer temperatures and more temperature extremes, less predictable snaps of frost, changing wind patterns, as well as shortened rainy seasons with an increase in intensity and a heightened occurrence of both hail and electrical storms; all of which are supported through previous studies of climate change among place-based peoples in highland Bolivia and Peru (Bolin 2009; Boillat and Berkes 2013; Strensrud 2014; Valdivia et al. 2010; Vidaurre de la Riva et al. 2013).

Throughout this chapter I attempt to convey local experience with climate change and highlight the ways in which paying attention to the perceptions and observations of place-based peoples can be beneficial in both developing a more nuanced understanding of how climate change operates on a local level as well as the various types of understandings that local inhabitants hold over such changes and what these changes signify to local community members and the broader community as a whole. What's more, I highlight the potential cultural implications that a changing climate may have for place-based peoples as traditional environmental knowledge (TEK) systems are challenged and significant changes to landscapes such as the loss of totem plants, animals, and physical features of the land that substantiate many place-based cultures occur. Finally, I draw on recent theories of globalization to analyze the ways in which the "double exposure" (O'Brien and Leichenko 2000) of climate change and broader processes of globalization are potentially altering communal relations and causing transformations in how local inhabitants understand their position in and relation to a globalized world.

Challenge: Traditional Environmental Knowledge & Climate Change

The anecdotes above illustrate the observational capabilities with which place-based peoples scrutinize local weather patterns as Condeños spoke about the recent variability and lack of dependability in the cycle of seasons, patterns of precipitation, and other agriculturally significant changes to local weather trends on which farmers throughout the altiplano depend. An important aspect of this ethnographic data coincides with the broader literature written on indigenous epistemologies and systems of knowing in that Condeño perceptions and observations of climate change are largely connected to a cyclical understanding of time that is very closely tied to the agricultural calendar (Roncoli et al. 2009). The detection of anomalous patterns of wind, rain, hail, snow, frost, and temperature hinge on local understandings of time, which is often informed through some sort of normative calendar based on seasonal variation and therefore important periods for agricultural production (Roncoli et al. 2009). Thus, Condeños perceive climatic variation in relation to salient categories associated with a particular period in the agricultural cycle such as rains that don't arrive "in their right time" or unexpected onslaughts of frost that occur outside of the specific time period within which local *campesinos* understand to be normal. Such understandings of the type of weather to expect and when to expect it are not informed through contemporary forecasting methods nor arbitrary observations but rather an epistemological framework based on typological thinking and generational observations produced through culturally specific interactions with the environment, including ritual, which accumulate in cognitive frameworks that are passed down through oral histories (Roncoli et al. 2009; Sillitoe 2007). Following this framework, my goal in this section is not to highlight how TEK may be used and implemented as an adaptive response to climate change, but rather to show that climate change represents an unprecedented challenge to traditional knowledge systems given the speed

and severity with which such environmental changes are occurring as previous studies have shown (Boillat and Berkes 2013; Crate 2008; 2011).

One common example of TEK in the Andes is the observation of the Pleiades star cluster during the dry season. According to traditional sources, the apparent visibility of the star cluster is dependent on the presence of high clouds in the atmosphere which is indicative of the forthcoming El Niño phenomena that is known to prevent the normal precipitation of October and leave the high Andes dry (Orlove et al. 2002). As such, this observation is indicative of the coming rainy season and thus informs the time period for sowing potato crops some three months later. Interestingly, this well-known form of Andean ethnoclimatology, which was brought to the attention of the scholarly community by Ben Orlove et al. (2002) and has been confirmed as accurate by Western science, was absent in my research; however, I did come across some forms of traditional knowledge that helped inform and predict forthcoming weather patterns.

In the case of San Pedro de Condo, many local *campesinos* maintained some understanding of traditional environmental knowledge that was useful for predicting forthcoming weather events and critical time periods for the agricultural cycle such as the time to sow potato crops, harvest fava beans, or prepare for a potentially detrimental frost. It was the fourth day of August and I was with a man who called himself “*El Gato*” just up the valley from Condo working with three donkeys that were helping us breakdown and mix stalks of fava bean, corn, barley, and alfalfa as fodder for his cows. Felipe, his real name, paused for a moment to adjust a wad of coca in his cheek that was the size of a tennis ball and then turned to the sky with a look of concern. It was then that I saw the first clouds that I had seen since my arrival in Condo two months prior as they were approaching the stark landscapes surrounding the community. I asked Felipe what significance these clouds held and he claimed that they had two meanings. The first and most immediate was that these clouds meant there was a potential it could snow within the next two

days, which was significant to Felipe because he had plans to travel to his llama pasture over the weekend and therefore he had to cover his animal feed so it wouldn't blow away. This turned out to be a good idea as a relatively strong snow and wind storm swept through the community that weekend. However, the second and perhaps more interesting implication of these clouds according to Felipe and several others, was the fact that they signified a late arrival of the upcoming rainy season. Throughout my research, over ten participants articulated this understanding that the arrival of clouds or snow in the first week of August is indicative of the coming rainy season. It stands that if clouds arrive within the first three days of August the rainy season will arrive on time and it will be a good season with plenty of rain, however, every day that the rains are late signifies the delayed arrival of the rainy season by one week and it also has implications for the quality of the rainy season to come.

In addition to this understanding of cloud patterns in the month of August, I came across other expressions of traditional knowledge and their capacities for predicting forthcoming seasonal cycles. One such story was told to me by a well-respected hunter in the community as we were out hunting *biscocha* and *perdis*, Andean forms of wild rabbit and grouse. Urbano claimed that in August, if the fox comes down from the hillsides, drinks from the creek and lets out a howl it signifies that the rainy season will be good, but if the fox stays up on the hillsides and lets out only shrill yelps it signifies a bad rainy season to come.

Condeños were able to articulate other forms of traditional knowledge that were beneficial for predicting weather in upcoming seasons. Signs such as specific wind patterns from the south indicate the potential for frost or the behavior of ants called *sikimara* that surface from below the ground and grow wings signal the arrival of forthcoming rains and are among some of the signs of the natural world that Condeños referenced. However, it should be noted that because I did my research during the dry season, which is a down time for agricultural production,

many of the questions I had regarding TEK were taken out of their seasonal context and thus could have resulted in fewer or less in depth explanations of such knowledge. For example, one relevant form of TEK that was absent throughout my research but was present when Sikkink conducted research in 1990 was the reading of moon cycles. According to Sikkink (1994), moon cycles informed when to carry out particular agricultural tasks because they corresponded to weather patterns and potential changes in weather. New moons indicate the arrival of rains if it has been dry, and the onset of dry weather if it has been wet. For this reason, farmers do not plant during a new moon, preferring to wait until it grows a bit so that they can read the signs of the waxing moon; specifically, the way in which the crescent moon is “tipped” is indicative of weather patterns to come (Sikkink 1994: 60). The fact that this form of environmental reading is pertinent to the time of planting crops could explain why it was absent in my research.

Although participants could explain forms of traditional knowledge and the ways in which such understandings of place-based weather patterns informed time periods for agricultural activity, many of these accounts were accompanied by testaments of TEK’s recent ineffectiveness in accurately predicting weather patterns.

The day that I first grasped the significance of climate change and the impacts it is having on dependable precipitation and thus agricultural production came when I was invited to help till the soils of the quinoa fields to the west of Condo near Lake Poopó. I was with Milto, a pleasant and sincere quinoa farmer in his mid-50’s who wore old faded blue jeans, beat up boots, and a baseball cap. Milto and I were driving his tractor -- one of four tractors in the community -- down to the quinoa fields on the *pampa* (flat plain) roughly ten kilometers from Condo. During our journey, we passed through scorched and sandy soils that harbored small parcels of crusty abandoned quinoa fields from the previous season. I asked Milto why these fields were left to rot and he claimed that last season was a bad year for rain and thus several of the migrant quinoa

producers had left their crop because it wasn't worth their time to harvest. Among other topics of seasonal migration and agrarian adaptive strategies of which I will address in Chapter Three, this sparked a conversation about the changing rain patterns around Condo and the recent inability to accurately predict weather using traditional means.

"The rains arrive very late and at other times they come too early, we have lost the rains. The weather has changed very much, before, when the rain arrived on time there was good production, it rained in February and there was a lot of rain. But with climate change, I believe that in reality we have felt it a lot because we cannot calculate the time to plant because the rain does not arrive on time and thus we lack rain for our crops. Sometimes it rains and before we used to know generally, the times of year that the rains would arrive and it was more predictable but now it isn't that way, the rain arrives late, sometimes too early, and recently the nighttime cold has been too strong. It remains cold at night still and it shouldn't be this way. The cold used to only come in June and July, that's when we make chuño, because the cold is around. Now, the cold can stick around later, we don't know anymore and that's why climate change has advanced. The harvests we used to have are no longer guaranteed (Milto Monte Mayor).

Examples such as this provide evidence not only towards a changing climate and precipitation patterns in Condo, but also how such changes are influencing the ineffectiveness of traditional climate knowledge within the cognitive milieu of Condeños. Similarly, other individuals discussed how traditional forms of weather prediction such as the observation of wind patterns to predict frosts or the reading of the clouds in August are no longer dependable indicators of forthcoming weather as they once were. Furthermore, climate change throughout the Andes has not only altered physical landscapes and seasonal weather patterns, but through such physical alterations both cultural and cognitive transformations follow as culturally specific interactions between humans and the environment take on new meanings.

Altered Landscapes: The Physical & Cultural Repercussions of Climate Change

The community of Condo is located at the geographic border between the *altiplano* and the *Cordillera Central*. Providing the backdrop for Condo is the more immediate mountain range known as the *Cordillera Azanaques*, which takes its name from the highest peak in the region.

Briefly, Andeans understand mountains as sentient other-than human beings, commonly referred to as *apus* (de la Cadena 2010) and often endow landscapes with anthropomorphic traits. The geographical arrangements of surrounding mountain chains are understood to constitute a living body, complete with a head, body, and feet among other parts and are even understood to have social relations between themselves and other peaks as well as human communities. Such an understanding runs parallel to the ways in which traditional Andean communities, specifically kin-based *ayllus*, conceptualize themselves as a body held together through cooperation and reciprocity and thus the same expectations are held between Andean communities and surrounding mountain peaks (see Bastien 1978; Sikkink 1999).

In Condo and throughout the Andes, the hills and peaks that form the monumental landscapes represent important markers of history, myth, and territory (Sikkink 1994; 1999). The summit of *Azanaque*, is both the highest and most important peak in the region and thus holds a significant role in the minds of Condeños. After roughly one month of being in the community and admiring the surrounding landscape, Urbano invited me on a mountain trek to the summit of *Cerro Azanaque* for the purpose of hunting and introducing me to the most sacred peak in Condeño cosmology. Several individuals had warned me that the trip would not be easy as the summit sits over 5,200 meters high and the total journey would require more than 20 kilometers of walking. In addition to warnings of *soroche* (altitude sickness) and the arduous nature of the trip, others made sure that I was carrying coca and alcohol as they were necessary items to make an offering to the *apu*, or spiritual owner of the mountain, to appease its spirit and provide safe passage.

Throughout the journey that took us through llama pastures, landscapes of medicinal plants, talus fields, and abandoned Inca dwellings, the veil that prevented me from visualizing the physical changes caused by climate change and the deeper cultural implications that such changes entail was lifted. It was on this trek that, from the viewpoint of mountain peaks, I saw a shriveled

and dying Lake Poopó surrounded by blinding salt deposits left behind from the evaporating lake, abandoned nests along sheer cliff faces that were once home to condors, and an empty scree field where glaciers once took up residence. It took these types of visualizations to begin to grasp the greater implications that changing landscapes may have on both the livelihood and cultural cosmology of place-based peoples who float in the wake of the globally fueled vessel that is climate change.

Lake Poopó holds significance for both physical and cultural livelihood as its shallow and saltier water used to be home to *pejerrey* (king fish) that, according to Condeños, was an occasional food source among local households until it was polluted by extractive industry and left dry by increasingly stronger solar radiation, lack of rain, and the diversion of primary water sources such as the Desaguadero River. In fact, since my departure from Condo in September of 2015, Lake Poopó has officially dried up and may not be replenished due to the increasing prevalence of global weather patterns influenced by climate change such as El Niño and irresponsible practices by the mining industry (Howard 2016; Reuters 2015; Valdez 2016). Due to the withdrawal of large sums of water from its tributaries and the release of contaminated tailings infused with toxic refuse, the ecosystem of Poopó was destroyed long before the intense sunshine and dry atmosphere of the altiplano sapped what little water remained. The María Theresa mine of Condo certainly contributed to this issue in decades' past, however the ongoing proliferation of mining activity and development programs throughout the altiplano and the surrounding hills further degraded the endorheic watershed. Multiple participants in my research expressed concern for the loss of Lake Poopó, often making very tongue-in-cheek remarks that soon they will have their own salt flat like the Salar de Uyuni. All jokes aside, Lake Poopó served as one of several sources for spiritually significant water that was used as a ritual offering to the *apu Azanaque* in exchange for a healthy rainy season, thus its decreasing size was of concern to some.

Regardless of whether Bolivia's second largest lake will return once again to harbor important resources such as water and fish, following Crate (2008), we as anthropologists must grapple with the implications that climate change presents such as the diminishing of significant, sometimes sacred natural landscapes and the cultural reverberations of such environmental changes in causing broader transformations to culturally-specific social life which, in the Andean context, involves both humans and other-than-human beings that pervade the landscape.

As another example, the lack of condors present in the high mountains around Condo was expressed by four participants in this study who simply claimed that Condors are nowhere near as prevalent as they once were throughout the mountains surrounding Condo. In a brief note, the condor is culturally relevant in that traditional Andean cosmology holds the condor as symbolically representative of the mountain and thus is metaphorically connected to Andean society, specifically the *ayllu* (Bastien 1978). While no one elaborated on why the disappearance of the Condor was significant, it is an animal that has traditionally been revered as sacred throughout the Andes (see Bastien 1978) and thus reason enough for its brief inclusion in this discussion.

While no one articulated this connection between the mountain, the condor, and the *ayllu* the salience of concern for the lack of condors around Condo seems to indicate that Condeños are concerned or at least aware of the decreasing condor population which traditionally held positions of cosmological and ritual significance. Moreover, decreasing condor populations, a shriveled lake Poopó, and the lack of snow and ice in the highlands are illustrative of the ways in which a changing climate has impacted both physical landscapes as well as animal populations and the cultural implications such changes may present.

As anthropologists, we must understand that global climate change and its effects are not just a matter of adaptive capacities and resilience among place-based peoples as they are confronted with unparalleled change, but rather that climate change represents a potential threat

to culturally-specific perceptions of the world as relationships between humans and the local physical landscapes that substantiate their cultural cosmology are no longer possible. We must attempt to understand the cultural implications of a changing climate as human, animal, and plant populations are forced to relocate and adapt to new conditions potentially resulting in the loss of culturally specific human-environment relationships that serve as the foundation for indigenous worldviews (Crate 2008). Therefore, if we are to follow the insights of Keith Basso in that human existence is bound to time and space, that social life is accomplished through an exchange of symbolic forms, and that wisdom “sits in places” (1996; 53), then we must understand the ways in which climate change is transforming such spaces, symbolic forms, and places (Crate 2008; 573). Thus, as place-based peoples continue to observe the Earth change both beneath their feet and above their heads, anthropologists must closely analyze the cultural implications of the loss of totem plants and animals, ethno-climatological knowledge, and mythological symbols (Crate 2008).

Landscapes & Ritual

“The climate has changed sufficiently, those years when I was younger there used to be snow. Now, year after year there is no snow. For example, Azanaque used to be a white mountain (*cerro blanco*) but now there is none. We used to sell ice from Azanaque to make ice cream in Challapata, but now we are not able to do that. Now, the fields are dry and they produce nothing and for this reason many people have left...” (Genero Solá)

This quote, provided by an elderly yet sprightly individual by the name of Genero, provides a personal anecdote referencing how climate change has impacted the snow and ice that used to cover the summit of Azanaque and provide Condeños with economic opportunity as well as the necessary water to irrigate throughout the dry season. In line with Genero’s statement, several interdisciplinary and anthropological studies have been conducted on the multifaceted impacts that climate change and specifically the retreat of glaciers have on local communities that engage with and/or are dependent on glaciers for their livelihoods (see Bolin 2009; Cruikshank 2005;

2012; Orlove et al. 2008; Paerregaard 2013; Strauss 2009). In the context of the Andes, glaciers are often understood as other-than-human beings, or *apus*, by local indigenous populations as they comprise a crucial component of the sentient landscapes that exert will and influence on the trajectory of society and the well-being of local communities (Bolin 2009; de la Cadena 2010; Paerregaard 2013). Indeed, tropical glaciers throughout the backbone of South America have substantiated both the material and spiritual health of Andean cultures and communities by maintaining culturally specific relationships through ritual and by providing the life-giving substance that is water throughout the dry season.

On my trek to the high elevations of Azanaque, Urbano Coyo, my companion, took me to a ridge line that contained a sort of fence made from the surrounding rocks just beneath the summit. On the opposite side of the fence was a barren glacial cirque and a relatively flat space at the foot of the bowl that ended abruptly as a precipitous waterfall flowed over its edge. Urbano said this was a special place where people from all around, including Condo and the larger communities of Huari and Challapata, came together as a pilgrimage to show respect, pay tribute, and perform ritual for the *apu* Azanaque. According to Urbano, Azanaque holds the most influence over rainfall that surrounding communities receive throughout the year, thus many people from different *ayllus* make a pilgrimage to the high altitudes to bargain for rain and good fortune. However, Urbano also spoke in the past tense and stated that many people no longer make the pilgrimage to Azanaque nor maintain the ritual relationship that once was. When I asked why this was so, Urbano claimed that the loss of permanent ice on the mountain had created less incentive for people to make the trip as the ice held spiritual and economic significance for many. As the opening anecdote illustrates, permanent snow and ice used to represent economic opportunity to Condeños as they used to make ice cream out of it and sell it at the market in Challapata; other studies have found similar practices elsewhere in the Bolivian Andes (see Jurt et al. 2015). Further,

he insisted that “la gente ha cambiado” (the people have changed) and as Challapata has grown significantly over the past two decades, people from the surrounding area had begun to engage in new types of economic opportunities which provided the impetus for social and cultural change.

This was one of the first times that anyone had mentioned ritual throughout my stay in Condo and it sparked a new interest in my research that, while lacking in depth, proved to be significant. One Condeño man had mentioned a ritual, which he called “*el matrimonio del agua*”, that occurs when there is very little rain and the *pampas* (fields) are in desperate need of water. To supplement my own ethnographic research, I draw upon Lynn Sikkink (1997), who has dedicated several years of her life to researching social life in San Pedro de Condo and the role of ritual in mediating relationships amongst human beings and a living landscape endowed with sentient entities.

The previous mentioned ritual, “matrimonio del agua”, is more formally known as *yaku cambio* and has been held in Condo since before the arrival of the Spaniards in the 16th century (Sikkink 1997). Rich in symbolism, *yaku cambio* serves as an act of social reproduction as well as a plea to the spiritual entities of the land for a change in climatic conditions. Both objectives are discernable by lending attention to the translations of the words that comprise the name of the ritual; *yaku* is Quechua for “water” while *cambio* is Spanish for both “change”, which participants seek in precipitation patterns and cloud cover, as well as “exchange”, which underlie the physical processes of mixing water sources as well as the symbolic and material exchange that occurs between *ayllus* and their members (Sikkink 1997). What is of significance here is that water from traditionally held sacred places such as Lake Poopó and Mount Azanaque, among other places, are gathered and “mixed” together. This mixing incites the deities to whom the water belongs and evokes the desired change in precipitation patterns (Sikkink 1997). Although the ritual is much more intricate and multifaceted than presented, I have brought it into this discussion to highlight

the ways in which climate change and the resulting disappearance of specific landscape features might have cultural repercussions.

Sikkink (1997) asserts that *yaku cambio* is a ritual act that symbolically represents the fertility and sexual reproduction of Pachamama and the living landscape but at the same time serves as a form of social reproduction in that the ritual brings together segments of the community in a prescribed manner to address questions of the commons and then disperses them once again. This ritual plays a central role in the solidarity of community as it occurs during a potentially divisive time in the year where stresses are high due to the lack of water and vulnerability of crops, thus the performance of *yaku cambio* achieves the alteration of landscape and social relations through the redistribution of water which is central to Condeño cosmology. As Sikkink has written, “it is as though the water flowing among people and its redispersal on the land symbolically reopens the lines of social and economic exchange” (1997: 182).

Because *yaku cambio* provides a symbolic and material platform whereby community members are able to engage in the politics of communal resource governance while emphasizing the importance of connectedness and integration through exchange, the potential disappearance of this ritual within the Condeño cultural landscape is not insignificant and sheds light on the potential implications that changing weather patterns and a transforming landscape might have on communal resources, their communal management, and the spiritual orientation invoking such resources. I bring attention to this ritual because, through my ethnographic research, I have found that climate change, in conjunction with broader social transformations, presents a potential challenge to the significance of this ritual as several of the primary water sources have been threatened due to changing climatic conditions, most notably the ecological health of Lake Poopó and the high alpine repositories of ice and snow near the summit of Azanaque.

Throughout my research, I often inquired into the perceptions that local individuals held over the social impacts that climate change and the lack of agrarian economic opportunity has had on the community as a whole. Although shifts in political economy and livelihood strategies are not the focus of this chapter, I wish to succinctly stress the opinions of some Condeños over social changes that have occurred in the community as they hold ramifications for ritual practice and communal relations more generally. To illustrate my point, I draw upon three anecdotes that I feel epitomize the interplay of climate change, economic opportunity, and communal change. Once again, Germuncindo provides salient insight into the effects of climate change on the community.

“Climate change has forced people to migrate because we don’t know what will happen with our crops and the weather, the rain doesn’t arrive in time, and we can’t generate income. This change has affected the community as a whole. Before people worked together more and were kinder to one another but now people are more independent and individual, we have lost the customs in this way” (Germuncindo Medrono Huarachi)

Here, the social impacts of climate change and the subsequent economic vulnerabilities are seen to have prompted several community members to either permanently or temporarily migrate to city centers or areas of more massive agricultural production. This same opinion was expressed by several other community members who stressed an increasing prevalence of individuality among households and the abandonment of traditional reciprocal practices that once substantiated communal life between *ayllus*, kin groups, and neighbors. Furthermore, several others expressed the decreasing prevalence and participation in rituals as neoliberal values of individuality and western ideals of success engage members of the community. As Milto proclaimed:

“Climate change has changed the relationship between the people and Mother Earth because before we lived more together, we got together more, and we had gatherings to offer Pachamama. It has changed the relationship between Condeños and Pachamama because before we used to remember Pachamama but now we forget about her. Now it is primarily only the older generations that

live here year round, there are very few people that stay in the community and work the fields anymore. Before, the community used to be full” (Milto Monte Mayor Monte Mayor).

Throughout my research the connection between climate change and a breakdown of traditional religious and ritual practice was articulated in several cases, as participants claimed migration to the cities has changed the people that once comprised the population of Condo and subsequently traditional communal relations such as the prevalence of traditional ritual. Coming from a unique perspective, I take my final anecdote from a middle-aged man by the name of Ladislau who rides a motorcycle and has migrated several times in search of work, sometimes to Argentina and others to Chile, though he has always returned to Condo to work the land and partake in communal politics. Ladislau consistently attended communal meetings and was often one of the more vocal individuals when it came to community development.

“Climate change and economic opportunity has forced many people to migrate out of Condo. This has caused a general drop in the morality of the community, as several members leave to go to the cities and either don’t return or they come back different. When they come back they have changed and have learned things of the city, they have picked up the bad customs of the city” (Ladislau Churo).

Condeños consistently conveyed perceptions of the impacts that out-migration has had on those who migrate and the more general impact it has had on the broader community as members often associate out-migration to cities with a general loss of morality, which has consequentially caused change in communal relations. The previous quotes that I have provided serve to highlight just a few of several multifaceted changes that have occurred throughout the time period in which climate change has taken place. However, to frame such social and cultural transformations as having occurred solely due to climate change would be a mistake, as is discernable through the discourse with which participants speak in relation to the topics of concern such as decreasing ritual practice, changing communal relations, and the recent ineffectiveness of TEK, as I have described. To further articulate this position, I return to subtle yet

revealing statements wrapped up in the testaments about TEK provided by Condeños such as the following quote.

“The older people say that during the first days of August if many clouds come there will be a good rainy season, the later the arrival of clouds the weaker the rainy season will be. Some of the older folks maintain this knowledge” (Germuncindo Medrono Huarachi).

I supplement my point with yet another example.

“Much of our traditional knowledge has been lost. Only my parents’ generation know more of the ancient ways, with our generation much has been lost. My parents and those who are older know that when clouds arrive in August or if it snows a bit in August that it will be a good rainy season. This helped them predict the seasons but not many people use this anymore” (Milto Monte Mayor).

By emphasizing the discourse with which many Condeños referred to systems of traditional knowledge and practices of ethnoclimatology such as the testaments provided above, it becomes evident that empirically measurable climate change alone is not the single factor resulting in the inability of TEK to accurately predict weather patterns as it once had in the past. Rather, the ethnographic evidence consistently points to broader cultural and social transformations occurring within the community of Condo that has seemingly impacted the generational transmission of TEK and more recent changes in communal relations. While I do not doubt that climate change in its physical and environmental form has presented new challenges to traditional knowledge of climate and weather, my research as well as the broader ethnographic literature (see Boillat and Berkes 2013; Crate 2008; 2011; Vidaurre de la Riva et al. 2013), suggest that the multiple manifestations of a globally changing climate and the broader transformations it has influenced in local, rural communities are ubiquitous throughout the ethnographic data and thus convincing enough to pursue.

Local Positionality in a Global World: The Frictions of Climate Change & Globalization

Shortly before my time in the community came to an end I followed Don Justino and Gregorio out towards the northern edge of the community where the Azanaques river runs along

the base of the hillside. We were greeted by the agricultural engineer and his crew of workers who were digging a massive trench with an excavator in what was the beginning stage of a new irrigation project. After a brief conversation, the engineer walked us down a path marked by white chalk that stretched across several different agricultural plots and crossed the dirt road that leads into the village. Throughout our walk through the fields Justino, Gregorio, and the engineer exchanged concerns regarding the logistics of the underground irrigation canal as the engineer asserted the necessity for the canal to follow the path laid while Justino and Gregorio considered the difficulties of getting some property owners to allow a six-foot-deep by three-foot-wide trench to be dug through their field, albeit temporarily.

Throughout the duration of my time spent in the community I came across several people who were in the community through a work extension or who were there to implement specific projects. The agricultural engineer referenced above was in the community for most the month of August, working with community residents and *caciques* to establish and implement a plan for an underground canal that would bring irrigation to the agricultural plots northwest of the community near the hamlet of *Mankawi*. The same engineer also worked as a part of the quinoa producers' co-op and was involved in a project aimed at eliminating the use of chemical pesticides in the quinoa fields of the *pampa*.

Additionally, Ravi, the youngest son of Don Justino and Doña Isabel, is a hydrologist who has carried out research in various places throughout the world including Russia, Sweden, and Japan. While I was there he and a few other researchers from the *Universidad de San Andrés* in La Paz had invited me along with them to go check up on and gather data collected by various meteorological instruments scattered throughout the greater Condo region. The instruments were measuring maximum and minimum temperatures, solar radiation output, barometric pressures, as well as changes in both surface and groundwater levels. Because of the value of such

instruments to his research project, Ravi hired a few community members whom he trusted to look after the meteorological stations and ensure that no one tampered with them. Thus, some Condeños became engaged with the project. Although it did not occur while I was in Condo, Ravi had mentioned the possibility of running a workshop in the community to address the climatic issues facing Condeños, their concerns regarding resource vulnerability, and any potential solutions.

As I have drawn out in the preceding sections of this chapter, social and cultural changes such as the recent ineffectiveness or loss of traditional climate knowledge and a potential decline in ritual practice may not be solely reduced to a change in environmental conditions or the disappearance of culturally significant plants, animals, or landscapes but rather requires us to understand a complex web of phenomena involving social, cultural, political, and economic engagements. By paying attention to this entanglement of “frictions”, or “grips of worldly encounters”, as Anna Tsing (2005) has called them, I am able to approach climate change and globalization as a complex encounter between communities, agronomists, engineers, migrants, and various other external actors who represent disparate perspectives on global processes. Furthermore, by analyzing climate change as a “global assemblage” of material, collective, and discursive relations that mutually shape each other (Collier and Ong 2005) rather than a single, one-way process in which human activities in the developed world impact the life and the environment in the developing world, the space opens to ethnographically explore how these encounters produce new ways of perceiving, understanding, and addressing environmental issues as well as envisioning the future (Paerregaard 2013: 292).

Tackling a closely related topic, Karsten Paerregaard (2013) has conducted extensive ethnographic research in the Peruvian Andes and has found an important connection between local perceptions of environmental change, ritual practice, and ongoing processes of globalization

in communities faced with significant changes to local weather patterns and alterations to the physical landscape such as glacial retreat. Paerregaard (2013) asserts that through his ethnographic data he has found evidence that connects climate change to a declining belief in the efficacy of ritual practice as a result of local manifestations of globalization. According to Paerregaard (2013) globalization has presented the opportunity for villagers to engage in contact with external actors and thus appropriate a new vocabulary to perceive climate change and other global processes, effectively prompting local inhabitants to reassess beliefs in traditional practice such as ritual and to rethink their position in a globalized world.

Working within the framework that approaches climate change as a global assemblage of material, collective, and discursive relations that mutually shape each other (Collier and Ong 2005; Paerregaard 2013) I would like to emphasize the discourse within local responses regarding climate change as a means to illustrate the ways in which uni-directional processes of globalization intersect with climate change and how these “frictions” (Tsing 2005) contribute to shaping local understandings of their relationship to and position in a globalized world. As my time in the field progressed and I continued to engage in conversation with local community members about climate change and altering weather patterns, I found a connection between the words that I employed to ask questions and the types of responses such discourse elicited. Specifically, the words that produced a surprising and sort of “packaged” response about alterations to local weather patterns were “climate change”. Almost every time, inquiries involving the words “climate change” elicited very a similar response that revealed important insights into the use of words and the role of discourse in a Foucauldian sense (Foucault 1972; 1977). Take, for example, the following quotes provided by a primary school teacher and prominent community member Gregorio and Felix, a Condeño *campesino*, respectively.

“The causes of climate change, I don’t know. It could be, for example, the factories and vehicles that emit toxic greenhouse gases, it could be this. Others have said

that climate change and issues with the environment have been caused by the atmosphere and ozone cap. They say that it heats up and reflects the sun, this is the cause as well for the changes and the problems of the environment. So the toxic gases of factories, the contamination of mining in water, and so many automobiles” (Gregorio Asakayo).

“Climate change is caused by the factories that we use to produce things and the contaminated smoke that they throw out. Smoke has escaped and contaminated the air as well as the ozone cap. The ozone cap is especially bad right now and for this reason the air contamination and its effects are stronger in the altiplano than in the tropics. The contamination has affected us very much, for example, with the mines, before they contaminated the water and Lake Poopó used to have a lot of fish, now there are very few. So the mines have also contributed to climate change” (Felix Perez Mamani).

The provided quotes are representative of the broader explanations that, when framed with the specific terminology of “climate change”, Condeños held over reasons that the climate is changing. Although my questions were geared towards the reasons that local weather patterns are changing, the use of the words “climate change” held specific connotations of broader global processes which elicited a more packaged answer that more or less run parallel to mainstream scientific and popular discourse of climate change and global warming. To connect local constructions of climate change to more general processes of globalization I turn to Foucault’s notion of discursive practices as being “characterized by the delimitation of a field of objects, the definition of a legitimate perspective for the agent of knowledge, and the fixing of norms for the elaboration of concepts and theories (1977). Therefore, by paying attention to the ways in which participants spoke of climate change and where their knowledge comes from, such as specific phrases like “others have said” or the consistent referrals to “greenhouse” or “toxic gases”, “the atmosphere” or the “ozone”, it becomes evident that climate change has made its way into the general consciousness worldwide (Lorenzoni and Pidgeon 2006) not through local experience but rather through public discourse (Marino and Schweitzer 2009).

Alternatively, when questions were framed about local experience with changing weather patterns I received a variety of consistent answers of which I have elaborated on in the previous

section on local observations of changing weather patterns. In contrast, the use of specific vocabulary used as a sort of framing device elicits context-specific answers to questions that employ the use of a specific discourse. Thus “engaged universals” (Tsing 2005), such as climate change and its associated lexicon, creep their way into cognitive systems of knowledge on the local level. To further articulate my point that Condeño understandings of climate change as a global phenomenon have come prepackaged from outside of the local and validated by “professionals” I turn to my ethnographic data once again.

“Well the scientists and meteorologists say it is because of the gases from the factories that pollute the airs higher up and that’s why they say the climate is changing. The big industries are emitting greenhouse gases and so it has to be that. For instance, it hails in parts where it should never hail like the Chapare and Santa Cruz (Bolivian lowlands), as well as snow in these parts while it is snowing very little in the cordillera (mountains). So we are witnessing climate change happen in these times right now. Now, frost or snow will arrive in February when the quinoa is in full production” (Milto Monte Mayor).

The examples that I have provided epitomize Foucault’s concept of discourse in that local community members from Condo have interacted with external agents (agricultural engineers, seasonal migrants, and national media via television/radio) and appropriated specific terminology about a global phenomenon that is locally experienced. This is due to the fact that the specific topic of climate change exists within a theoretical framework that requires a preordained dialogue with a highly specific vocabulary (Marino and Schweitzer 2009). Furthermore, the ethnographic evidence provided presents a glimpse into the lives of Condeños and the ways in which they are increasingly engaged with the outside world, as well as how they perceive their position within it. Throughout my research, perceptions behind the causal factors of climate change were fairly consistent as outlined above however, I did encounter a few alternative conceptualizations.

As I have shown, several participants willingly employed the dominant discourse of climate change and its causal factors, often referencing toxic gases, emissions, contamination, factories, and automobiles among other sources of the issue. What’s more, many of these

responses often contained comments about the absence of contribution that Condeños and Bolivia in general have had towards climate change as they understand the global phenomenon. Similar arguments included a large and growing global population to which Bolivia has contributed little, previous processes of development within already developed countries, major factories in other countries and their toxic emissions that deplete the ozone layer, as well as chemical fertilizers used throughout the world in major agricultural sectors.

These ideas and understandings of the worldwide contributions toward climate change are indicative of the exposure to the globalized world that many Condeños have experienced either directly or indirectly and seemingly position the community of Condo and its inhabitants within what Paerregaard (2013) has called the global/local dyad. That is, the people of Condo seem to view the relative position of their locality as an extension of a globalized world wherein the actions that occur “out there” in the world have direct consequences for the people of Condo. Working off Lambeck (2011), Paerregaard defines the global as an aggregated effect of human encounters and activities in the world which, over the past two decades or so, has gained momentum and taken a life of its own ultimately becoming a power that “penetrates and absorbs all the places of the world converting these into locals” (2013: 301). Paerregaard (2013) contrasts this global/local paradigm with that of the universal/particular, which he claims constitutes Andean understandings of their position in the world, or at least it used to. The alternative paradigm consists of a realm of non-human beings that constitute the universal and who are superior to humans but nonetheless sensitive to their needs while the particular is comprised of humans that engage in symbolic relations of exchange and pay respect to these non-human beings, which in turn assures the reproduction of social life, as Sikkink (1997) has shown through the ritual of *yaku cambio*. Therefore, the particular in the universal/particular paradigm consists of a unique way of being and is predicated on a bilateral flow of ritual acts of exchange between

the universal and particular rather than a geographical yardstick that experiences a top-down flow from the global to the local (Paerregaard 2013: 301).

As I have previously mentioned, Paerregaard (2013) ethnographically analyzed the role of ritual in a rural Andean community and found that processes of globalization had infiltrated the community and cognitive frameworks of its inhabitants. Consequentially, traditional beliefs of local, sentient landscapes and the role of ritual in producing material results of water availability as well as the subsequent satisfaction of the spirits that assure the well-being and social reproduction of the community have been challenged. Paerregaard asserts that through such changes in belief and understanding, local inhabitants have come to accept the global nature of phenomena such as climate change but they do not believe it to be entirely caused by humans as that puts humans in a position of superiority over non-human beings; a concept that disavows the traditional belief in the universal/particular paradigm (2013: 302). In his conclusion, Paerregaard (2013) posits that residents within this specific community have altered the paradigmatic understanding of their position within a globalized world from the universal/particular to a new paradigm that is the universal/local whereby villagers believe it has been their actions of abandoning traditional customs and adopting modern practices that has caused changing weather patterns locally, thus assuming local responsibility for local changes rather than placing the blame on the outside, globalized world (Jurt et al. 2015 have similar conclusions). Although they believe human actions may alter the environment, most maintain the idea that humans co-habit the world with non-human beings that hold people and communities accountable for their choices.

Applying this conceptual framework to my research, I have found similar evidence within the rhetoric articulated by Condeños however, with potentially disparate conclusions. As I have laid out, most Condeños believe climate change is caused by other actors spread throughout the globalized world, principally developed countries and their industrial practices. This was by far the

most dominant answer given when I asked about climate change and its causes. However, when I framed questions irrespective of the term “climate change” such as the causal factors behind local changes to weather patterns, recent loss of TEK, or changing communal relations I often received a different answer that involved more traditional beliefs. Several village residents expressed their belief that changes in communal values and the reciprocal relations between villagers and Pachamama could play a role in the changes that the *campesinos* of Condo have witnessed. Take, for example, the case of Luis, a pastoralist and local member in a traditional band who claimed that Pachamama has been a major part of local climate change due to the fact that before many people believed in Pachamama and maintained their relationship with her through ritual, but that now many people have lost this belief and turned their backs on Pachamama. Therefore, Pachamama has altered the climate, rain, and seasons as punishment (Luis Perez). To be clear, Pachamama is known as the sentient earth mother, who among several other things is linked to fertility, crop production, and reproduction and is thought to directly respond to human behavior with reward or punishment (Van den Berg 1990). This sentiment was repeated almost verbatim by several other community members as they often attributed local changes to weather or agricultural production to changing communal values and an increase in the “individualism” of households and thus the abandonment of traditional ritual and communal relations. However, I am cautious to incorporate such statements within my data analysis due to the fact that very rarely, if at all, did someone from Condo articulate this perspective without me probing into their beliefs of Pachamama and her potential role in such changes. While this does not necessarily discredit the statements made about Pachamama, I am hesitant to make any concrete claims on the abandonment, loss of, or persistent beliefs in traditional cosmology. However, throughout my time in Condo I was a part of, and witnessed, several subtle gestures towards Pachamama and the sacred entities associated with the *ayllus* during communal gatherings. Due to these experiences,

I am poised to believe that Pachamama is still entirely relevant within the broader cultural framework in Condo however, I refrain from making assumptions about the role of Pachamama and her presence in the psychology of Condo villagers.

While I lack the benefit of temporally comparative studies to measure my current ethnographic evidence as Paerregaard (2013) had, I am still able to draw tentative insights on the nature of Condeño understandings between community and the globalized world. Based on my ethnographic evidence, which was admittedly short and occurred during a disadvantageous time in the agricultural/ritual calendar, I hold it to be evident that processes of globalization, which have occurred in conjunction with locally experienced climate change, have caused a relative abandonment of the universal/particular paradigm that Paerregaard (2013) has referenced -- and that Sikkink (1997; 1999) has elaborated on through her discussion of the water ritual and understandings of local landscapes -- in exchange for the global/local paradigm. I am of the opinion that to better understand this type of cultural and social transformation would require a more thorough and detailed ethnographic investigation with more complex research methods and more time in the field.

Summary

In this chapter I have introduced the topic of climate change as a global phenomenon that has entered the general consciousness the world over. Pulling from broader theories of globalization, I underlined why it is theoretically important to research and understand how climate change is experienced as a lived reality in an effort to avoid what Mike Hulme (2011) has called "climate reductionism". As I elaborate, reductionist thought can be avoided by lending attention to local observations and perceptions of a locally changing climate and the ways in which place-based peoples are experiencing climatic shifts. In doing so, we extend the discussion of climate change beyond the spheres of earth sciences and political policy to the realm of quotidian

life ultimately providing a voice for and recognizing the agency of previously excluded groups of people who typically happen to be the most affected. Furthermore, recognizing the empirical epistemology of traditional knowledge systems and the temporal history of such cultural knowledge in spatially specific localities has the potential of making great contributions toward mainstream scientific understandings of locally experienced climate change and all its intricacies.

I also underlined systems of traditional environmental knowledge (TEK) in Condo and the ways in which they can be useful as a form of weather prediction and adaptation while simultaneously confronting unprecedented changes in local weather patterns that have challenged the utility of traditional knowledge systems. Pulling from the anthropological literature such as Crate (2008; 2009) I focused on how changing landscapes such as the retreat of glaciers or the loss of totem plants, animals, and landscapes may also contribute to a loss of culturally specific knowledge and cosmology as well as particular human-environment relations that substantiate culturally-specific beliefs and practices. Using personal ethnographic evidence and previous research from other scholars (Paerregaard 2013; Sikkink 1997; 1999), I chose to focus on the role of ritual to underline the ways in which changing communal values that have occurred under both climate change and globalization may signify broader cultural transformations as social, political, and economic engagements begin to change.

Further, I stressed the importance of words and the ways in which Condeños employed a global discourse of climate change and how this is indicative of the presence of processes of globalization as local residents are increasingly engaging with external agents in the globalized world and appropriating specific vocabulary as well as theoretical concepts into their cognitive framework of understanding globally caused processes such as climate change. Finally, this chapter brought attention to how the “double exposure” (O’Brien and Leichenko 2000) of climate change and globalization is causing far reaching transformations in the community of San Pedro

de Condo; most notably how villagers view and understand their position in a globalized world and how this is accompanied by transformations within cultural cosmology and communal practice. In conclusion, this chapter sought to accentuate the ways in which global “universals” such as climate change and broader processes of economic globalization have created the “frictional encounters” that create cultural change and ultimately provide a framework from which local villagers are able to reassess their position and relation to a globalized world. Moving forward, the following chapter seeks to draw out the concurrent developments between climate change, economic globalization and migration and the ways in which they have together impacted the socio-economic context in Condo.

Chapter Three – Globalized Intersections: Climate Change, Neoliberalism, & Quinoa

One cold and dark morning I found myself walking under a remarkably star-filled sky as I followed the rocky, dirt road leading up the valley with a man that I had met just two weeks prior. Urbano and I navigated the path as the hazy glaze of the Milky-Way illuminated the western sky and the faint signs of daybreak pierced the darkness bringing contrast to the silhouettes of rigid peaks ahead. Armed with a slingshot and a bountiful selection of rocks, our goal for the day was to reach the summit of the sacred Mount Azanaque while attempting to hunt for *biscocha* and *perdis* (rabbit and/or grouse). Although the arduous journey that spanned over 25 kilometers and ascended almost 1400 meters in elevation did not yield a successful hunt, it proved to be a worthwhile venture that provided insight into the destructive and altering effects that climate change has had on the landscape. Upon our descent from the *bofedales* (highland bogs) and llama pastures above the valley floor, Urbano and I entered the community of Yanuma from a gulch where a small stream trickles down from the highlands. As we approached the small settlement of adobe houses and thatched roofs, Urbano pointed to a house that had been destroyed by boulders too big for a man to move and what used to be a potato field where the boulders had come to rest. Urbano explained that this was one of his *estancias* (ranch/dwelling outside of the village) and that the building, as well as the field, had all but been destroyed two years earlier when an intense string of storms rolled through the valley causing minor rock and landslides, ultimately resulting in the severe erosion of some hillside plots and the destruction of a few adobe houses.

This was not in any way a unique story as I spoke to several Condeños who had been forced to relocate or abandon hillside cultivation due, in some cases, to intense rains that cause erosion and more commonly due to the lack of a dependable rainy season that once supplied the necessary water for hillside parcels and their crops. These types of consequential effects related

to climate change have been felt in a variety of forms throughout the community of Condo and have presented significant challenges to the livelihood strategies employed by inhabitants of the greater Condo region. Further, the effects of dispossession attached to climate change and its environmental repercussions temporally overlap with other processes of dispossession occurring throughout the Bolivian altiplano as peasant communities compete with extractive industry over the rights to water and land.

In line with the overarching theme of the thesis, my intention throughout this chapter is to draw out the ways in which seemingly unrelated processes of globalization converge with one another across temporal and spatial scales and, in the words of Anna Tsing, create “frictional encounters” (2005) that not only have socio-cultural implications but that lead to the enclosure and dispossession of land and resources. More specifically, I trace the impacts that various processes and phenomena such as neoliberal economic policy, global market demand, and climate change have had on the rural environment of Condo including the ecological health of both water and land and how these processes have encouraged transformations in the livelihood strategies employed by Condeños. After outlining the temporal intersections of climate change, neoliberal economic policy and the ways in which they together dispossess *campesinos* of land and water throughout the altiplano, I then turn to the ways in which these consequences temporally coincide with new market opportunities that presented an economic opportunity to those Condeños most negatively impacted by the changing climate. Finally, I conclude the chapter by illustrating the various ways in which the cultivation of market-oriented quinoa is being challenged and its implications for Condeños.

Climate Change, Neoliberalism, & Dispossession by Accumulation

Beginning in 1985, waves of neoliberal reform sought to align the political-economic policies of the Bolivian state with private interests who then facilitated the exploitation of Bolivia’s

natural resources for profit-driven activities. The implementation of the Structural Adjustment Program (SAP) forced the closure of state owned mines, the transfer of ownership of state-owned industries to private hands, and the devaluation of Bolivian currency (Kohl 2006; Perrault 2005; Sanabria 2000). Moreover, the SAP eliminated subsidies and protectionist policies for domestic, small-scale agricultural producers and subsequently led to a decline in rural agricultural production, in part, due to rising production costs and the influx of imported products (Sanabria 1999). Due to the implementation of such reforms, 35,000 manufacturing workers and some 20,000 miners lost their job while countless *campesinos* were stripped of their economic livelihood providing the impetus for a massive wave of out-migration from the countryside and mining centers to migrant cities such as El Alto or to the *Chapare* where migrants could cultivate coca.

Reforms such as the New Economic Policy and the *Plan de Todos* (Plan for All) put in place the institutional framework necessary for the accumulation of capital as they furthered the advancement of a process known as 'accumulation by dispossession' (Perreault 2006; 2008). According to theorist David Harvey, accumulation by dispossession is merely a continual form of primitive accumulation through which to relieve crises of over-accumulation by "releasing a set of assets (including labor power) at very low (and in some instances zero) cost and turn them to profitable use" (2003: 149). In fact, accumulation by dispossession shares a great deal of similarity with its predecessor 'primitive accumulation'; the original hallmark of capitalism. While much attention has been paid to alternative forms of capital accumulation, most notably the exchange of human labor for a monetary wage known as 'expanded reproduction', Marx also recognized that expanded reproduction is preceded and therefore made possible by the process of what he called 'primitive accumulation' (Glassman 2006). Rather than producing capital through the exploitation of labor, primitive accumulation represents a process whereby peasants are forced

from their traditional lands of subsistence thus separating them from the means of production and altering their status from producers to wage workers (Marx 1967). The subsequent enclosure and privatization of land produced capital while the dispossessed peasants provided a labor supply. He also recognized the various ways in which peasants were divorced from their land including the 'forcible usurpation' of common property through 'individual acts of violence' as well as the 'parliamentary form of robbery' whereby elites acquire common property through legislation and effectively "grant themselves the people's land as private property" (see Marx 1967: 724 as cited in Glassman 2006: 610). Primitive accumulation was the original method of capital accumulation that did not require the use of wage labor and thus has been referred to as an 'extra-economic means of accumulation' (Luxemburg 1968; Hall 2012). While Marx correctly theorized the role of primitive accumulation in the initial success and advancement of capitalism, he incorrectly assumed it to be necessary only to the "primitive" or "original" stage of capitalism. Several scholars have noted the various ways in which those people and institutions who design and implement capitalist policies have reinvented modes of accumulation as it is faced with crises of overaccumulation and as it continues to encroach upon new social, political, and economic conditions in peripheral areas (Kaup 2013; Perrault 2012; Spronk and Webber 2007).

Similar to Marx's conceptualization of primitive accumulation, accumulation by dispossession is a way to accumulate capital without the use of wage-labor, thus it is accomplished through extra-economic means. Although primitive accumulation and accumulation by dispossession typically focus on the process of divorcing producers from the means of production (subsistence) accumulation by dispossession can take other forms as well. One alternative form of producing profit under accumulation by dispossession is accomplished by privatizing, commodifying, or devaluing assets that were previously held or used by others, such as the state, peasant/indigenous communities, or the general public and turning them to profitable use

(Perreault 2012). Importantly, accumulation by dispossession is not only accomplished through the privatization of formerly public or state-owned resources but their acquisition by transnational corporations based out of the US and other core economies is central to the process (Spronk and Webber 2007: 32). Due to crises of over-accumulation and through the dispossession of previously unincorporated “assets” in the global economy such as land, resources, and labor the near cost-free acquisition and enclosure of these “assets” provides new opportunity for investment and capital accumulation (Kaup 2013; Perrault 2012).

As I presented in the introduction of this thesis, textbook examples of accumulation by dispossession have occurred in Bolivia with both the privatization of Cochabamba’s municipal water supply as well as the privatization of the state-owned resource of natural gas. Although water and gas play fundamentally different roles in the lives of Bolivians and in the Bolivian economy more generally, both attempts of privatization were met with civil unrest. Ultimately, what became known as the Gas Wars of 2003 was successful and, together with the Water Wars of 2000 and a briefer Water War of 2005, led to a series of popular unrest that ousted two presidents and contributed to the rise in popularity of Evo Morales, which resulted in his election as the first indigenous president of Bolivia in 2006.

The protests and subsequent election of Morales were successful due, in large part, to the widespread support of *campesinos* throughout the countryside and economically marginal urban residents who saw the privatization of such resources, especially water, as a threat to their very existence. “*Agua es vida*” (Water is life) became the slogan for the water wars and even though rural *campesinos* outside of the Cochabamba area were not directly involved, the sentiment resonated with many throughout the countryside, especially the altiplano. Although natural gas does not play a significant role in the everyday lives of Bolivians, many rural communities are negatively affected by it as most gas wells are located on indigenous territory and thus contribute

to the degradation of their environments. Further, Bolivians are no stranger to the consequences of resource extraction and the unequal distribution of wealth generated by the exploitation of their natural resources as they share a deep history of exploitation beginning in the Colonial era, perhaps earlier, and persisting to this day. Thus, Bolivia's natural resources are seen as the patrimony of the nation-state and its diverse ethnic groups and, as such, Bolivians have asserted that they become the beneficiaries of those resources as opposed to foreign elites.

Although rural water sources were never explicitly privatized as was the case for Cochabamba and other urban areas under neoliberal reforms, the commercialization of rural water sources presented a threat to small-scale irrigators as private interests from competing sectors of industry such as mining, domestic water consumption, and energy needs were granted priority because of their role in economic development (Perrault 2005; 2008). This becomes consequential when mining companies come into an area and lay claim to water sources that supply the livelihood to a community yet are not officially recognized by the state and thus, following the demands of the market, are dispossessed from the community and accumulated by mining companies. These processes have occurred throughout countries that have experienced neoliberal reform of water management and, in one example, have dispossessed an indigenous/peasant community of the southern altiplano from subterranean water reserves as the federal government granted the water to a mining company in northern Chile (Boelens and Zwarteveen 2005). In a second example presented earlier in the introduction, the San Cristóbal open pit mine near the Uyuni salt flats has been accused of using up to 15,000 cubic meters of water a day – 600 liters every second -- from the underground aquifer without paying for it. As a result, local communities claim that streams have dried up, rivers have been polluted with toxic refuse, and the agricultural fertility of the land stifled (Postero 2013).

Such a process has driven geographer Tom Perreault (2012) to suggest that peasant communities are subject to an inverted phenomena of accumulation by dispossession that he calls 'dispossession by accumulation'. By simple definition, Perreault (2012) presents 'dispossession by accumulation' as a process whereby *campesino* communities are dispossessed of pertinent resources such as water and land through their accumulation by mining companies or other external forces. However, the concept dives deeper than that as Perreault (2012) inverts the concept of accumulation by dispossession by reexamining the extra-economic processes through which dispossession occurs. Insofar as Harvey places the emphasis of accumulation by dispossession on processes of enclosure as opposed to proletarianization, as was the case with Marx, Perreault argues that Harvey's reformulation of the concept provides a useful analytic for examining the dispossession of rights to land, water, and other natural resources (2012). As an extension of Harvey's ideas rather than a critique, Perrault advocates for a close examination of the extra-economic means through which dispossession occurs and the ways that nature is enrolled in these processes (Perreault 2012: 1054).

To provide a more nuanced understanding of 'dispossession by accumulation' I turn to the specific case through which Perreault presents the concept. In his breakdown of a peasant community's experience living downstream from a state-run tin mine in the Huanuni Valley (north of Condo), Perreault (2012) conveys how the dispossession of livelihoods throughout the community occur through separate, extra-economic means of accumulation and the ways in which nature as a material object becomes enrolled in the process of dispossession. In fact, Perreault employs the concept to analyze and examine the ways in which local peoples in the altiplano community of Huanuni are dispossessed of their livelihoods through separate processes of accumulation directly linked to resource extraction occurring in the hills above the community. To put it another way, Perreault unpacks the cumulative impacts that mining has had on the

overall ecological health of the surrounding environment and explains how community members have been dispossessed of such resources through processes of accumulation that are tied to mining and which have inadvertently enrolled the materiality of nature in processes of dispossession.

Specifically, Perreault (2012) identifies three processes of accumulation that are contributing to the dispossession of land and livelihood within the community of Huanuni. The first process is the accumulation of water rights by mining companies used for intensive withdrawals for mining activity, and its subsequent contamination which “remove[s] it from the public sphere and effectively enclose[s] it” (Perreault 2012: 1051). This, in fact, is representative of the overlapping nature of ‘accumulation by dispossession’ and ‘dispossession by accumulation’ as the mining company was able to gain the rights to water thus dispossessing community residents of the resource and using it for extractive processes. In turn, peasants in the community have suffered the cumulative impacts of contaminated water discharged from mining operations along with the consistent withdrawal of water from both surface and subsurface sources with the consequence of denying peasant communities the water on which they once relied for their livelihood.

The second process identified by Perreault is the accumulation of toxic sediments in previously fertile floodplains. Due to the extraction and refining processes, mines often accumulate a significant amount of sediment laden with chemical contaminants. While some of these sediments are properly managed, a lot of them are released into the rivers where they flow downstream and are eventually deposited in flood plains throughout the river valley. Thus, the contaminated sediments end up in the soil structure of what used to be highly productive parcels of land for *campesinos* in the community and therefore render those parcels infertile and useless as agricultural plots (Perreault 2012).

The final process of dispossession by accumulation identified by Perreault is the accumulation of land as the “spatial footprint” (1051) of mining activity grows over time. With this example, Perreault highlights the spatial necessities that mines require for tailings piles, containment reservoirs, as well as buildings and other spatial needs, both vertical and horizontal, that mines require to remain viable. He connects these more obvious necessities for space by mining operations to the expanded space they render useless through contamination to highlight the inherently spatially extensive nature of mining operations and the ways in which the ongoing accumulation of territory is accomplished at the expense of indigenous *campesino* communities that live downstream.

The community of Condo has experienced a similar process of dispossession related to resource extraction and its consequential effects on land and water. As we finished hauling our 100 lb. sacks of potatoes that we had bagged from the field across the Azanaque River, Natallio and his fifteen-year-old son who went by the name of “Nando” stopped at the low mountain stream for a refreshing splash of water. Like father like son, they both kneeled, sat their hats aside, rolled up their sleeves, and dipped their cupped hands into the stream shoveling the water up to their faces thus washing the sweat and dirt from their brow. As the river carried the evidence of a hard mornings work away, Natallio pursed his lips and made a slight gesture towards a rust colored rock on the opposite side of the stream about fifteen feet away. He claimed that the rock was evidence of the tin mines that were once operating in the hills above Condo. Though he was just a child at the time, he lamented that the mine had caused many issues for the *campesinos* of Condo in the past as it often used large amounts of water for extraction and would then send that water downstream, contaminated with an array of chemicals that gave the river a peculiar red hue that stained several rocks along the Azanaque River.

According to some *comuneros* and noted by Sikkink (1994), Condo had previously suffered from environmental contamination that began in the 1930's due to mining activities and, following the global tin boom, became more severe when the María Teresa mine was in operation throughout the 1960's and 1970's. Doña Isabel, the head of the household that I took residence in throughout my time in Condo, claimed that the mountains just above Condo are rich in minerals such as tin, lead, zinc, silver, and even gold but that tin was the most exploited. During my fieldwork, several Condeños remembered the detrimental impacts the released mine tailings had on the ecological health of their cultivated landscape as one man shamefully recalled a year that he had lost nearly his entire harvest due to the contaminated water that had infiltrated their irrigation canals and subsequently found its way into the fields. Another man, Don Felix, asserted that some of his crops grew deformed and often failed to produce a substantial harvest. What's more, several Condeños regretfully recalled the detrimental impact that the mines had on their water supply and connected it to more contemporary issues that the broader Lake Poopó basin is currently experiencing.

Undoubtedly, the process of 'accumulation by dispossession' has exacerbated the alternate phenomena of 'dispossession by accumulation'; both of which have negatively affected the environmental health of the altiplano as well as the *campesinos* who carve out a life there. In what serves as a poignant example, the case of Lake Poopó (and other water sources in the highlands) illustrate(s) the ways in which these processes are connected and how they overlap with the detrimental impacts of climate change. Through the irresponsible management and regulation of mines in the altiplano, the rivers, streams, and tributaries of Bolivia's high lake systems of Lake Uru Uru, Lake Poopó, and Lake Titicaca, as well as other significant water sources such as the Desaguadero River, have undergone negative environmental transformations. As a result, contaminated water has effectively dispossessed peasant communities from traditional

water sources and subsequently their livelihoods while also having serious detrimental impacts on the overall health of the ecosystems. For example, Lakes Poopó and Uru Uru have both experienced massive fish deaths. What's more, huge withdrawals of water from the mining industry have occurred in conjunction with declining rates of precipitation and higher rates of evaporation throughout the altiplano which, since the time I left the altiplano in late September 2015, have dried up tributaries and Bolivia's second largest lake, Lake Poopó (Howard 2016; Reuters 2015; Valdez 2016).

Following long days of working in the fields Don Justino and I would consistently track the sun through the sky and suspend ourselves in the peaceful moments when the burning ball of fire sat atop distant features of the landscape and cast its warm colors across the sky. The deep hues of red and orange reflected off Lake Poopó as it lay dormant, projecting a mirror-image of the setting sun. Beyond doubt, the community of Condo enjoys some of the most gorgeous sunsets I've ever seen in part due to the ways in which Lake Poopó reflects the colorful sky at sunset. Because it is such a distinctive feature on the landscape, Condeños are distantly connected to Lake Poopó and thus are aware of the seasonal fluctuations and the impacts that environmental degradation, climatic or otherwise, have had on the lake's ecosystem. What's more, the often foul and fish-like odor of the lake is carried into the community by north-westerly winds, serving as a bodily reminder of the lake's existence. This is coupled with the fact that Poopó is one of several sacred water sources for the community of Condo, as outlined in Chapter Two. Condeños connection to the lake was made clear several times throughout my research as some residents lamented that they could no longer eat fish from the lake due to the contamination while several others expressed concern in a very tongue-in-cheek manner that the diminishing lake would eventually create their own salt flat. Although the community of Condo is not directly dependent on Lake Poopó for their livelihoods, it is a daily reminder of the threat that both climate change

and the misuse of water sources present as it is a prominent feature of the landscape surrounding Condo. In fact, I would argue that the lake is a salient symbolic representation of the various processes contributing to environmental degradation, such as resource extraction and a changing climate and thus connects the community to relevant, yet distant processes of ‘accumulation by dispossession’ and ‘dispossession by accumulation’.

Although the community of Condo has experienced similar consequences of dispossession caused by the negative environmental transformations of resource extraction, given the fact that the María Teresa mine has not been in operation for over forty years I do not place it at the center of my analysis. Rather I use this evidence as supplemental to more recent processes of dispossession occurring throughout the greater Condo region. Drawing from Perreault’s ‘dispossession by accumulation’ (2012), I employ the concept to illustrate the ways in which the cumulative effects of climate change accumulate over time and effectively dispossess Condeños of significant resources such as water and land that ultimately result in the dispossession and/or transformation of particular livelihood strategies. More specifically, I use the concept to show the impacts that consecutive years of drought or repeated events of heavy rainfall and landslides may have on the livelihood strategies employed by peasants and their capacity to affectively respond to the problem.

By drawing out the ways in which processes of accumulation enroll the materiality of nature and effectively dispossess peasant communities of resources such as land and water, Perreault (2012) advocates for an expanded understanding of accumulation by dispossession that accounts for the contingent role of nature in shaping pathways of accumulation and dispossession as well as the ways dispossession shapes patterns of, and opportunities for, social reproduction (1051). Thus, following Perreault (2012) and others (see Sneddon 2007) I propose to examine climate change within this context, as contributing to the dispossession of both land and water in

the community of San Pedro de Condo. The following section addresses the role that climate change and the materiality of nature holds in processes of dispossession within the community of greater Condo and thus provides an expansion on the notion of dispossession by accumulation.

Returning to the earlier example, after Urbano and I examined the damage caused from the landslide, he proceeded to point out other adobe huts that had been destroyed or abandoned throughout the smaller community of Yanuma as he mentioned the various consequences that many *campesinos* throughout the Condo region have experienced due to changing weather patterns. He claimed that many community residents have abandoned hillside cultivation, and in some cases their homes as well, because of the decreased reliability of rainfall for hillside parcels and the increasing prevalence of landslides caused by intense storms. What's more, Urbano asserted that water for irrigation was no longer as dependable as it once was, inviting me to remember the barren mountaintop we had just visited as a reminder of the perennial snow and ice that once existed above the valley floor and which once supplied the community with a consistent source of water for irrigation.

In fact, several residents spoke of the lack of snow and ice in the highlands and the increasingly marginal amount of water that flows through the arterial irrigation canals of the Condo valley. Indeed, throughout many of my conversations with community residents one of the primary symbols through which climate change was represented was the fact that Mount Azanaque and its neighboring peaks have lost their "white hats" that they once wore due to rising temperatures and a decrease in annual snowfall throughout the highlands. Such depletion of the highland repositories of snow and ice has reduced the availability of water for irrigation, especially during the dry season, and thus presents challenges to agricultural production while also potentially contributing to internal strife within the irrigators' networks as is evident in the following quote.

“The availability of water has caused issues among us farmers. We irrigate in shifts, there are four shifts, one night, then the next night like this. But sometimes the water is little and we fight over it. There have been increased issues among neighbors over water.” (Genero Solá)

While the loss of the alpine glacier that once supplied water to the community of greater Condo certainly represents a point of concern, Condeños have dealt with this factor for some time, as two inhabitants of the valley asserted that Azanaque “has not worn its hat” for roughly 40 years or so. The four decades since the receding of the snowline at Azanaque has not, however, provided Condeños with the possibility of fully resolving the issue of water shortage. The number one concern that Condeños expressed regarding climate change and changing weather patterns was, in fact, the availability of water for irrigation. Time and again, the issue of water availability surfaced as the single most pressing concern that villagers held about the environment or their livelihood.

“Irrigation is very important for our lives. If the production of crops is good our lives improve. When we can carry plenty to the market we can make plenty of money and with that we are able to live. But while there isn’t any production because we have no water what are we going to take to the market? It is impossible, we will take nothing. And so because of this situation many people grow quinoa or go to the cities, they emigrate to different cities.” (Gregorio Asakayo)

Even though Condeños have dealt with the effects of a depleted glacier they continue to run up against other challenges that have further marginalized the availability of water. Thus, the effects of climate change are not single events such as the loss of snow on mountain tops, but rather multiple episodes of drought, for example, or consecutive years of an unreliable rainy season. Though relatively insignificant as one-time events, when such climatic changes occur consecutively they further reinforce the vulnerability and marginalization of resources and, thus, the livelihoods of Condeños and *campesinos* alike. While a diminishing source of irrigable water was a major point of concern among those with whom I spoke, many people were also highly concerned with changing precipitation patterns in general. Condeños are certain that the rainy

season has changed significantly as it typically does not arrive “in its right time” but rather often late in the year. When it does arrive, it is often shorter in duration and the rains it brings are potentially detrimental to the crops and the land. According to Condeños, rains will come with an uncharacteristic ferocity unleashing large quantities of water over a short period of time, as opposed to the gentle rains that used to fall over several hours or days. Such intense storms, sometimes accompanied by hail and lightning strikes, erode the hillsides causing land and rockslides which has rendered hillside cultivation all but useless today as the majority of Condeños no longer cultivate or maintain their terraced slopes. To make matters worse, the rains that come with such intensity saturate the soil and make it very difficult for the ground to soak up the excess water, thus failing to capture much of the rain that falls and preventing its use for irrigation. Although the degree of intensity with which the rains fall is a point of concern, Condeños were even more uneasy about the frequency of rainfall. In fact, most peasants were concerned with the frequency and intensity of rainfall as well as the increasing prevalence of drought as these environmental changes translate to a decreasing availability of water for irrigation as well as the necessary substance for rain-fed parcels and their crops. This, in turn, has fostered a more pervasive sentiment of vulnerability and uncertainty among *campesinos* as the availability of water becomes less reliable and, because their crops are dependent on water, so too do their livelihoods and well-being come into question.

“*El agua es vida. Sin agua no hay vida*” (Water is life. Without water there is no life). This phrase was told to me countless times throughout my stay in Condo and given the arid nature of the southern altiplano, it couldn’t be more accurate. As Condeños experience a diminishing source of irrigable water throughout the dry season and changing weather patterns throughout the rainy season it becomes evident that water is of central importance to their livelihood, and ultimately to their survival -- as it is for all of us. Undoubtedly, climate change represents a significant hurdle

to the livelihood strategies of many Condeños as it presents a disturbance to their traditional water sources and understandings of precipitation patterns that inform when to perform particular tasks throughout the agricultural cycle. For many Condeños, having access to these irrigation canals and the water that flows through them is a crucial aspect for agricultural production as it allows peasant producers to endure periods of drought or inconsistent rainfall while also allowing for the production of important crops that are more water-intensive, such as fava beans. Additionally, the water that flows through the canals is used for more than just agricultural production. Condeños draw from the cement-laden arteries for household activities such as washing clothes, bathing, cooking, as well as hydration. Given the significance that irrigation and water have within the community, it is understandable why community residents would be concerned as they lay witness to the decreasing reliability of irrigable water experienced under climate change. Furthermore, climate change has prompted Condeños to seek out new solutions for irrigation and agricultural production while also managing to achieve communal solidarity amid an increasingly perplexing environmental transformation and its ramifications for such a contentious topic that is water, irrigation, and livelihood.

The cumulative effects of climate change have dispossessed Condeños of resources through changing weather patterns which have resulted in the disappearance of the alpine glacier that supplies water for irrigation during the dry season and periods of little precipitation; uncharacteristically intense storms that cause erosion and render hillside cultivation useless; and a more general lack of precipitation throughout the rainy season which has effectively rendered the use of rain-fed plots highly undependable. The diminishing availability of irrigable water and the decreasing reliability of rainfall has undermined the viability of previous livelihood strategies and thus encouraged several residents to emigrate out of the valley in pursuit of a more reliable

livelihood with greater economic opportunity, a topic of which I will expand on later in this chapter.

In sum, the cumulative effects of changing weather patterns associated with climate change have stacked up on top of one another and, consequentially, have produced significant challenges to the livelihood strategies employed by Condeños. As such, through the various processes that I have outlined above I argue that the physical materiality of nature has been inadvertently enrolled in the process of 'dispossession by accumulation' as presented by geographer Tom Perreault (2012); a process that remains central to capitalism and the accumulation of capital. I have argued this point by highlighting the different ways in which climate change has effectively dispossessed some Condeños from the ecological means of production (i.e. land and water) which has forced many community residents to abandon more traditional, subsistence-based lifestyles in favor of economic initiatives that are more closely-tied to city centers and capitalist world markets.

The Transition to Market-Oriented Quinoa Production

Returning to the introduction of this thesis, the soccer tournament where I met several Condeños who had migrated out of the community proved to be an insightful ethnographic moment. Not only did I learn of the vast number of people who had previously migrated from Condo and the various reasons behind out-migration from the greater Condo region but I also had the opportunity to learn of some of the central issues that many Condeños and other *campesinos* throughout the altiplano face. Prior to the start of any match was an inaugural ceremony held for the completion of the new field in which the governor of Oruro, Victor Hugo Vasquez, attended as the sort-of keynote speaker. Tucked in his lengthy address to the community, which touched on various local, regional, and national topics, was a discussion regarding the recent drop in market prices of quinoa. Vasquez tried to reach out to the quinoa producers of Condo who have

only recently stumbled upon a changing economic climate concerning the market price of quinoa as he encouraged Condeños to continue to produce the crop and to be patient with the current market value.

Although I had already begun to understand the centrality of quinoa to the economy of Condo, the fact that the governor of the department of Oruro addressed its recent drop in economic value furthered my understanding that the production of market-oriented quinoa was a highly significant livelihood strategy employed by Condeños. In fact, throughout my time in the community many of the people with whom I spoke engaged in the production of market-oriented quinoa as the primary means through which they earned a monetary income. Interestingly enough, the production of market-oriented quinoa seemed to be employed by Condeños from diverse socio-economic backgrounds, including *campesinos* who mixed subsistence-based production with market-oriented quinoa production, seasonal migrants who maintained their connection to the community to produce the crop and who otherwise lived in more distant cities, and other farmers who had turned all their attention to the production of quinoa. The more I spoke with those Condeños regarding the reasoning behind their decision to produce quinoa for the market the more I began to realize the multiple factors that encouraged this shift. Specifically, there appeared to be at least three overlapping factors that turned the attention of many Condeños to the production of quinoa destined for external markets.

Following suit with the overarching theme of this thesis, the first driving factor behind the adoption of market-oriented quinoa that I would like to lay out involves the intersections of processes related to globalization; more specifically, the concurrent developments of neoliberal economic policy and the rise in global demand for quinoa.

“The majority of people produce quinoa because the prices of other agricultural products began to fall so low that they couldn’t afford to live off of agricultural production and selling their products at the market. For this reason, many people

now produce quinoa around Condo because it gains the best price out of any other product.” (Emiliana Pilco)

Indeed, several community residents lamented the low prices they have received for agricultural products over the past three decades. Given the timeline regarding the drop in market prices as told to me by Condeños, I once again return to the discussion of neoliberal economic reform in Bolivia to illustrate the temporal similarities of overlapping developments related to globalization. Aside from its effects of furthering processes of accumulation by dispossession and the privatization of formerly non-privatized resources such as water and natural gas, neoliberal reform also had an impact on the economic strategies employed by *campesinos* throughout the countryside. Attached to the sweeping economic reforms of the New Economic Policy implemented in 1985 was the dismantling of trade barriers that were meant to protect domestic, small-scale producers in favor of commercial liberalization and heavily-subsidized agricultural imports (Arze and Kruse 2004; Chaplin 2010). The Bolivian state altered terms of trade with small-scale producers and their products destined for internal markets by cutting back subsidies and economic safeguards which ultimately led to a decline in domestic crop production that largely came as a result of increasing production costs and the arrival of cheaper imported agricultural goods from neighboring countries (Sanabria 1999). This development persisted through most of the neoliberal period in Bolivia leaving peasant producers devoid of economic opportunity as prices of products produced in the western highlands declined by more than 30% from 1985-2001 while the annual value of agricultural imports, which substituted for national production, multiplied tenfold from \$1 million in 1982 to \$10 million in 2001 (Arze and Kruse 2004). In sum, neoliberal reform diminished the economic viability of crop production for domestic markets.

Concurrently, during this time of economic and climatic uncertainty (as highlighted in the previous section) many Condeños began to catch on to a global trend that sparked a sort of renaissance in the cultivation of a decisively traditional crop, quinoa. The highly nutritious

“pseudo-cereal” has constituted a vital component of highland agriculture and traditional cuisine due to its exceptional environmental adaptation to montane conditions like those found in the altiplano such as drought, frost, saline soils, and other environmental factors (Jacobsen 2011). Briefly, quinoa cultivation decreased in popularity throughout the colonial era and into the republican period in part due to its negative association as an “indian” food as well as the introduction of old world grains such as barley and wheat that were adopted as cultivated crops and which are also easier to prepare. However, a research campaign in the late 1970’s and early 1980’s sought to promote quinoa as a way to improve the diets of *campesinos* in the highlands and contributed to making the traditional crop popular once again.

What ultimately made quinoa an economic boon again for peasants in the altiplano, however, was its growing popularity in North America and Europe. As word of quinoa’s high nutritional value spread, it was established as the newest “superfood” among “health conscious” consumers in the Western world (McCamant 1992; PROINPA 2004). As a result of a newly established global demand, the production of quinoa has tripled over the past 30 years (Walsh-Dilley 2013). Within Bolivia, the increase in quinoa production was even greater as it rose from 6,000 tons in 1979 to 26,601 tons in 2007 (Walsh-Dilley 2013). Thus, Bolivia accounted for the lion’s share of globally produced quinoa as it was responsible for over 90% of world exports in 2007 (Lopez-Garcia 2007). Further, global demand translated into higher market prices for quinoa: it skyrocketed from literally “just a few dollars per ton in the 1970’s to over \$1400 per ton in 2009” (Ofstehage; 2012: 445). The trend of increasing global quinoa demand has persisted with Bolivia having produced over 58,000 tons in 2012, 26,000 tons of which was intended for export generating over \$79.9 million in revenue (Al Jazeera 2013). In fact, quinoa had become such a popular and globally recognized crop that the UN declared 2013 as the ‘International Year of Quinoa’. In Condo, this spike in global demand carried with it significant implications, as many

Condeños realized the economic opportunity afforded to them through the production of quinoa and began to cultivate the crop for more than subsistence production. Milto, a man in his mid-50's who consistently sports blue jeans, a ball cap, and boots that bear the scars of long days working in the fields, is one who has taken full advantage of the opportunities afforded by the global demand for quinoa.

“Before we did not sell quinoa, but now we have discovered the economic opportunity of producing quinoa and now nearly the entire world (of Condo) produces quinoa.” (Milto Monte Mayor)

While it was proven to be true that many residents in Condo produced quinoa when I conducted research in 2015, the agricultural landscape throughout Condo and the altiplano more generally had just begun to transform when Lynn Sikkink conducted her research in the same community some twenty-five years prior. According to Sikkink (personal communication), the cultivation of quinoa as a cash-crop was not a widespread practice during her field research around 1990, and the majority of people who produced quinoa did so on a small scale for household consumption. However, some *campesinos* were selling their quinoa crop in local markets where they received roughly \$35 USD for one quintal of quinoa (100 pounds) which, according to one of Sikkink's informants, was the third most important crop their household produced due to the price it garnered at the market. Further, although quinoa remained a predominantly subsistence-based crop, Condeños recognized the trend towards market-oriented quinoa production in other communities, as some of Sikkink's informants identified communities in the southern altiplano such as Pampa Aullaguas and others near the *Salar* region such as Uyuni and Salinas as the 'Quinoa Kings' of the time.

Perhaps unsurprisingly, I encountered a different situation in the same community roughly 25 years later when I arrived in Condo in June of 2015. While many Condeños put their attention into subsistence and domestic market crops, I also came across several producers that

had either moved to solely producing quinoa or who had put a major emphasis on quinoa and otherwise had a few small parcels of land cultivated with crops for household consumption. As Milto suggests, many Condeño *campesinos* recognized the economic potential presented by quinoa cultivation and subsequently made the transition to market-oriented quinoa production. However, higher market prices compared to other agricultural products was not the only factor that prompted the transition towards the cultivation of market-oriented quinoa. Rather, a multitude of factors were responsible for encouraging the shift in livelihood strategies including the negative consequences of changing weather patterns, landslides that forced the abandonment of hillside parcels, and the subsequent waves of out-migration.

Riding a bus from Condo to go to the market in Challapata one Sunday, I found myself sitting next to an older Condeña peasant with whom I struck up a conversation. After establishing who I was and what I was doing in the community I asked the woman if and how a change in the weather has impacted her or her family over the past three decades. As we crossed the Azanaque River on our way out of town, the woman gestured toward the terraced hillside and claimed that roughly twenty years ago an intense storm system came through that eroded her hillside plots and destroyed her house in Yanuma. Because of the destruction, she moved further down the valley to the town site of Condo and switched her focus from primarily subsistence agricultural production to the production of quinoa and selling *chicharrón* (fried llama) at the market.

This was not an isolated incident, as I met other community members who had been forced to relocate from communities further up valley due to changing weather patterns. In another example, a woman by the name of Femolina asserted that unreliable weather patterns in conjunction with low market prices for agricultural products left her and her husband devoid of economic opportunity some fifteen years ago. Attempting to make ends meet, her husband emigrated to La Paz in pursuit of wage-labor while she relocated to the village of Condo where

she continues to engage in a variety of economic pursuits including running her own small store and producing quinoa for export.

Indeed, the lack of reliable rainfall and the increasing prevalence of landslides associated with intense storms forced the relocation of many Condeños down into the valley and out into the *pampa* where they began cultivating quinoa for the market. Moreover, for many of those Condeños who had been dispossessed of their plots further up valley the cultivation of quinoa was particularly attractive because it doesn't require irrigation and is highly drought resistant, making it an ideal crop to cultivate during times of climatic uncertainty and low water availability.

While the combined effects of climate change and neoliberal economic policy contributed to the widespread adoption of market-oriented quinoa cultivation as I laid out above, their convergence also encouraged a high degree of out-migration as Condeños were presented with few other options than to pursue economic opportunities in distant locations. Although many residents of the upper communities chose not to go very far, simply relocating down valley to the village of Condo, others chose to emigrate out of the community in favor of larger cities or more distant places near Cochabamba and the Chapare where they could labor on larger farms or grow coca.

“Some years the weather has affected us worse than others. Last year there was very little rain and this affected our harvests greatly. We can't grow crops like we could before. For this reason, many people have migrated to other cities because they don't know what will happen with their crops and the weather. We all have small fields that we produce our products in and when the rain doesn't arrive in time or an untimely frost hits, our crops are ruined and we can't generate income. I have also had to go work in other parts of the country because of this issue, we can no longer depend on our crops with the changing weather.” (Germuncindo Medrono Huarachi)

Whether the driving force behind migration was the devastating effects of climate change, declining market prices for agricultural goods, or a preference to pursue a different life in the cities, there seemed to be one commonality among most people that had experienced migration:

the cultivation of quinoa. In what is a significant distinction, those who had put a major emphasis on the cultivation of market-oriented quinoa were the *campesinos* who had some degree of experience with migration. Undoubtedly, there was a correlation between those who made market-oriented quinoa production their primary livelihood strategy and those who had either themselves migrated or had connections with family members who had migrated. Based on my understanding, it seems as if the rise of quinoa in global markets and the subsequent increase in its cultivation throughout the community was not just a coincidental occurrence but rather an adaptive strategy employed by Condeños as their livelihoods became increasingly marginalized in the face of climatic and economic change.

Quinoa provided an ideal opportunity for those who had been dispossessed of their livelihoods through the various means that I have highlighted above. For those in pursuit of economically-viable options, quinoa was the most lucrative crop one could grow in the community. Aside from its advantageous adaptations to less than favorable environmental conditions, quinoa is also a very opportunistic crop for those migrants who come and go seasonally or who live in city-centers close enough to make weekend trips.

After speaking with several migrants throughout the weekend of the annual soccer tournament I learned that many who permanently live in the city of Oruro maintain their connections to the community and to their *ayllus* so that they can continue to cultivate the cash crop. Several of those individuals with whom I spoke engage in wage-labor positions in the city or in mining camps, yet return to Condo a few weekends out of the growing season to maintain their quinoa fields. A further advantage of quinoa for migrants is that it is a crop that requires little sustained attention. Following the sowing of seeds, one must fumigate the plants in their juvenile stage, allow the natural cycles of sunshine and rain to occur, and then return to harvest the crop. Without taking away from the incredibly labor-intensive process of planting and harvesting the

quinoa crop, it seems to be an ideal plant for many migrants who engage in alternative economic pursuits based out of city centers because it does not require daily attention.

In sum, the combined effects of changing weather patterns, neoliberal economic policy, and the global demand for quinoa influenced several Condeños to cultivate quinoa for export in combination with the fact that quinoa is highly resilient, requires very few resources, and has consistently earned the highest price at the market. For these reasons, the cultivation of quinoa for market purposes has been adopted by many Condeños, migrant or otherwise, as an adaptive livelihood strategy. However, in the following section I lay out the ways in which the quinoa economy is currently facing challenges throughout Bolivia on top of the adverse environmental repercussions that such an expansion of market-oriented quinoa has caused and the implications such developments have for the livelihoods of Condeños.

Recent Challenges to the Production of Market-Oriented Quinoa

On a typical day in the altiplano, full of sunshine and mild winds that wisp the foul odors of decaying fish and other marine life from Lake Poopó through the cultivated landscape of the greater Condo region I joined Milto in his tractor to go till the soil of one his quinoa plots. During our painfully slow trip through dried up river beds and scorched parcels of land I noted a relatively tall plant with a thick bushel of seeds at the top of it that stood out from the other vegetation in the area. After seeing a few plots of land covered with these dried and shriveled plants I asked Milto what they were. As I presumed, he affirmed that they were quinoa plants leftover from the previous year.

According to Milto, many of the quinoa farmers who have plots of land in the greater Condo region now live in the cities such as Oruro and Cochabamba and return seasonally to plant and harvest their quinoa crop. However, because most of the quinoa fields do not have access to irrigation and are thus dependent on rainfall, the plants suffer drastically when the rainy season

does not deliver. As a result, many of the quinoa farmers living in the cities choose not to return to harvest their crop, instead opting to allow the plant to dry out, shrivel and die in the sun. Milto claimed that while last year's rainy season did not deliver adequate amounts of rainfall, the market price for quinoa had also dropped just before harvest season and he thought the low market prices had a lot to do with the abandoned quinoa fields throughout the *pampa* west of Condo.

Throughout my fieldwork I spoke to several Condeño *campesinos* who articulated this exact struggle; a major drop in quinoa prices over the last eight months (February-September 2015). Although quinoa had been a rock-steady cash crop for years leading up to my research, at some point late in 2014 the market for quinoa underwent significant changes. Where quinoa once gained somewhere between 1200–2000 bolivianos (\$173-\$288 USD) per quintal (100 lbs), when I arrived in the field it was receiving just over 400 bolivianos (\$57 USD) per quintal. Although it is still a significantly higher price than what Sikkink reported throughout her time in the field (\$35 USD), such a drastic drop in the market price of quinoa is sure to have a significant impact on the livelihoods of those who depend on it. Upon speaking to Milto, a man who has put his entire stock into the production of market-oriented quinoa, it was apparent that the drop in price presented yet another significant challenge to those community residents who have come to depend on the crop for their economic well-being.

“The price of quinoa, well I can't explain what is happening right now with it but the price has fallen significantly. It was roughly 1700-2000 bolivianos per quintal and now, this year, it has fallen to 400 bolivianos per quintal and now many of us that produce quinoa are in a very bad situation. I have accumulated a lot of quinoa but I cannot sell it at this price, it is too low and it will not cover the costs for my tractor or the time I put into raising it. But when the price was high, wow were we happy, it was very good for the countryside. Now the countryside is in a tight space again. This is very serious because if the price does not go back up we are going to have to go back to the old times of growing potatoes, barley, alfalfa, and raising animals because the quinoa has changed us very much.” (Milto Monte Mayor)

The drop in price for quinoa has troubled the many quinoa producers throughout the Condo region, and no doubt the rest of the altiplano, and has even driven some producers to hold onto their quinoa crop in hopes of better days. Although Milto had mentioned this fact in the quote above I first became aware of this practice while I was helping Don Justino, the man with whom I lived, stack away fava beans in one of his storage buildings. Much to my surprise, I was greeted by an entire room full of grain sacks stacked to the ceiling. When I asked Justino what they were, he claimed that it was last year's quinoa harvest, 70 quintals of it, and that he was holding onto it in hopes that the market would improve. Indeed, the drop in quinoa's market price has discouraged producers from taking their crop to market and has created anxieties for many Condeños who fear that low prices will persist and cause more migration out of the community as the once-dependable crop begins to lose its economic allure.

When questioned as to what has caused the downturn in quinoa prices, most every Condeño was quick to point to the increased competition by other producers outside of Bolivia. Without fail, quinoa producers consistently attributed the decrease in market prices to a recent glut of Peruvian quinoa. What's more, Condeños were adamant that Peru could produce so much quinoa because they use chemical fertilizers and insecticides, which allow them to gain three harvests per year while producers in Condo proudly produce "organic" quinoa and only reap one harvest per year. Whether their assertion was true or not, this perspective provided an interesting take on the driving forces behind declining market prices in Bolivia given that the last time Condeños experienced a significant drop in the market value of agricultural products was in the 1980's. As I have outlined previously, the NEP of 1985 cut back subsidies for domestically-produced agricultural products and subsequently resulted in an influx of foreign-produced goods. Coincidentally, one of the primary producers of those agricultural products that flooded Bolivian markets was Peru. As such, Condeños and other *campesinos* speculated that Peru must be

involved in the drop of market prices for quinoa just as they were in the previous neoliberal period. Their assertions were not incorrect as Peru surpassed Bolivia in global quinoa production having produced nearly 130,000 tons of quinoa to Bolivia's 92,000 tons (Mercadero 2016). However, the drop in market prices cannot be solely attributed to increasing market competition, a topic of which I will return to in a moment.

As I mentioned in Chapter Two, the agricultural producers of Condo were collaborating with agricultural engineers to implement new irrigation projects and to help overcome recent production issues in the quinoa fields. After a brief meeting involving quinoa producers and the agricultural engineers working within the community, Milto stated that the international market for quinoa had remained stable therefore the issue was not one connected to global markets, but rather that there had been a significant increase in the number of domestic producers throughout Bolivia which had flooded internal markets and given the middle men to whom most Condeños sell their crop the ability to drive down prices. As I have laid out above, a good deal of community residents have taken up the production of market-oriented quinoa as an adaptive strategy to both a changing climate and declining market prices for other agricultural products. However, the recent downturn in market prices has presented a new challenge to those who cultivate the crop for market purposes as it has diminished the economic viability of a livelihood strategy based off quinoa production. While the outcomes of this recent development remain to be seen, the influx of quinoa producers throughout the countryside has carried with it its own set of issues as Condeños lay witness to significant transformations on the *pampas* surrounding greater Condo where the cultivation of quinoa occurs.

On that same day working down in the quinoa fields, Milto and I were standing around talking about the recent challenges that many producers were facing when we saw the blurred image of two individuals walking in our direction through the mirage-like radiation emanating off

the altiplano as the sun baked the earth. After a slow approach, Milto and I were finally able to discern an older man wearing a green poncho with a short brimmed hat and an elderly woman clad in the typical Andean attire of *pollera*, wool shawl, and a bowler hat. The couple was the *cacique* of the *ayllu* to which Milto belongs. After an exchange of greetings and a brief conversation in Aymara that I did not understand, Milto led them to a small plot of land where nearly all the natural vegetation had been burnt to a crisp and which appeared as a blackened scab on the land. After another short discussion, the *cacique* and his wife left. Afterwards, I asked Milto what had occurred and he informed me that the burnt patch was indicative of a major issue confronting the community as *campesinos* seek to expand the land area they have under quinoa cultivation and thus push on to previously virgin soils by first burning the vegetation and then tilling the land with a tractor.

Undeniably, the expansion of land under quinoa cultivation represents one of several transformations occurring throughout the greater Condo region and the altiplano more generally as a result of global quinoa demand and *campesinos'* realization of its economic potential (see Jacobsen 2011; Ofstehage 2011; 2012; Walsh-Dilley 2013). In fact, the total land area under cultivation has risen steadily, as the total land area under cultivation was just under 49,000 hectares in 2006 but had seen an annual increase that pushed that number to over 181,000 hectares in 2016 (Mercadero 2016).

Not only are Condeños pushing onto previously uncultivated landscapes thus furthering the desertification of the altiplano but quinoa producers are also using the land more intensively. Following the visit from the *cacique*, Milto asserted that some quinoa producers have foregone the fallow periods for their quinoa plots by choosing to opt out of the necessary crop rotations that allow particular nutrients to be replenished and which ultimately prevent the over-use of the already fragile soils in the region. While the trend towards more intensive production methods

may be related to the overall lack of available arable land throughout the greater Condo region and thus is partially connected to the recent expansion onto virgin lands, the consequences of intensive agricultural production in the saline soils of the *pampa* do not end there. In the following section, I layout the transformations in production methods associated with quinoa cultivation and their environmental ramifications.

After struggling to dislodge myself from my cramped perch in the cab of Milto's brakeless 1980's tractor I was greeted by intense sunshine and the disheartening realization that I had not brought sunglasses, nor hat, nor chap stick to protect my skin from a full day under the altiplano sun without even the smallest patch of shade in sight. To top things off, after we stopped and took a look around the relatively barren landscape Milto informed me that he would be tilling the soils in the tractor and that I could sit and watch, effectively having nothing to do. Though at first I was disappointed, it turned out to be a welcome opportunity to gain insight into the issues plaguing the quinoa fields west of Condo. As Milto dragged his tractor and tilling discs through the soil creating furrows, several large birds came down to the portion of field through which Milto had already passed and seemed to be feeding off something. Once Milto took a break to have some water and chat with me I asked him what the birds were doing or what they were eating. Milto informed me that the large birds were feeding on *gusanos* and *bichos*, worms and insect pests that he claimed have been causing major issues with the quinoa for some time. He also asserted that the pests had forced most quinoa producers to fumigate the plant with insecticide at an early stage in its growth before it produces "pods" which hold the profit-producing seed quinoa is grown for or else face the prospect of a total loss of harvest.

Throughout my fieldwork I was told time and again that pests and plagues were becoming a major issue for most all the *campesinos* and quinoa producers throughout the area. Nearly everyone I talked to about this issue claimed that Condeños have been fumigating with insecticide

for at least twenty years if not more and Sikkink (1994; 2016) claims that she witnessed Condeños employing the same strategies over 25 years ago. Interestingly, most people with whom I spoke perceived the pest issue to be a product of climate change as they claimed that the pests began to arrive when the climate began to change such as the following quote from Milto.

“I think climate change has caused the pests because before in the times of cold it used to kill the bichos and gusanos but now that it is warming up they are able to survive underground. As you saw when I was tilling the soil, I stirred up all of the bichos and gusanos and those larger birds were eating them.” (Milto Monte Mayor)

In addition, another Condeño asserted that it was the use of chemicals in the first place that caused the infiltration of pests to come and cause issue with the crops. Felipe stated that before they started using chemicals there were no plagues but that since they began using them the plagues have gotten worse. This represents an interesting perspective and in a sense, he may have a point; that the insecticides, rather than killing the pests, are having very little effect on them as they develop resistance and farmers fail to innovate in their methods of eradication. However, there may be yet another process occurring that is connected to the mechanization of agriculture and the prevalence of insect pests in Condo.

While at first glance the introduction of tractors and tilling attachments may seem like a beneficial development for the farmers of Condo, and no doubt it has been in many ways, it has come at a cost to the overall ecological health of the sandy and fragile soil while also potentially contributing to the pest issue plaguing Condo producers. Accompanying the arrival of tractors in the fields was the disc plough which is an attachment that connects to the rear of the tractor with five fourteen-inch metal discs on the back that rotate at high speeds and are plunged into the soil and then dragged throughout the field resulting in roughly twelve inches of loose topsoil ready to be sown with quinoa seeds. Although there are only about four tractors in the entire community of Condo, most all the quinoa producers west of town employ the tractors and their owners to till

their fields in preparation for the sowing of quinoa. Unknowingly, the spread in the common use of tractors may have had unintended consequences that many Condeño producers now face.

According to a study conducted by the Programa de Investigación Estratégica en Bolivia (PIEB; Strategic Research Program in Bolivia) the employment of tractors and the disc plough for tilling soils may be the culprit responsible for the insect pest issue that most quinoa producers currently face as it loosens the subsoil layers that in traditional sowing methods remain intact and thus creates adequate habitat for various pests (Jacobsen 2011). By tilling the soil with a tractor and the disc plough, larvae of several different insect species that commonly cause issues with agricultural crops are easily able to enter subsoil layers where they can find adequate protection from the damaging radiation of the sun and thus complete an entire biological cycle underground (Jacobsen 2011). What's more, using tractors results in increased rates of erosion as topsoil layers are easily whipped up by strong winds and carried away to far off distances. Thus, tractors may create or at least significantly contribute to the plagues of pests that troubles Condeño crops and increase the rates of topsoil erosion but its consequential impacts on the soil and viability of agricultural production do not stop there.

Within the greater Condo region, almost all quinoa cultivation occurs in unirrigated parcels of land to the west of the village towards Lake Poopó which is characterized by extremely sandy and saline soils. What makes this area conducive to the cultivation of quinoa is the fact that it harbors moisture in the subsoil and thus provides the necessary moisture for seeds to germinate without irrigation. With or without this knowledge in mind, traditional practices of sowing the quinoa crop did not involve tilling the soil to the extent that tractors do today (Jacobsen 2011; Walsh-Dilley 2013). By choosing to focus on market-oriented quinoa production, Milto and others throughout Condo have altered more traditional means of producing the crop in order to expand and speed up the process of production. However, the recent use of tractors has also increased

the vulnerability of the soil structure in the altiplano as another drawback to using a tractor in the cultivation of quinoa is the fact that by tilling and loosening subsoil layers the disc plough exposes wet, humid soil layers to the dry wind and intense sunshine of the altiplano. This exposure results in the evaporation of the subsoil moisture that plays a vital role in the germination of seeds and the general ability of quinoa to resist periods of drought in parcels of land that are rain-fed (Jacobsen 2011; Walsh-Dilley 2013).

As I alluded to in the anecdote that began this section, despite its environmental adaptations to harsh conditions such as those found in the altiplano, the quinoa crop has not been exempt from the detrimental effects of climate change. Several *campesinos* expressed concern with the changing precipitation patterns as well as the unpredictable frost events that, in some cases, have caused the loss of an entire year's harvest. Additionally, heavy winds that damage the juvenile quinoa crop and transport the altiplano sediment to undesirable locations was also a concern. What's more, many quinoa producers speak of the most serious issue affecting the quinoa crop to be the lack of rain and prolonged periods of drought that the flat lands throughout the altiplano are experiencing. However, as the previous paragraphs suggests, the increased vulnerability of the quinoa crop to periods of drought and little precipitation might also be tied to the introduction of the disc plough and the subsequent disruption of vital soil layers and the subsoil moisture they harbor. Thus, new production methods associated with mechanization and intensification might exacerbate the threats presented by climate change which ultimately increases the vulnerability currently experienced by quinoa farmers.

As I mentioned previously, quinoa production has proven to be an economically rewarding endeavor in the preceding years to this research. However, the market price has dropped significantly and producers of the crop in Condo and throughout the altiplano are facing significant challenges in its production primarily due to factors associated with weather patterns. To make

matters worse, the drought that has gripped the Bolivian capital of La Paz and wreaked havoc on the municipal water supply has also confronted the altiplano and its many quinoa producers over the duration of the growing season of 2015-2016 and has only intensified the marginality of quinoa production as a viable economic strategy. In fact, due to prolonged periods of drought, strong winds, and dust storms, the national yield of quinoa has dropped even as the land area under cultivation has increased. In 2014-2015, 173,960 hectares yielded 92,312 tons of quinoa while in 2015-2016, 181,472 hectares yielded just 69,000 tons of quinoa (Mercadero 2016). This trend is expected to increase as the drought has been unrelenting, prompting the Rural Development Industry of Bolivia to project a decrease in quinoa production from somewhere between 50-80%, dropping total yield to a range of 12,000-35,000 tons for the year (Mercadero 2016). Thus, the strongest drought in over 25 years combined with increasing competition from Peru and other countries is sure to further marginalize market opportunities for quinoa producers in Condo and throughout the altiplano.

In summary to this section, the intensification of quinoa cultivation such as the expansion onto marginal lands and lack of appropriate fallow period in combination with the use of tractors and the disc plough have increased rates of erosion and resulted in the depletion of nutrients found in the sandy soil while also furthering desertification and eliminating subsoil moisture that provides the backbone for quinoa cultivation in the dry *pampa* of the altiplano (Jacobsen 2011). These processes of environmental degradation are attached to new modes of agricultural production which have developed as a direct result of the global demand for quinoa. Following this demand has been an increase in production throughout the Andean countryside and the subsequent ecological challenges that serve as a poignant example of the ways in which global processes and capitalist markets impact local communities who at once reap the economic benefits of such strong global demand for quinoa but also bear the brunt of nature's materiality

in resisting the overexploitation of arable land. Moreover, because several Condeño *campesinos* have adopted the cultivation of market-oriented quinoa as an adaptive strategy, the recent downturn in market prices combined with the negatively reinforcing effects of climate change have further marginalized a significant aspect of the varied livelihood strategies employed by community residents and migrants alike. Although the impact that such transformations will have on the community remains to be seen, it is safe to say that if these trends continue Condeños will be forced to find new strategies to sustain their livelihoods.

Summary

In this chapter I sought to outline the ways in which concurrent processes of globalization share both temporal and spatial similarities that impact local communities in different, yet mutually-exacerbating ways. In the first section I highlighted how the consequential impacts of climate change have increased the marginality of irrigable water, disrupted rainfall patterns, and even contributed to the dispossession of hillside parcels through increased rates of erosion. Such environmental changes were framed within the broader context of neoliberal reform, specifically ‘accumulation by dispossession’ to present the climatic effects as an example of the inverted phenomena of ‘dispossession by accumulation’. I provided an analytical extension onto Perreault’s concept of ‘dispossession by accumulation’ by proposing to examine the cumulative effects of climate change within its context; as contributing to the dispossession of resources such as water and land that remain pertinent to the maintenance of specific livelihood strategies attached to agricultural production in the community of Condo.

Further, I presented the overlap of dispossession by accumulation (climate change) and accumulation by dispossession (neoliberal reform and resource extraction) as representative of the “double exposure” put forth by O’Brien and Leichenko (2000). By illustrating the cumulative impacts of climate change and how nature manifests itself through material means (i.e. changing

weather patterns) I laid out how climate change is a product of globalization and how it contributes to larger processes associated with the capitalist project as its destructive effects result in the migration of peasants and furthers their integration into the world economic system. This effect was most clearly seen through the adoption of market-oriented quinoa production by both migrants and full-time residents in the community of Condo which furthered the articulation of *campesino* livelihood strategies with global markets.

Finally, I traced the ways in which market-oriented quinoa production is now being challenged as a viable economic livelihood strategy throughout the community as Condeños are faced with increasing competition in global markets, on-going drought, and various other perplexing environmental transformations. These developments have challenged the production of quinoa for external markets and thus hold potential implications for many residents throughout the community who are heavily invested in the market-oriented crop.

Chapter Four – Conclusions

Summary of Critical Points & Contributions

This thesis sought to analyze the combined effects of globalized processes and the ways in which they converge both temporally and spatially to impact the livelihood strategies of residents in and around the community of San Pedro de Condo. Specifically, I focused my attention on the effects of climate change, neoliberal reform, resource extraction, and global quinoa demand which have collectively engaged and been engaged by *campesinos* and other community residents throughout the greater Condo region. Through analyzing the interconnections of these globalized processes, I have provided a more nuanced understanding into the ramifications such processes hold for the environment, strategies for agricultural production, traditional knowledge of and relations to the environment, as well as the livelihood strategies employed by those who reside throughout the greater Condo region.

My approach to climate change responds to the concerns with what geographer Mike Hulme (2011) has called “climate reductionism”. That is, in the pursuit of understanding the impacts that climate change might have on a given locality, climate science and the models produced therein reduce the complexities between climate, societies, and the environment and thus gloss over variables that are not well-predicted such as economic activity, social mobility, and adaptive strategies with which communities and their residents engage.

In fact, Condeños were quite perceptive of changes in local weather patterns, including making observations about stronger solar radiation, generally warmer temperatures, more temperature extremes, increased occurrence of unpredictable frost events, changing wind patterns, and a shortened, often delayed rainy season with an overall difference in the type of precipitation events (most notably higher intensity rainfall with an increased prevalence of both hail and electrical storms). Such transformations in weather patterns and the overall climate have presented serious challenges to agricultural production in the community and subsequently the

livelihoods of Condeños, as demonstrated throughout this thesis. Moreover, the implications of these climatic changes are multifaceted extending well-beyond the physical, material plane to that of the cognitive and even metaphysical realm as culturally-specific perceptions of the environment are challenged.

Indeed, the utility of traditional environmental knowledge (TEK) systems in the community have become less reliable, as many residents lamented the recent inaccuracies regarding natural environmental signs that inform when to carry out specific agricultural tasks or that have traditionally provided a framework for the type of weather that could be expected in forthcoming seasons. For instance, the reading of cloud patterns in the month of August, which is understood as indicative of the anticipated arrival dates for the rainy season and thus the sowing of particular crops, has become increasingly unreliable. Additionally, changing wind patterns and unpredictable frost events have caught Condeños off-guard and subsequently caused issues with crop production. Further, environmental transformations associated with climate change have led to the disappearance of culturally-significant features of the landscape such as perennial snow and ice on the sacred Mount Azanaque and the more recent evaporation of Lake Poopó, yet another water source held in sanctity by the community of Condo, and thus have implications for culturally-specific relationships between Condeños and their surrounding environment.

While climate change has certainly been a driving factor behind local environmental transformations and the subsequent decrease in the utility of TEK throughout the community, it has not been the sole factor behind environmental, cultural, or socio-economic changes in Condo. Rather, concurrent processes attached to neoliberal economic policies, resource extraction, and the pursuit of alternative economic opportunities by Condeños have contributed to decisions by many residents to migrate away from the community and thus move away from more 'traditional' livelihoods and ways of thought. In fact, this was the underlying message throughout the entirety

of the thesis; that climate change alone has not influenced the socio-economic and cultural transformations taking place in the community of Condo, but rather that its effects have been experienced alongside more than two decades of neoliberal economic reform which have negatively impacted previously viable economic strategies employed by Condeños and encouraged migration, both internally within the community and externally between Condo and city-centers or other rural agricultural regions.

As I acknowledged earlier in this thesis, the starting point from which I examine the negative effects of climate change in the current era is the severe drought of 1982-1983 that caused a drastic loss of agricultural products throughout the highlands and provided the impetus for a wave of out-migration that drained a significant portion of the population out of the Bolivian countryside, especially the altiplano. This event immediately preceded the implementation of neoliberal reforms in 1985 that eliminated the niche, domestic markets for which *campesinos* produced, and resulted in the layoff of over 20,000 miners as state-owned mining operations were shut down and privatized. These factors, on top of the drought, fueled even more out-migration from the altiplano.

Additionally, administrative decentralization and economic liberalization (privatization) continued throughout the neoliberal period as the *Plan de Todos* (Plan for All: 1993-1997) granted transnational corporations nearly unfettered access to much of Bolivia's natural resources and thus further entrenched processes of "accumulation by dispossession" (Harvey 2003). While prime examples of accumulation by dispossession occurred through the privatization of Cochabamba's municipal water supply and the state-owned resource of natural gas, what was of greater significance for the Bolivian countryside was the fact that it laid the political-economic foundation for mining companies to expropriate important resources such as water from *campesino* communities throughout the altiplano.

Working from the vantage point of the *campesino* community of Huanuni in the altiplano and their experience with the environmental consequences of resource extraction, geographer Tom Perreault has expanded on Harvey's (2003) conceptualization of accumulation by dispossession by advocating for a close examination of the extra-economic means through which dispossession occurs and how nature is enrolled in processes of dispossession related to land, water, and other natural resources; a process he calls 'dispossession by accumulation' (2012). This process occurred in the community of San Pedro de Condo as the María Teresa mine (in operation from the 1930's to the 1970's) was responsible for the withdrawal of large sums of water from the Azanaques River that was often allowed to flow back downstream after its use in the extractive process, contaminating the river on which Condeños depend for irrigation and resulting in the deposition of contaminated sediments in agricultural plots. Given the fact that the mine has been closed for over forty years I used it as supplemental, historical evidence of dispossession by accumulation rather than the focal point. However, the community of Condo continues to be dispossessed of pertinent resources by a less obvious agent, climate change.

Indeed, the cumulative effects of warming temperatures and prolonged periods of drought over time have disrupted reliable precipitation patterns on which rain fed plots of land depend while further diminishing traditional water sources that once supplied the necessary water for irrigation during droughts and shoulder seasons. Additionally, repeated heavy rainfall events have triggered landslides and effectively dispossessed community members of hillside agricultural plots. Such events are illustrative of the ways in which the cumulative effects of climate change have dispossessed Condeños of resources and thus contribute to processes of dispossession by accumulation that hold ramifications for the livelihoods employed by Condeños. Further, the examination of nature's role in processes of dispossession sheds light on the manner in which primitive accumulation, as well as accumulation by dispossession, entail not only the

privatization (in this case dispossession) of the means of production but the ecological means of production as well.

The mutually-reinforcing effects of climate change, neoliberal economic policy, and resource extraction have encouraged migration from the greater Condo region with some residents leaving for more distant locations and others relocating down to the village from up the valley. The experience of the community of Condo lines up well with the concept of 'double exposure' coined by O'Brien and Liechenko whereby a specific locality is confronted by the compounding impacts of both climate change and economic globalization, which they define as a set of processes in which production and consumption activities shift from the local or national scale to that of the global (2000: 225). In the case of San Pedro de Condo, it was the combined effects of climate change, neoliberal reform, and global demand for quinoa that encouraged several residents to migrate either down to the village and onto the *pampa* where they could engage in a variety of economic strategies, most notably quinoa production, or to destinations outside of Condo, such as city-centers or the eastern lowlands to engage in wage-labor. In most cases of migration that I came across, be it internal, external, or seasonal, many of the migrants maintained their connections to the community and continued to cultivate quinoa for export markets. Undoubtedly, quinoa cultivation seemed to be an adaptive strategy employed by Condeños against changing weather patterns and uncertain economic conditions. Aside from its economic allure, quinoa has proven to be a good crop for the migrant economy because it requires little attention after the initial stages of sowing and fumigation. It should be noted, that while I primarily spoke of quinoa production in the context of migration, many permanent residents of Condo also cultivated the crop, either for the market or household consumption.

However, as I demonstrate in Chapter Three, the spread of market-oriented quinoa cultivation has not come without its consequences for the environment surrounding Condo. In

fact, the increased cultivation of market-oriented quinoa has seen an increase in environmental issues that have further challenged crop production and livelihood strategies employed by Condeños. Recent developments on the *pampa*, where quinoa is grown, include the introduction of tractors and the disc plough, a higher prevalence of issues with pests, plagues, and the subsequent use of chemical insecticides; a decrease in quinoa's drought resilience; and the expansion of quinoa cultivation onto virgin lands that further entrenches the deep-seeded process of desertification in the altiplano. In addition, the drought that has enveloped Bolivia for much of 2016-2017 has diminished quinoa yields and further marginalized those Condeños who have grown dependent on the income they earn from the crop.

Such challenges regarding the cultivation of quinoa have been compounded by a recent downturn in Bolivia's domestic quinoa markets that have dropped the price by one-third of what it was just months before I arrived in the community in June 2015 and which has resulted in the stockpiling of quinoa by Condeños in hope of better days with higher prices. This development has largely come because of a glut in the domestic market for quinoa within Bolivia. Moreover, an increase of producers in the competitive global market may also be a contributing factor to the recent challenges Condeños and other Bolivian producers face as Peru has surpassed Bolivia in global quinoa production. This reality is coupled with the fact that there are now 73 countries that produce quinoa worldwide. Regardless of causation, the recent trend in the quinoa market has further marginalized the livelihood strategies employed by Condeños and sent the *campesinos* in pursuit of help from agricultural engineers and government funded irrigation programs, which I will further address below.

Finally, the interrelated processes attached to globalization such as climate change, neoliberal economic policy, and quinoa demand have driven Condeños to make adaptations in the livelihood strategies on which they depend and thus further integrated their political economy

with the globalized world. This has been evident over the course of the thesis as community residents have engaged in activities of out-migration and export-oriented quinoa production as solutions to the environmental, political, and economic challenges that various globalized processes have presented. Resulting from this has been an increase in the “frictional encounters” between Condeños and other external agents, be they migrants, agricultural engineers, or even the television/radio. Through such interactions, Condeños have altered the perception of their position in the globalized world and have come to envision their locality as connected to more distant processes. I have asserted this point by highlighting how Condeños often spoke of climate change in a very prescribed manner, leading me to infer that the concept of global climate change and its various causes have entered the community as a “Foucauldian discourse”.

This was revealed to me as community members often described their understanding of climate change by reciting the stereotypical, mainstream mantra of the phenomenon. Condeños consistently included phrases of legitimation such as “the meteorologists and engineers said...” or “they say...” followed by the standard set of vocabulary that have traditionally been used to explain climate change. This trend was also relevant for the discussion of quinoa as *campesinos* often claimed that they didn’t know what was going on in the quinoa market but that they were waiting to hear from the agricultural engineers for more information. In both cases, Condeños consistently presented themselves as having very little agency in the processes that have afflicted them and often insinuated that they are the victims of these different globalized processes which have come at the fault of the developed world.

Through the employment of specific discourse regarding global phenomena that positions one group of actors within society as an authoritative source of knowledge and another as in need of assistance and education, it becomes clear that the interactions with external agents have greatly influenced Condeño perceptions and understandings of the global phenomena with which

they are engaged. Therefore, following the framework I previously presented throughout this thesis, I contend that the localized experience with climate change and globalization is best understood as a “global assemblage” of material, collective, and discursive relations that mutually shape each other (Collier and Ong 2005) rather than a single, one-way process in which human activities in the developed world impact the life and the environment in the developing world. As such I was able to ethnographically explore how the encounters between different communities, agronomists, engineers, government officials, and migrants produce new ways of perceiving, understanding, and addressing environmental issues as well as envisioning the future (Paerregaard 2013: 292).

Having drawn out the ways in which Condeños understand the causal factors of climate change, I argued that through the complex interactions with various people from outside of the community, Condeños have come to understand their position in and connection to the globalized world in a different light. Rather than perceiving the effects of changing weather patterns as being caused by local, sentient deities within the landscape, Condeños have, at least in part, been driven away from this in favor of the perception that Condo is but one specific locality where the actions that occur “out there”, in the globalized world, have direct consequences for their community and the livelihoods that take place therein. However, while I found this to be true through discourse and the ways in which Condeños officially expressed themselves to me, I found that deeper connections to Pachamama and other deities were still prevalent in quotidian life. Thus, I argue that climate change and other processes of globalization have led to the creation of ‘hybrid spaces’ within the community wherein local people ‘think through’ the manifestations of the global in the local (McNeish 2002) and actively negotiate outcomes that mix local and external knowledge (Walsh-Dilley 2013). This is most evident through the various projects occurring throughout Condo as well as the diversified understandings and perceptions regarding climate change and its effects

on the community held by Condeños. More specifically, processes attached to globalization such as climate change and neoliberal policies are partially responsible for the production of these hybrid spaces as they have resulted in the degradation of the natural environment and have subsequently driven transformations in the livelihood strategies employed by Condeños as they pursue viable economic opportunities.

In conclusion, this thesis sought to elucidate the ways in which disparate processes of globalization including climate change, neoliberalism, resource extraction, and the global demand for quinoa converge across temporal and spatial scales to have a collective impact on specific localities. In the case of San Pedro de Condo, I illustrated this effect by emphasizing the ramifications of climate change on the material environment, cognitive systems, and economic livelihood strategies of Condeños. In addition, I weaved together the local manifestations of convergent global phenomena to draw out how seemingly separate global developments can have an unintended cumulative effect on the socio-economic and cultural orientations in a given setting. Finally, this thesis emphasized the importance of conducting multifaceted, local-level research on seemingly separate processes of globalization that, when treated as a complex interaction between a multitude of phenomena and actors, can reveal surprising and informative understandings of the ways in which the increasingly globalized world disparately effects specific localities, communities, and peoples.

A Brief Note on Condeño Agency & On-Going Projects

Throughout this thesis I consistently addressed the various ways that globalization and the multiple phenomena associated with it have coalesced and affected the lives and livelihoods of Condeños. However, I have not presented the impacts of such processes with the purpose of positioning Condeños as victims who lack agency over these matters, as I do not believe the people of Condo view themselves in such a light. Although they have been subject to processes that exist

outside of their control such as neoliberal reform, climate change, and the subsequent dispossession of important natural resources, Condeños have engaged in a set of activities such as economic migration, market-oriented quinoa production, and a number of entrepreneurial endeavors designed to position themselves favorably within the structural and environmental constraints in which they operate. For instance, Doña Isabel, the woman I lived with over the duration of my time in the community, has opened her own small store where she sells a variety of products from dry goods such as sugar, rice, and flour to hard candies, eggs, school supplies, and even beer. In fact, five women own and operate small *tiendas* (stores) in Condo and each has enjoyed their own degree of success. Additionally, one man has started a trout pond in the community where he was raising trout with the aspirations of selling them at the market and stocking the high alpine lakes in the *cordillera* above Condo so that people from the surrounding communities could return to consuming fish now that they could no longer do so with the contamination and recent evaporation of Lake Poopó. This project was partially sponsored by the municipality of Huari. Further, countless men and women from the community have gone on to city-centers, gained an education, and now pursue diverse careers outside of the agrarian economy.

As a community, the village of Condo and the various *estancias* that comprise greater Condo have commissioned the municipal and departmental governments for irrigation projects that would bring a new source of water to previously unirrigated parcels of land down on the *pampa*. While this may not represent a long term, sustainable solution for the issue of water vulnerability throughout the Condo valley and the altiplano as whole, it is nonetheless an attempt by the community and its members to put forth concrete efforts to address the immediate issues many Condeños face. Finally, the community of Condo has had an on-going project aimed at bringing potable water and pipes for sewage to homes throughout the village.

This is all to say that it is not as if Condeños have reluctantly been forced into the global project, but that, in many ways, they have sought it out. After three months in the community it was evident that Condeños were not trying to buffer themselves from the influences of the outside world, as if such a possibility ever existed in the first place, but rather they desired a degree of self-determination that allowed them to maintain an agricultural lifestyle while picking and choosing how they might incorporate themselves within the broader socio-economic system.

Plotting A Path Forward

This study would provide a good platform to work from in the coming years as the effects of climate change and resource extraction continue to become more pronounced throughout Bolivia. As I have presented in this thesis, the Bolivian altiplano continues to experience increasingly consequential effects of climate change as consecutive seasons of drought continue to afflict the high Andes. This is accompanied with the fact that the Bolivian state, under the leadership of Evo Morales and the MAS, have expanded resource extraction throughout the country and committed to highly resource intensive development projects that implicate the significant transformation of natural environments from the Chaco, to the Amazon, and into the highlands. Finally, the global quinoa market has seen a recent influx of producers on the world scale while Bolivian producers are confronted with an ever-increasing environmental crisis that has repercussions for the production of the native Andean crop as well as Bolivia's position within a market that they once dominated. Such developments are sure to carry with them implications for the Bolivian countryside and those who carve out livings there. Given this fact, the need for multi-faceted and multi-scalar research will increase as processes attached to globalization continue to encroach upon the hinterlands and as those who reside therein seek to position themselves in advantageous roles within the broader structural and environmental constraints with which they are confronted.

In order to improve upon and expand this study, a number of approaches must be considered. First and foremost, due to the brief nature of field research on which this project depends, an extended amount of time in the field would greatly enrich the study. Spending an entire agricultural cycle in the community would prove to be beneficial in terms of the insights revealed regarding climate change and its effects on agricultural production. Further, a deeper investigation into the implications that the dispossession of previously cultivated lands such as hillside plots would be worth considering. More specifically, gaining a better understanding of how different zones of elevation have been disparately affected by climate change and the subsequent transformation in land-use strategies at those elevations could reveal important insights into the different ways that Condeños are actively responding to climatic changes. Such a pursuit would likely shed light onto on-going and changing *ayllu* relations of exchange and reciprocity in the community and would likely extend to much of the Andean region. In addition, examining notions of exchange in general and the different ways in which market integration, climate change, migration, and the dispossession of lands has influenced modes of exchange would be sure to reveal interesting insight into the relationships between economic strategies and class division while also potentially revealing current divisions that occur along ethnic or racial lines.

On a different level, further investigating on-going projects within the community and their relationship to external organizations such as NGOs, municipal, departmental, or federal governments would be useful. These investigations would be insightful for governmental policies on climate change, the environment, and the overall well-being of its rural population. Finally, further research into the migrant economy with a focus on exchange practices and the social networks that migrants forge would be useful in more complexly understanding the ways in which migration is used a social and economic tool employed by much of the population so as to better themselves on the economic landscape rather than the last resort option.

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