

Peasant Coffee Farmers and Climate Change: The Case of Café Justo in Chiapas, México

by

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ABSTRACT

Small-scale, peasant farmers are some of the most vulnerable people to the effects of climate change. They rely on a stable climate to support their natural ways of farming, which typically depends on consistent rainfall, temperate weather, and predictable season cycles. The perceptions of how successful coffee production is during shifting climatic disruptions is of key importance, if mitigation or adaptation efforts are to be successfully implemented. By using ethnographic methods with members of a coffee cooperative in Mexico, called Cafe Justo, I found that peasant farmers are very perceptive of the climatic changes and recognize forthcoming challenges as a result of changes in weather and precipitation levels. Rain-fed agriculture remains particularly vulnerable to coffee market demands, as coffee production for the majority of the cooperative members is the primary source of income. Through interpretive analysis of in-depth interview data collected from 19 coffee-farmers in Chiapas, Mexico, I identified factors associated with perceptions of changing climate and weather conditions. Social identities, general perceptions of climate change, and impacts on livelihoods were investigated through the speaking-with model, as it was presented by Nagar and Geiger in 2007. These findings have rich implications for co-learning between the small-scale, coffee farmers and the scientific community so that mitigation and adaptation strategies are discussed. The findings also merit further investigation into future migration changes due to mass exoduses of climate refugees who are no longer able to successfully cultivate and harvest the lands to serve their needs and those of their community.

DEDICATION

This thesis is dedicated to Café Justo coffee farmers and support staff in Chiapas, México. I enjoyed every minute that I spent with each cooperative representative, and the experience of living in and being accepted as a member of Salvador Urbina, Agustín de Iturbide, and El Águila, is one that I will never forget. Thank you all for your kindness, hospitality, patience, open-mindedness, and most importantly – your sense of adventure.

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CHAPTER 1

INTRODUCTION

The intent of this thesis is to study the perception of climate change effects, specifically for small-scale or peasant farmers in Chiapas, México, and to understand how prevalent these perceptions are among a group of coffee cooperative members. My investigation will be centered in the use of ethnographic work to gather information about peasant farmers' lived experiences through in-depth interviews, participant observation, and land tours. This case study, and subsequent interview data, will be used to advance ideas presented by *campesinos* or peasant farmers working with a coffee cooperative in México called Café Justo (Just Coffee), and to understand what their ideas expose about current and future agricultural conditions in the Latin American country of México. In recent history, climate change has become a very popular topic, especially the impacts of climatic changes in terms of what our future world will look like if our consumption levels and carbon emission rates are not dramatically reduced. In terms of agricultural production, varying temperatures and rainfall patterns create conditions where farmers are unable to “match management practices to the climate of an individual year,” (Lobell 2010: 118) and must therefore adapt to new agricultural practices which will prove to be difficult and expensive in developing countries.

Global warming, as it is frequently referred to, is a misnomer. Such a term implies that the impacts of climate change and increased (or consistent) emissions of greenhouse gases or carbon dioxide will affect the planet equally. This notion cannot be farther from the truth. As suggested by Holdren, the term global climatic disruption better emphasizes the uneven effects that will take shape across geographic, economic, and social divisions.

This wide variety of changes will be manifested in the form of erratic temperature, precipitation, humidity, soil moisture, atmospheric circulation patterns, storms and superstorms, snow and ice coverage, ocean currents, and upwellings (2010: 1).

Unfortunately, the impacts projected for countries located in the Global South are far worse than those projected for countries located in the Global North.

It is known with great certainty that the average surface temperature of the Earth has already risen approximately 0.8 degrees Celsius since its base level was recorded in 1750, and it will continue to rise another 0.5 degrees even if all climate-altering gases in the atmosphere could somehow be “frozen” at current levels. As of 2010 data, if we were to curb current emissions and reach a middle-of-the-road trajectory, which would equate to approximately two degrees Celsius above the 1750 figure by 2050, we would be looking at another three to four degrees above that level by 2100. Although these numbers appear small at first, it is clear that even the smallest of changes “in global-average surface temperature correspond[s] to large changes in the climatic patterns that strongly influence human affairs and the fate of the ecosystems” (Holdren 2010: 1-2). Our continued global success and survival depends on the radical lifestyle changes that are difficult, yet necessary to make.

The impacts of global climate change on the planet’s water systems and agriculture systems are profound and frightening. Per Gleick, “we know with a high degree of confidence that climate change will cause rising sea levels, rising temperatures, enhanced evaporation, and accelerating snowmelt” (2010: 74). Any changes in water systems, rainfall, temperatures, or other weather variables may affect the future cost and availability of food (Lobell 2010: 113). As a result of greenhouse gas emissions, an

increased variability in temperature and rainfall has been projected, which could be detrimental for agricultural practices, especially for those who depend on natural rainfall instead of irrigation systems. The “highest yields [are] observed when temperatures are close to average and yield declines [are] observed both in extremely warm or extremely cool years” (Lobell 2010: 117).

This thesis examines the effects of climate change as it is experienced by small-scale or peasant farmers. Although subsistence farming is very much a reality for many citizens located in the Global South, the individuals with whom I worked are peasant farmers who rely on the cash-crop of coffee to support their families. Coffee is a very popular product and important commodity for global markets. It is one of the most widely desired beverages in the Global North at consumption levels of over 80% of all adults (Koss 2017). As of 2017 statistics, the U.S. coffee market is valued at a staggering amount of 18 billion dollars (Coffee Statistics 2018). The same set of statistics (2018) showed that the U.S. imports an excess amount of four billion dollars’ worth of coffee per year. After oil, coffee is considered the world’s second most sought after commodity and is valued at over 100 billion dollars worldwide (Goldschein 2011). Since coffee production is limited to the relatively cool high-altitude regions of tropical climate zones and highly susceptible to temperature and rainfall variation, farmers who produce this commodity are more vulnerable to climate change impacts. For these reason, I chose to concentrate my research on the critical commodity and locate a community in which I would be able to speak with coffee farmers while also studying their agricultural and production challenges. Although the differences between pricing and production of

organic versus non-organic coffee are vast and of great importance, they are beyond the scope of this thesis.

To understand the issues that peasant coffee farmers in Chiapas, Mexico are facing, I asked the following research questions: (1) what identities do *campesino* coffee farmers in Chiapas Mexico espouse, and how does *campesino* identity more broadly influence agricultural production and trade practices; (2) how does this population of *campesinos* perceive climate change; and (3) how is climate change impacting their livelihoods and what adaptation strategies are they employing to deal with these impacts? These questions broadly query producer perceptions of climate change challenges as well as strategies for dealing with impacts. Answering these questions would provide a guide for future research about how climate change perceptions can be used to educate *campesinos* about more successful practices and about the truth behind varied crop yields or cycles.

To answer these questions, I chose to travel to Chiapas, México and spend the month of May 2018 with cooperative members of Café Justo. Café Justo is a grower-owned coffee cooperative aimed at reducing poverty and migration from México to the United States, by offering local farmers subsidies and payment for organically grown and farmed coffee beans. Coffee farmers are paid per pound of coffee, provided to the cooperative, at rates higher than those of Fair Trade standards (*Café Justo Brochure* 2008). The cooperative also exists to provide growers the training and resources necessary for farmers to create and maintain a sustainable, small-scale, international coffee company. The process of providing their organic coffee to U.S. markets involves splitting the growing, packaging, and roasting responsibilities into two different states. It

is important to note that from seed to cup, the coffee bean only leaves México once it has been sold in the international market. The coffee beans are grown, harvested, and processed (using both the wet and dry method) in the Southernmost state of México, Chiapas. Once the beans are completely dry again, they are shipped off to Sonora, one of México's Northernmost states, to be packaged and distributed to customers in the United States. I directed my investigation toward the *campesinos* (peasant farmers) residing in Chiapas, México.

The 36 *campesinos* who comprise the farming portion of the cooperative, live in roughly three towns: Salvador Urbina, Agustín de Iturbide, and El Águila. I will be highlighting speaking-with interviews that I conducted 19 of these cooperative members. The majority of the Chiapas-based *campesinos* resided in Salvador Urbina, a small town approximately 20 kilometers North of Tapachula. As one continues to travel approximately 7 kilometers North, Agustín de Iturbide is home to 3-4 Café Justo *campesinos*. Roughly 5 more kilometers North, the rest of the Café Justo *campesinos* reside in the high-altitude town of El Águila. Tapachula is located at around 200 meters above sea level while Salvador Urbina, Agustín de Iturbide, and El Águila are located at 600, 1,000, and 1,200 meters above sea level, respectively.



Figure 1. Map of México



Figure 2. Map of Chiapas, México

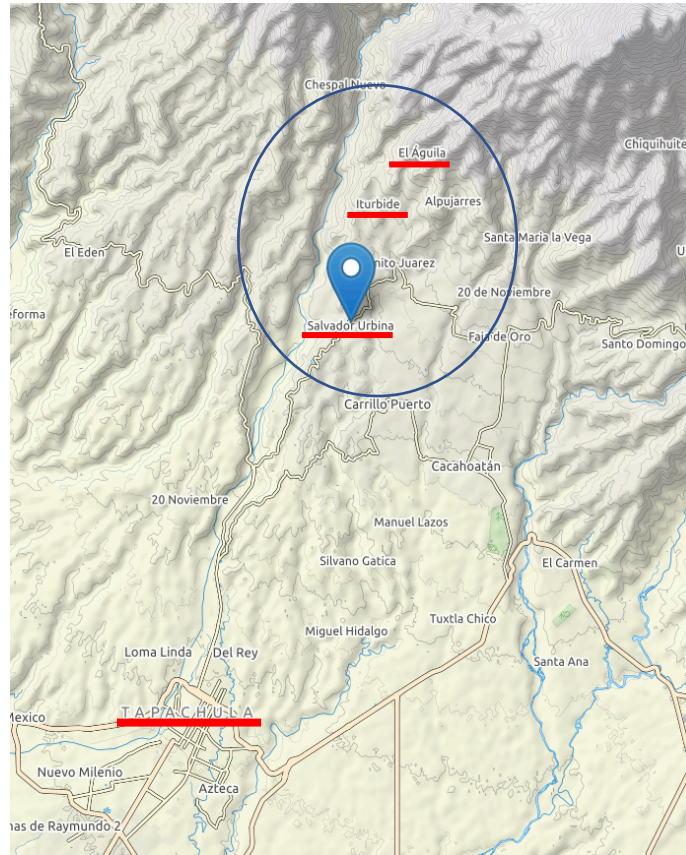


Figure 3. Map of Salvador Urbina, Agustín de Iturbide, and El Águila

The research I performed for this writing will serve as an investigation into how I challenged my own preconceived notions about *campesinos*, their lifestyles, and their interactions with climate change. As a white female American graduate student, raised in the urban cities surrounding the capital of Arizona, I deliberately chose to learn from the perspectives and experiences of a people who lack a voice in the scholarly discourse on climate change. I intend to highlight the *campesino* voices and allow their experiences to guide what knowledge is produced. Their stories and experiences will therefore inform scholarly understanding about the challenges facing peasant coffee farmers in southern México. I will investigate the ways I am able to accomplish my research by working

around issues of cross-cultural identities, beliefs, and assumptions as I experience them during my time spent in Chiapas, México in May 2018.

I intend to share the findings based on culturally grounded knowledge as it is understood and performed by small-scale farmers in one region of the global South. I investigate issues of my own positionality and situatedness as it relates to my understanding of climate change and peasant farming. Further, I examine the differences between knowledge of climate change effects between small-scale, peasant farmers and general scholarship on climate impacts specifically in and from México. The basis of the research and project is on the farmer's perspectives of climate change and how they view it as impactful to their practices, traditions, and continued livelihoods. Further, this case study allows for the advancement of voices from the Global South to make an argument for a wider range of *campesinos* not only in Chiapas, but in all states of México.

Throughout this writing, a mixture of Spanish words and quotes will be threaded throughout each chapter. Once a Spanish word is first introduced to the reader, a translation will follow; the same can be expected for each direct quote from Café Justo cooperative members or farmers. I have chosen to maintain the integrity of each discussion I had with each respondent by continuing to refer to them as a *campesino* or *socio* (both will be used interchangeably, though maintain the correct description for the identified person), by doing my best to breathe the life of each *campesino* into this work since it was through them that it was accomplished. It is important to point out that the essence of this writing is to highlight the experiences and lives of *campesinos* in Chiapas, México, and thus, I am committed to doing my best to honor the knowledge and wisdom they have chosen to share with the world.

In the next two chapters, I will provide an overview of the literature on peasant farming and climate change then present my methods. The remainder of the thesis will share my key research findings, analyze the ramifications of these findings, and conclude that *campesinos* are indeed highly perceptive of climate change impacts and challenges. The findings chapter will be broken down into three sections: *campesino* identity, general perceptions of climate change, and climate change impacts on livelihoods. The *campesino* identities will be explored in great detail throughout the next few chapters in relation to my findings. The respondents' voices will be threaded throughout this piece of writing by appearing in the form of direct quotes, selected from my private conversations with them.

CHAPTER 2

LITERATURE REVIEW

My research fills a gap in scholarship on Mexican agriculture by clarifying the impacts of climate change on small-scale or peasant coffee farming in the southern Mexican state of Chiapas as they are perceived and experienced by *campesinos*. In this chapter, I will discuss the empirical situations with climate change and farming, with a focus on rain-fed agricultural systems. México and its highest coffee producing states will then be examined in greater detail to highlight the current issues. Literature on farmer knowledge, and the importance of farmer knowledge for understanding climate change impacts will follow, the examination of México's coffee states. The chapter will conclude with an in-depth discussion on social identity and what *campesinos* can teach us about why their voices are important.

There have been numerous changes that have contributed to the disruption in the global climate as consequences of rising temperatures. Global warming is generally thought of as "something uniform, gradual, mainly about temperature, and quite possibly benign" (Holdren 2010: 1), though the rising global climatic temperature is anything but uniform and consistently gradual. Since the beginning of the Industrial Revolution in the late 18th century, humans have dominated the rapid increase in climatic change like the world has never seen before (Holdren 2010: 1). While climate change has always been a natural phenomenon, nearly all climate scientists agree that human-driven climate change has begun to occur on a global scale as the result of widespread industrialization that relies upon fossil fuels for energy. In fact, modern temperature records dating back to the time of the Industrial Revolution have demonstrated that the Earth's average surface

temperature of the planet was slowly decreasing, only to spike during the mid-nineteenth century (Mastrandrea and Scheider 2010: 12). The average trend, according to records of Northern Hemisphere temperatures variations within the last 1,300 years using multiple proxy records, indicated that there was not a significant change within the atmospheric temperatures until approximately 1900 (Mastrandrea and Scheider 2010: 13).

Disturbingly, since the Industrial Revolution impacted the entire world by spreading to each of its corners, the high quantities of carbon dioxide and other greenhouse gases released into the atmosphere have contributed to the rising of the entire Earth's temperature. Since the mid-nineteenth century, "the Earth's average surface temperature has increased by about 0.75 degree Celsius" (Mastrandrea and Scheider 2010: 12). With the pace that humans are going with the destruction of the planet by deforestation, over production and use of fossil fuels, and the acidification of the ocean, we are on track for an overall increase of the Earth's temperature of about two degrees Celsius by 2050. To be clear, a "middle-of-the-road trajectory would leave us with 2 degrees Celsius above the 1750 figure by 2050 and 3-4 degrees above Celsius above it by 2100" (Holdren 2010: 2). This projected rise in the atmospheric temperature would be reached if we could reduce greenhouse gas and carbon dioxide emissions down significantly within the next 20 or so years. Although two degrees Celsius does not sound like cause for alarm, such a seemingly insignificant change to the surface temperature of the planet can wield truly significant disruptions in the climatic patterns which strongly influence "human affairs and the fate of ecosystems" (2).

Greenhouse gases have contributed to the incredible speed in which the Earth has started to warm up, evidenced by the amount of carbon dioxide found in Antarctic ice

core samples (Mastrandrea and Scheider 2010: 12). According to glacial-interglacial ice core data, the past 650,000 years have seen carbon dioxide levels of less than 300 parts per million, while the present-day concentration levels exceed 370 parts per million. These levels far exceed the amount of carbon dioxide present in the atmosphere in at least the past million years (Mastrandrea and Scheider 2010: 18). The speed in which the Earth's temperature is rising is beyond worrisome. The drastic increase in greenhouse gases, have contributed to the rising atmospheric temperatures, specifically that of carbon dioxide, namely caused by human activities. As previously mentioned, the surface temperature of Earth was gradually decreasing for hundreds of years until the Industrial Revolution brought about an abrupt disruption in the balance of the climate.

Rain-fed agriculture is more susceptible to, though more perceptive of, climate variability than farmers cultivating under irrigation (Rodriguez et al. 2017: 185). Impacts such as, “shifts in the rainy season and variations in temperature and precipitation can negatively affect coffee plant physiology, flowering and fruiting resulting in reduced yields” (Gay et al. quoted in Frank et al. 2011: 68). Reduced or unknown crop yields present a significant problem for farmers because the “highest yields [are] observed when temperatures are close to average and yield declines [are] observed both in extremely warm or extremely cool years” (Lobell 2010: 117). With varying temperatures and rainfall patterns, farmers will be unable to “match management practices to the climate of an individual year,” (Lobell 2010: 118) and must therefore adapt to new agricultural practices which will prove to be difficult and expensive in developing countries. Consistent crops yields are only guaranteed if temperatures are as close to average as possible, with minimal variations in the weather patterns or rainfall.

Substantial impacts on the agriculture industry will cause farmers to suffer grave consequences including food and water security risks, increased competition over water, lack of agriculture development programs, and decreased levels of nutrients in crops. According to scholarship on climate change impacts in the Global South, “this effect has the potential to exacerbate poverty traps for the poorest countries, [who will be] unable to cope with repeated disasters” (Hallegatte and Ambrosi 2010: 145). Current research in Mexico suggests that climate change is already disrupting current weather conditions. Specifically, in the Eastern state of Hidalgo – which lies just North of Chiapas – scientists have recorded decreased rainfall rates increased average temperatures, and increased evaporation, causing noticeably low dam levels (Ceballos Perez 2017: 5). The slightest temperature or atmosphere changes will result in irreversible damages; global crop production remain quite sensitive to variations in weather (Lobell 2010: 113). Meanwhile, it is important to note that organic farming and small-scale farming have been identified as alternative ways of addressing rural poverty (Juarez Hernandez and Hernandez Cervantes 2009: 12), something that Café Justo attempts to take on.

Human health impacts also play a role in this debate in the sense that “vulnerability to climate change will vary according to population characteristics; local climatic effects; human, institutional, social and economic capacity; distribution of income; provision of medical care; and access to adequate nutrition, safe water, and sanitation” (Ebi 2010: 127). The most devastating impacts will occur in the Global South (Ebi 2010: 124), which will require the Global North to take on more responsibility to assist in the creation and implementation of adaptation and mitigation efforts in order to minimize the effects. Even the smallest changes in temperature or precipitation levels

could cause “previously inhospitable altitudes or ecosystems to become conducive to disease transmission or cause currently hospitable conditions to be inhospitable” (Ebi 2010: 126). The infectious diseases that exist today could potentially spread at unprecedented levels and leave room for new diseases to manifest. Although the future of our world in terms of climate change is still uncertain, the failure to leave communities and nations poorly prepared will only increase the likelihood of severe adverse consequences (Ebi 2010: 128).

Sagar and Baer (2010) assert, “those who benefit most from the highest levels of pollution and are frequently most insulated from its effects – namely, the wealthy, and industrialized countries – are certainly not well positioned to judge the “value” of the harms that their actions impose on others without their consent” (263-264). Sadly, “these cases demonstrate that climate change is a fundamentally unjust burden,” and “the nonmaterial impacts of climate change...are undervalued in the present geopolitical calculus of response and nonresponse to climate change” (Adger et al. 2010: 136-137). The degree of value of specific locations is not determined by those who inhabit the area, but instead those who will enforce policies in order to preserve it.

The suitability of Chiapas’ climate and geography for coffee growing is reflected in the state’s long history of coffee production and its prominence in the national production percentages. In a typical year, Chiapas is the main producer of the agricultural product at 41 percent of production, followed by Veracruz and Oaxaca, with 28 percent and 11 percent, respectively (McLeod 2017: 4). Most Mexican coffee production comes from small-scale farmers, “with less than 5 ha (hectares) of land who rely on familial labor” (Rice quoted in Frank et al. 2011: 68). Further, according to a governmental

census of coffee farmers, some 85 percent of producers are indigenous (McLeod 2017: 4). Consequently, coffee is recognized by farmers as more than just a cash crop, but also “a production system around which rural households have developed strong cultural and familial roles, identities and knowledge systems” (Aguirre Saharrea quoted in Frank et al. 2011: 68). The vulnerability of coffee farmers to climate changes and stresses is correlated to crop sensitivity to such impacts, in addition to stress associated with the economic and geographic marginality of peasant farmers’ households and familial responsibilities (Eakin et al. 2006).

Small-scale peasant farmers remain particularly vulnerable to the coffee market demands, as it is many times the primary and many times the only income source, which complicates their relationship with climate change and its fluctuations (Frank et al. 2011: 68). Unfortunately, the *campesinos* of Chiapas reside in a certain mountainous terrain that is disproportionately sensitive to climate change (Leemans 2010: 58). Such biodiversity is exceptionally susceptible to, “climatic extremes such as droughts, torrential rains, hurricanes, hailstorms, and frosts” (Frank et al. 2011: 69), as well as landslides, soil degradation, reduced biodiversity, coffee pests, and fungi. These factors, including social and familial pressures, contribute to the urgency of farmers to pursue strategies to face the multitude of stressors.

The options to increase coffee varieties to locate a more drought or excess moisture resistant strand; seed diversification; economic diversification; soil conservation methodology (i.e., shade trees); composting and terracing; and involvement in social-economic organizations (i.e., cooperatives) will prove to be essential for *campesinos* (Frank et al. 2011: 69). Though it will be interesting to understand the reasoning behind

farmers' implemented climate adaptations as I am interested to see if these (or any other) changes are motivated by conscious climate stresses or non-climate influences.

Mayan Descendants

Chiapas represents a small region that was once inhabited by the Mayans, dating back to 1400 B.C. (Chiapas 2018). The earliest Maya were agricultural-centered and started expanding their presence from purely lowland regions to include highland regions as well around 300 B.C. Although Mayans, “practiced a primitive type of “slash-and-burn” agriculture, they also displayed evidence of more advanced farming methods, such as irrigation and terracing” (Maya 2018). They were clever in employing a variety of deceptively simple agricultural techniques, of which can be compared to those of other ancient empires like the Egyptians. They even mastered the use of mountainous hillsides by engineering their own specialized methods, including the creation of terraces and retaining walls that reduce water runoff (Mayan Farming and Maya Agricultural Methods. 2016).

The Mayans were deeply religious and, “worshiped various gods related to nature, including the gods of the sun, the moon, rain and corn” (Maya 2018). Long before the Spanish Conquistadores reached their lands, the Mayans were dependent on the phases of the moon to guide them through the appropriate planting times. According to the lunar cycle, as the moon becomes full, typically during the second week of the cycle, “the leaves of the plants grow at a rapid rate...The leaves grow at a faster rate than the roots, which set down strong legs during the first week of the lunar cycle to allow the plant to ‘reach [the] sky’ during the full moon” (Planting by the Phases of the Moon, 2013). A bright, full

moon is considered the best time to plant long-germinating seeds and transplants (Planting by the Phases of the Moon, 2013).

Conflicts between colonial landowners and indigenous people during the 19th century arose. The “Institutional Revolutionary Party (PRI) quickly became a dominant political force. By aligning themselves with PRI leaders, Chiapas’s privileged landowners blocked land reforms designed to benefit the large indigenous population. As a result, Chiapas remained among Mexico’s poorest states” (Chiapas 2018). Fortunately, after the Mexican Revolution came to an end around 1920, small farmers began to invest in coffee cultivation. Agrarian reforms, “in the post-revolutionary period granted thousands of small plots of land to indigenous groups and laborers. Labor laws, like Ley De Obreros of 1914, freed many of the county's "serfs" and indentured servants - many employed on coffee plantations - who in turn brought the skills and seedlings to cultivate coffee with them back to their communities” (History of Coffee in Mexico n.d.). Although coffee production exploded in México, peasant farmers in Chiapas remained one of the most marginalized groups in the country. Since the Mexican Government was not stepping in to offer more support to the poor coffee farmers, “agrarian movements organized to demand further land distribution, labor organizations played a major role in advocating for workers’ rights and ending debt peonage, and indigenous groups began to reassert their claim to the land and resources they had inhabited for centuries” (History of Coffee in Mexico n.d.).

On January 1, 1994, the morning that the North American Free Trade Agreement (NAFTA) was to go in effect, a Mayan guerrilla group, better known as the Zapatista Army of National Liberation (EZLN) launched a rebellion. They declared war on the

Mexican government and opposed “neo-liberalism” and free trade (Garcia 2017; La Botz 2014). The rebellion opened a veil, revealing the true conditions of rural México and the poverty oppression of indigenous people (La Botz 2014). The privatization of all land, as was sought after by the NAFTA agreement, would have a dramatic effect on *ejidos* (indigenous communal lands), which were previously protected under the Mexican constitution. As stated in the *NAFTA - "A Death Sentence for the Mexican People"* writing, the EZLN felt that the theft of their land was an attempt to destroy the Mayan culture (n.d.). To this day, the EZLN continue to support their people by fighting for governmental autonomy for their communities and promoting social and political reform. Though, “despite such activism, even today Chiapas’ population is one of México’s most marginalized” (Chiapas 2018).

Indigenous Knowledge

Regional literature and knowledge will be necessarily important goals for my research, as people’s voices and experiences are generally discounted or discredited, especially if those experiences are had by poor, rural individuals from a country located in the Global South. We need to listen to the perspectives of the poor, because they are the ones who have lived experience with their conditions. In his work with Fair Trade farmers, Vanderhoff Boersma (2009) posits, “many development programmes and projects have sought to help the poor, while not taking the knowledge and concerns of the poor seriously and not viewing them as the best agents of their own development. The poor are thinking, hard-working people who have a collective wisdom which has almost always been denied or dismissed by the powerful, including the most benevolent among the powerful” (52-53).

Local knowledge is integral to gleaning information about climate change impacts. We are all experts of our lives and we therefore become experts in determining patterns via past experiences and analyzing the impact of those experiences for our future. We determine and define our own identities, and which categories are included within our identities. Therefore, regardless of scientific information or accepted scholarship, local knowledge – especially when it pertains to our lived experiences – is valuable and necessary to considering climate change impacts.

We as individuals, “seek or receive, manage, and interpret information in different ways and then use or reject it. Farmer knowledge is largely a synthesis derived from personal experience, local sources of knowledge, and external sources of technoscientific information” (Frank et al. 2011: 67). The ways in which farmers use technoscientific information is largely dependent on their perception of scientists, scientific scholarship, and their own worldviews. Though all the personal experiences, local knowledge, and technoscientific information of each individual farmer attribute to assessing their climate risk (Frank et al. 2011: 67). Further, as Kasperson et al. states, “how an individual perceives risk is influenced in part by the type of hazard to which he or she is exposed and the perceived severity and frequency of that exposure” (quoted in Frank et al. 2011: 67). What consists being in “danger” or residing in a “risky” location is informed by scientific evidence and analysis, “but is ultimately a value-laden decision, that can differ significantly depending on geographical location, socioeconomic standing, and ethical value system” (Schneider and Mastrandrea 2010: 170).

According to Frank et al. (2011), “to date there have been few investigations into the role of social identity in risk perception and adaptation” (67), when talking about

climate change and its impacts on agricultural practices. This is the area in which I intend for my research to fill in some gaps. Indeed, farmers are “highly perceptive of climate and its impact on their land and crops” (68), which is indicative of the fact that adaptation methods could already be in play. To get a better pulse on such suspicions, small-scale coffee cooperatives present an excellent source of information on current farming (and organic) practices, which will therefore provide sufficient context for exploring what these perceptions are. Farmers are highly dependent on climate and weather to create the perfect conditions for fruitful crop yields. Since such systems are not only dependent on geographical processes, but social processes as well, coffee farmers face issues of being geographically marginalized populations, which create multilayered vulnerabilities to social expectations and climate impacts.

Social identity is integral in understanding the world around oneself and deciding what type of outside information one is willing to accept as truth or cast aside as a non-truth. In addition to social identity, “personal socio-demographic attributes also influence [climate] risk perception. For example, perception is strongly associated with worldviews, and although worldviews can vary at the individual level, there is also a shared cultural component to perceptions about human-environment relationships” (Slegers quoted in Rodriguez et al. 2017: 185). Social identity also encompasses where and with whom value is placed. Since places, like people, are unique and valued by other people, it is almost impossible to consider environmental issues without confronting the idea of conflicting values. The issue has thus become one of politics, as Adger et al. argue, “who stands to benefit from preservation is crucial for determining whether or not a place or species is actually protected and conserved” (2010: 132). Nonmaterial impacts

of climate change will come in many forms, though for coffee farmers in México, the deterioration of nature and its coffee lands will provide to be detrimental to the individuals whose livelihoods depend on the cash crop.

The relationship between the researcher and the researched truly guides the knowledge production process. It takes a great amount of trust for the researched to gain an understanding of why they have been selected as the research subject, and to be willing to contribute. Researchers and inquiries usually stem from individuals in the Westernized Global North and their interest in conditions, issues, and people located in the Global South. This typical scenario causes a great amount of responsibility for the researcher to quickly establish trust with his or her interlocutors, while gathering the appropriate information. The researcher must therefore take great caution in recognizing their power within each interaction and conversation with the researched so as not to perpetuate harmful power dynamics. This is especially important for the time after the research has been conducted and the researcher leaves the physical area to return to his or her home. Should the *speaking-with* model, as it was discussed by Nagar and Geiger, be used appropriately, the dilemmas that researchers – and more specifically feminist researchers – face during fieldwork will not translate to increased complications during the exchange of information portion between the researched to the researcher (2007: 271).

The intentional emphasis on carefully listening to the researched and treating them like the true experts they are on the knowledge they are sharing will also buttress the relationship throughout the time of the fieldwork phase, and long after it has ended. Too often do researchers cross borders (physical, social, and intellectual) that end up

benefiting only the researcher. For this reason, “this kind of effective participation in border-crossings necessitates a processual approach to reflexivity and positionality, combined with an acute awareness of the place-based nature of our intellectual praxis. The goal must be to build *situated* solidarities, which seek to reconfigure our academic fields in relation to the ‘fields’ that our ‘research subjects’ inhabit” (Nagar and Geiger 2007: 272-273). A major part of this cooperative atmosphere must involve, “learning from the experience of small producers in the South” (Vanderhoff 2008: 58). Small producers are uniquely positioned to witness the problems confronting their communities. Northern actors must respect and listen to the small Southern producers; The local knowledge producers should be left feeling more empowered than they were prior to the exchange of information, due to their own self-reflection about how knowledgeable they truly are, and proud of their expertise.

CHAPTER 3

METHODS

This methods section outlines the reasoning for the selected methodology, which type of methodology employed throughout my research, the researcher positionality, and research limitations. I introduce the use of ethnography and its' appropriateness to my study of experiencing climate change impacts as the *campesinos* have witnessed them in their lands. As an academic without agricultural expertise, it was imperative to witness the *campesino* lifestyle from their point of view. I then transition into an explanation of the reasoning behind highlighting *campesino* voices in such a way that identifies the impacts felt by the entire *campesino* community. To gain a better understanding of the challenges experienced on the researcher's end, I focus on breaking down my positionality and situatedness within the context of rural México and its peasant farming communities. To complete this section, I end by describing research limitations to employing the aforementioned methods during my time spent in Southern México.

My investigation into the perceptions of climate change based on peasant farmer's lived experiences centered on the qualitative findings of ethnographic work as information was gathered from peasant farmers during in-depth interviews, participant observation, and land tours. I was interested in gathering personal stories from peasant farmers to gauge their understandings of climate change, and the world around them based on local, indigenous, and generational knowledge. As a person who is deeply invested in the adaptation and mitigation efforts necessary to change the course we are currently set on, I reflected not only on the importance of agriculture to all human populations, but how vulnerable it is to the changing climate and weather. In Mexico and

Chiapas, I purposefully sought out a coffee cooperative, instead of an international-market based agency or organization, because of the abundance of coffee growers and coffee production in the Southernmost state of Mexico.

My intent was to focus on individual, small-scale farmers instead of large plots of land managed and maintained by individuals working for corporations because of what I assumed would be the difference in knowledge levels of the farmers and the connection between the farmers and their land and/or products. Based on the relative ease with which I had connecting to a coffee cooperative in Chiapas, I was determined to meet with as many of the thirty-six-coffee cooperative *campesinos* (peasant farmers) from *Café Justo* (Just Coffee) as I could in May and June 2018. While *Café Justo* does participate in the international market by marketing their coffee to be bought by Americans, the cooperative works with only small-scale farmers who employ organic-only farming methods in areas surrounding Salvador Urbina, Chiapas, México. From the planting of the coffee seeds, to the roasting and packaging of the finished product, each step happens in México.

Of all the *campesinos* working for *Café Justo*, the findings will be described as the information gathered from 19 *socios* (members) and our individual discussions. The respondents hailed from the three distinctive communities in which *Café Justo campesinos* live and farm – Salvador Urbina, Agustín de Iturbide, and El Águila. The majority of the 19 respondents lived in Salvador Urbina, which seemed to be the *Café Justo* hub since the main office or *bodega* was situated in the middle of the town. The members were all monolingual in Spanish and chose to talk with me either after or during a tour of their *parcela* (plot of land).



Figure 4. Café Justo Bodega in Salvador Urbina, Chiapas – Photo Credit: Author

Of the 19 Café Justo *socios* I spoke with, only one of them identified as a female. Although Café Justo's current cooperative members were mainly comprised of males, most if not all male *socios* talked extensively about the amount of help required from all family members (i.e., spouses, children, and siblings) to assist with maintaining and harvesting their *parcelas*. Not only did the male *socios* require assistance and support from their immediate family members, the female *socia* I spoke with noted that her husband had *parcelas* of his own to maintain, as well. This information confirms that working in the coffee growing and harvesting sector is not solely reserved for males, although men nevertheless dominate local coffee production. All of the interview data collected for this study was gathered only from Café Justo *socios*, and not any non-cooperative members from the three communities.

The interview process was a two-part data collection opportunity, consisting of an oral interview and a land tour. I presented a semi-structured set of interview questions either before or after touring the *campesino*'s land. I first met with Café Justo's President – Guadalupe – at the local headquarter office, to preview the questions I had prepared to ask each *campesino*, learn more about the cooperative, and set up a schedule that allowed me to meet with and interview at least two different Café Justo *campesinos* each day. The sample of participants was selected at random by the Café Justo President, though I believe it was a random stratified sample based on who he knew would be healthy enough and available to meet with me during the time I dedicated to staying in Chiapas. Although this method of selecting or determining which *socios* I would be working with could be considered a bit controversial by allowing the President to select individuals with whom he believed would provide the best information and tour, I am aware of the inherent bias of this technique. I firmly believe that this was the best way to find participants. I approached the issue with a social justice, local control mind frame by allowing the local individuals to determine the best participant selection process, for their needs. The data from each selected *campesino* will therefore represent a subset of households and farmers extracted from a larger group including not only all Café Justo farmers, but all coffee farmers in Eastern Chiapas.

Since these cases were selected from a broader sample designed to represent variation across a municipality, the 19 respondents cannot be used to represent the majority ideology and knowledge of all community members from the three specific communities. Nevertheless, the cases do represent a somewhat large selection of households in each of the three villages and could be used to generate ideas about

campesino perceptions for rural peasant farmers in general. It is understood that, “assessing and identifying aspects of social identity requires close interaction with subjects, and a nuanced reading of human expression and use of language. [Therefore] Qualitative methods used on a small sample for exploratory analysis are ideal for this form of assessment” (Frank et al. 2011: 70).

The two-part data collection included in-depth interviews and optional land tours with the *campesinos*. Though the *campesinos* were not required to demonstrate where their personal land plots were and/or what their lands looked like, each *campesino* elected to take me on a tour of their land plots and did so with great pride. The intent behind touring each *campesino*'s *terreno* or *parcela* (plot of land) was to gain a better understanding of the organic seed to cup process, in addition to experiencing each *parcela* in the eyes of its owner. As I toured each *campesino*'s *parcela* I was able to gather insight into particular farming and harvesting methods, personal stories about misfortunes, and a lesson about how to distinguish each type of coffee grown for both Café Justo and personal use, among other personal testimonies.

Once the tour ended, each *campesino* took me to a place where they felt most comfortable, so we could conduct the interview portion. The semi-structured interview questions, conducted orally, were designed to collect data including household demographics, agricultural practices, perceptions of climate change, and agricultural adaptations to various social, economic, and climatic stresses. Each interview was recorded with an audio-recorder, while I also took my own notes on various pieces of information each *campesino* said that stuck out to me in particular. The availability of the interview data permitted the creation of three identified, over-arching themes as a proxy

for a catalog of responses and permitted a general socioeconomic and geographic contextualization of the qualitative data that formed the focus of the analysis.

The entire time I spent in Chiapas, I lived with the Café Justo Secretary, Eva, save for the time I spent in El Águila, where I stayed in a hotel paid for by the *campesinos*. Regardless of the amount of times I offered to pay for my housing costs and hotel stay, the *campesinos* denied my money and stated that because I was a guest of theirs, it was a privilege for them to pay for my hotel and housing fees. To ensure that the *campesinos* felt as much a part of the knowledge production process as I did, I will have this thesis translated to Spanish and sent back to each respondent (including a special copy for Café Justo), so they may have a record of their engagement.

Not only did I reside in the communities of which I studied, but I also participated in daily life just like a Chiapas native would. I attended Mother's Day festivities; I walked up and down the hilly streets to purchase *totopos* (a tortilla chip snack) from street vendors; I rode in the public transportation system better known as the *conveys* to the locals; I participated in weekly *juntas* (meetings) held at the Café Justo *bodega* (main office) in Salvador Urbina; I traveled to the larger city of Tapachula (via *convey*) to purchase food to make for dinner and notebooks for respondent compensation. People within Salvador Urbina, Agustín de Iturbide, and El Águila welcomed me as if I genuinely belonged rather than as the outsider I knew I was, making me feel at home in their communities after only one week.

Ethnographic methodology was selected for this research to allow the researcher to conduct in-depth research that allows for interpretive analysis. When ethnographers are

able to conduct close range research, this experience invites the researcher to “see” differently (Schatz 2008: 10); it allows not only the ethnographers to reflect upon their own experiences as human beings and the connections they make to their own social realities, but the reader of the knowledge as well (Löwenheim 2010: 1025). As Schatz explains, “ethnography’s role is not so much to produce abstract knowledge as to provide new ways of seeing and thereby challenge existing, often hegemonic, categories of practice and analysis” (2008: 15).

Although ethnographers are never free from possible emotional engagements throughout their time of study, it is necessary to unpack any and all emotional baggage tied to the persons or topics being studied in order to truly “glean the meanings that the people under study attribute to their social and political reality” (Schatz 2008: 5). In order to gain the true perception of climate change impacts on the environment, and more specifically the farming methods in southern Mexico, it is necessary to meet the farmers where they are – to physically and emotionally be present to experience what a day in the life of a *campesino* not only looks like but what it *feels* like as well. Not only will research be conducted on a deeper level, but the *campesinos* can seize their opportunities to be knowledge producers, themselves. As such, Café Justo can use this thesis to share with other community members and supporters once it has been translated and sent to them.

As ethnographers, our duty is to uncover hidden transcripts and give a voice to forgotten or politically excluded narratives, not to determine whether or not these narratives are correct, right, or just; nor is it the established goal of any ethnographer to immerse oneself with individuals solely for the purpose of changing one’s views to fit

with those of whom are being studied. It is crucial that we are, “sincerely and authentically aware of and open to the importance and uniqueness of other human beings’ experience and subjectivity” (Löwenheim 2010: 1026). Once we are able to see past our disagreements in lifestyles or worldviews with those who we study, we will be able to focus on dissecting the “insiders” explanations of how they fit into, see, and understand their worlds, based on their inner feelings and emotions (Schatz 2008: 7; Löwenheim 2010: 1027).

Not only do we, ethnographers, get a true inside look and understanding of those of whom we gain our knowledge, but we are presented with the opportunity to promote the research process to take on the *speaking-with* model. In this model, ethnographers are encouraged to speak with and listen to the individuals of whom they are researching, while remaining open to influences of varied socio-cultural contexts (Nagar and Geiger 2007: 270). While these insights often times remain abstract, they require an “extension of reflexivity from an identity-based focus to a more material/institutional focus...[and] Rather than privileging a reflexivity that emphasizes researcher’s identity, we must discuss more explicitly the contextual economic, political and institutional processes and structures that shape the form and effects of fieldwork” (Nagar and Geiger 2007: 270).

The process of locating myself within the context of the research is important as the stories and information gleaned do not require the researcher to validate or deem as worthy for readers (Löwenheim 2010: 1029). The production of knowledge generated by the respondents is to be taken at face-value and not to have value assigned to it by the researcher. Nor do the *campesinos* require a white urban American researcher to teach them about agriculture and climate change. Rather they are seeking researchers who are

willing to learn about and give voice to the challenged they face. Indeed, while I planned to preserve the individual identities of my respondents by asking them to select pseudonyms, nearly all of my respondents refused, stating that they wanted their real names attached to the information they provided. It was remarkable that the majority of respondents requested that their real names be attached with their stories and knowledge so the world may hear their real stories and recognize that they had something to contribute to the world and their country. I am complying with their request to be identified by name, for those 17 out of 19 respondents who requested me to do so. Their names and thoughts will be revealed in the findings section.

Although investigating the impacts of climate change through the lens of an agriculturalist carries the undertones of using positivist approaches to accomplish this study, I will instead focus on examining farmer perceptions of climate change while using an interpretivist approach. The research I conducted resulted in scripts of conversations and local knowledge about farming techniques and weather or temperature changes, which will allow me to catalog their responses to climate change and compare them to adaptations that have already or will need to be implemented. This type of interpretivist approach allows me to utilize local knowledge as a useful and valuable tool that is not found in positivist research. Rather than seeking answers and supporting data that come about through analyses of quantitative climate data, I will instead focus on the outcomes of the qualitative research while hosting lively discussions with local community members.

My focus on peasant farmer perceptions of climate change derives as much from my frequent interactions with the Latino community and México itself, as it does from

my interest in the lasting impacts of climate change. As a white, urban researcher from Arizona my level of Spanish fluency is seen as quite unusual. During my time in Chiapas, I spoke with all the community members and respondents on my own and did not require a translator. I find myself frequently defending my identity, due to my outward appearance and fair complexion, to confirm my Mexican heritage. My lineage on my mother's side includes family members who emigrated to the United States in 1950 from México. Thus, I was raised by Spanish speakers who shared their pride of the Mexican culture with me. This cherished culture has always been celebrated in my home and remains a very large part of who I am today. As an undergraduate student, I spent a semester living and studying in San Jose, Costa Rica so that I could improve my Spanish-speaking abilities and gain a different perspective of Latino cultures and traditions. After graduating, I married a Mexican national (who learned English during high school) and I have spent just under 10 years improving my Spanish with his mono-lingual Spanish speaking family and celebrating Mexican traditions.

Although I have gained the knowledge I have about the science of climate change and its various impacts from a western educational system, I have chosen to rely solely on scholarship and knowledge as it is produced and confirmed by *campesinos* in Mexico. In an attempt to synthesize the impacts of each, I have chosen to blend these two worlds to move between various cultures and contexts, and gain insights from each. Of course, my desire to blend the two worlds of climate change and *campesino* perceptions of the world does not mean that they will blend seamlessly, as there remains much confusion about and misinterpretations of climate change and its full impacts. Though, this blending

of cultures and knowledge production is one of the most valuable aspects of the kind of research in which I am engaged.

My research was modeled after one of the most important questions of ethnographic work, “What value do inside voices offer?” (Schatz 2008: 13). I argue that these insider, interlocutor are fundamentally important in determining whether *campesino* perceptions and knowledge confirm or differ from the scholarship that has been produced previously. It is true that we are only able to “discern what is ‘real’ by taking people’s worldview seriously” (Berger and Luckmann cited in Schatz 2008: 13). Thus, the advancement of truth-claims made by the researcher is not precluded by using interpretivist ethnography, for these worldviews held by the *campesinos* “lie at the core of the social construction of [their] reality (Berger and Luckmann cited in Schatz 2008: 13). Examining the *campesino* identities as they are constructed under their social groups and associations will have a large impact on the knowledge they produce, and the social ties they claim. The complexities and nuances of ethnography to advance truth-claims are plenty, though this should not take away from the value that lies in the ability to discover hidden truths or misunderstood truths. Allina-Pisano confirms this notion by also suggesting that a “correspondence” of truth is a truth-claim based on its relation to an objective reality (Schatz 2008: 12). This objective reality should therefore be dissected by the researcher to gain a full understanding of the multilayered identities of the researched, so their perspectives, practices, and assumptions can be taken seriously by the researcher.

The responses I received from the *campesinos* regarding their life experiences and personal thoughts were taken at face-value. In order for me to truly appreciate the

information the *campesinos* gladly shared, I was required to dismiss all pre-conceived notions I had previously gathered throughout my academic years about individuals from the Global South and subsequent climate change impacts to these areas. Such preconceived notions included my fears about communicating in Spanish with Mayan individuals who speak a different dialect of Spanish, and my underlying assumptions that farming practices would be underdeveloped and that farming communities would be somehow timeless and untouched by modernity. Immersing myself in the *campesinos*' stories took some time for me to find my own comfort in the information they presented and issues they are facing in the coffee production world.

As I continued to let go of the scholarship that had led me to the particular communities and people and allow myself to be vulnerable to new experiences with new people (similar to what I was asking the *campesinos* to do with me), I was able to see the world and climate change issues from their perspectives. As I opened my eyes and mind to the realities and experiences of each *campesino* and Café Justo associate, I noticed a few general trends or themes emerge. The following chapters will explore those themes and trends in more detail, as I understood them and experienced them alongside the *campesinos*.

CHAPTER 4

FINDINGS

It was fascinating to set aside general scholarship and knowledge, as it has been written, published, and accepted by individuals educated and located in the Westernized, Global North, and instead focus purely on gathering local knowledge as it was produced by individuals educated and residing in the Global South. As scholarly knowledge largely is produced by those in the Global North, or by those who are trained in Eurocentric epistemologies, it is important for scholars to learn and appreciate the indigenous and local knowledges of the Global South. As the *campesino* farmers of Chiapas, Mexico remain behind what seems at times to be a curtain, concealing the realities of farm-life and all of its adversities to the general global public, it becomes increasingly more difficult to gain their perspective about the changing climate. What platforms are available to project their voices and stories? Who is genuinely interested in listening to their stories and is there anything to be gained by doing so? Why should the scientific community, in particular, take a special interest in such stories?

Demographic information about each respondent was recorded during our conversations, such as, their age, highest level of education, and level of commitment to Café Justo (in terms of years spent working with and for the cooperative). The following charts demonstrate the amount of *socios* in each respective category (i.e., age, level of education, and years with Café Justo).

Table 1. Age of *Socio* Respondents

Age	Number of <i>Socios</i>
40-49	5
50-59	3
60-69	7
70-79	3
80-89	1
Grand Total	19

Per the 19 participants, the range of *socio* ages is very large, with the bracket spanning from individuals in their 40's to those in their 80's. Though the age ranges with the highest number of individuals is 60-69 and 40-49, respectively, there remain *socios* actively working for Café Justo well into their 70's and 80's. The majority of 40-49-year-olds were *socios* would had either taken over their parents' *parcelas* or focused on the maintenance of their own *parcelas* while their parent (usually father) continued maintaining their own *parcela(s)* for Café Justo. The generational aspect of land maintenance and farmer lifestyle is one of pride and prestige in Salvador Urbina, Agustín de Iturbide, and El Águila.

Table 2. Highest Level of Education

Highest Level of Education	Number of Respondents
2	1
3	2
4	2
6	6
9	6
12	2
Grand Total	19

Prior to explaining the information presented in the chart, it is important to note the breakdown of grades under the educational system in México. *Primaria* (primary school) serves youth in grades first thru sixth. *Secundaria* (middle school) serves youth in grades seventh thru ninth. *Preparatoria* (high school) services youth in grades 10th-12th. The important distinctions are between *Secundaria* and *Preparatoria*, since this model closely resembles the breakdown of grades in the educational system of the United States. As for the *campesinos* in this particular study, it appears as though the majority completed *Secundaria* (or ninth grade) but did not continue on to *Preparatoria* to receive their diploma and be considered an *alumno* (graduate). The reasons for leaving school prior to reaching graduation from a *Preparatoria* will be further explored in the following chapters.

Table 3. Years with Café Justo

Years with Café Justo	Number of Respondents
6-7	1
10-11	2
12-13	2
14-16	14
Grand Total	19

Per the chart above, an overwhelming amount of *socios* had been working with and for Café Justo for over 14 years. Approximately 85 percent (11 out of 13) of the *socios* who had been working with and for Café Justo for 14+ years, have been with Café Justo since its inception in 2002. Although this information does not encompass all information for all *socios* involved in the cooperative, it provides great insight into the amount of trust and satisfaction *socios* have been experiencing with Café Justo.

Campesino Identity

Before the individual interviews officially began, each *campesino* was asked to create their own pseudonym, so their responses could be quoted in this thesis without jeopardizing their identity. I was expecting each *campesino* to be delighted to provide me with their own pseudonym, as another version of reclaiming their power within the context of scholarship, instead of relying on the researcher to create the pseudonym for them. The way in which the scenario actually played out with all but two *campesinos* was something I never considered; The Café Justo coffee farmers and Chiapas inhabitants insisted on using their real names and identities. Without hesitation, upon being asked, they reacted to my question about using pseudonyms as if it was an insult or foolish idea. They wanted people to know who was providing the information, and who was sharing their coffee wisdom with the world. Other reactions manifested in understandable shyness and baffled facial expressions as to why they would be interested in creating a false identity for themselves.

After the initial pleasantries of asking my opinion or agreeing to do whatever would make *me* feel most comfortable, I politely reminded the respondents that this decision was theirs alone to make. For 17 of the 19 *campesinos*, after a brief period of deliberation, the decision to use their real names was made. Jaime, a Café Justo *socio*, compared the experience to being in a movie and having multiple roles or actors for one person. He, in particular, took great interest in the pseudonym versus true identity discussion, and ultimately interpreted the question, and his subsequent participation, as something that would be part of his legacy. Jaime insisted on using his real name for this

writing, so people would recognize that he existed in this world and is someone with a voice and a story to tell. He also found it very important for people to hear his story, and all those of the other Café Justo *socios*, so that people would not forget about them, “como que no existiría uno,” meaning, “like one never even existed.” He also saw it as an opportunity for future family members to have some understanding of their family history, and what they have contributed not only to Café Justo, Salvador Urbina, or Chiapas, but the world. This is a clear reminder that knowledge, scholarship, and education are not realms that should be or need to be dominated by a singular, Westernized voice.

The creation of an identity depends on one’s life experiences, surrounding environments, and relationships. Identity shaping, and reshaping is a normal phenomenon that occurs various times throughout our lifetimes. People are individually and collectively affected by the nuances of their surroundings, and the responses they receive from their communities. Identities are also shaped, in some way, by those who came before them via the generational sharing of certain knowledge, traditions, and beliefs. The identities of the *campesinos* are particularly nuanced and dependent on their collective attachments to their community and its members. Each *campesino* was proudful about their work and *parcela* and were delighted to answer any questions I had about their land and/or coffee maintenance practices. When asked about the amount of time spent as a *campesino*, the most usual response was, “toda la vida,” or “todo mi vida,” which translates to, “all of my life.” This area of their life proved not only to be their livelihood and core occupation, but one of the most major pieces of their identity; As if they could not be a person without also being a *campesino*. The term *campesino* was a

prideful, powerful title, much like the pride one would feel after graduating from any level of college and being encouraged to emphasize the fact that they are “educated,” when introducing themselves to someone new. This identity marker spoke volumes to the amount of respect and care each *campesino* put into the maintenance and harvesting of their *parcelas*. They are the experts in their fields, and they have the best, highest understanding of the nuances their lands face in terms of climate change impacts.

In addition to the identity marker of *being a campesino*, and not simply *working* as one, the entire community seems to have constructed itself around the *campesino* identity. One of the Café Justo *socios*, Lebestain, confirmed that “*todos somos campesinos*,” meaning, “we are all peasant farmers.” This identity is embodied by all community members, whether they own plots of land and cultivate coffee, or not; if they reside in the community and take part in engaging in community traditions, they are included in the mass identity. Again, the pride and honor behind such a title greatly exceeds the lexicon of the English language to truly translate the meaning behind the word in a way that non-Spanish speakers would understand. Further, when I spoke with two other Café Justo *socios*, Guadalupe (Café Justo’s current President) and Alonso, they confirmed this notion for me by correcting me when I misspoke and used the term “*agricultor*,” meaning, “farmer or agriculturist,” as a description of their identity. They instead explained that the more accurate term to identify Café Justo *socios* and community members alike is, *campesino*.

The firm and unwavering interpretation and understanding of this portion of their identity, astonished me. As part of my particular upbringing, the society under which I was raised vehemently encouraged its citizens to continuously explore multiple areas of

interest, career paths, and adventures in hopes of allowing one to subscribe to the ever-evolving, shifting notion of identities. Never have I been confronted with such firm, proud identities, whom have been rooted in such strong beliefs about their identity and self-descriptors. Café Justo *socios* appear to be individuals who have always known who they are and what shapes their identities will take.

The family-centric nature of communities, such as Salvador Urbina, Agustín de Iturbide, and El Águila, influence future *campesino* professions. All 19 *campesinos* confirmed that they inherited their *parcelas* from either their parent or grandparent. And to follow along with tradition, all 19 *campesinos* indicated that they intend to pass on their *parcelas* to their kids, so the responsibilities, knowledge, and talent will continue to stay within the family. Alonso, a Café Justo *socio*, validated this notion by sharing with me that he learned everything he knows about cultivating and harvesting coffee and being a *campesino* from his dad, who learned from his dad; He intends to continue the tradition by imparting his knowledge on and gifting his lands to his children, as well. The responsibility of preparing their kids for the future is a great one, as is the responsibility to teach the next generation about coffee's significance to the community. Guadalupe, Café Justo's current President, talked about coffee's importance to Café Justo's three communities within Chiapas. He affirmed that, "el producto [café] es muy importante para toda la comunidad," meaning, "the product [coffee] is very important to our community." He continued by saying that everything that has allowed people to gain money and have a way to continue supporting their families has come from coffee.

General Perceptions of Climate Change

The *campesinos* I spoke with seemed to be extraordinarily perceptive of not only the world around them, but of the impending doom climate variability will bring to their community, and ultimately, all communities around the world. The evidence they provided to me via spoken testimony and in-person demonstration proved that there have already been climate variability impacts on agriculture, and they are well aware of these changes. Although I started the conversation with each *campesino* and specifically told them my reasons for visiting with them to see their *parcelas* and coffee plants in person, the majority of respondents appeared delighted to impart their knowledge of the climatic variations and their effects on me. I consciously opened each conversation with a breakdown of the reasons why I traveled to Salvador Urbina, Agustín de Iturbide, and El Águila, and the information I intended to gather from their lifetime of experiences. Soon after our conversation was underway, the *campesinos* seemed to have an outpouring of information about how drastically the winter (or wet) and summer (or dry) seasons have changed, what the *plagas* (diseases) mean for age-old coffee production traditions, how inconsistent rainfall affects coffee plants, and what importance the moon has to harvesting coffee.

According to the *campesinos*, winter and summer (or wet and dry seasons) have changed dramatically since their parents and grandparents were their age, thanks to climate variations. During our discussions, respondents shied away from talking about or naming the seasons winter or summer and instead labeled the seasons wet or dry. Since the three towns I visited are relatively temperate year-round and do not fluctuate between

extreme lows or highs throughout the year, it appears that the *campesinos* have instead found more comfort in labeling the seasons according to amount of expected rainfall. From what I gathered from the *campesinos*, the dry season between December and May, allowed the *campesinos* time to begin planting new coffee plants to get ready for the rainy season between May and August. Then, from August to December, all work in the *parcelas* is dedicated to harvesting the coffee beans, to process and prepare it to be shipped to Agua Preita for roasting and packaging. Sadly, Jaime, one of Café Justo's *socios* explains how this cycle is slowly breaking down, "anteriormente no lluvia hasta Mayo...desde Diciembre hasta [el fin de] Mayo no lluvia...y ya en Mayo no se quitaba el agua," meaning, "previously, it would not rain until May...from December to [the very end of] May it would not rain...but now in May, the rain does not stop coming down."

During my time in Chiapas in May 2018, there was torrential downpour every single day; so much so that houses would fill with water. Every morning I would hear comments about how much rain the town received the night before and how worried they were about even more potential rain projected for later on that afternoon. Since *campesinos* do not have the appropriate equipment to install irrigation mechanisms and therefore control how much water each coffee plant is exposed to daily or seasonally, they are at the mercy of the environment to provide them with sufficient water via rain. On the contrary, if the coffee plants and *parcelas* are exposed to too much water, they run the risk of potential floods, coffee beans being stripped from the plants, and/or soil degradation. It is true that coffee plants require a significant amount of water to grow properly, though Guadalupe, Café Justo's current President states, "pero mucho agua también nos afecta," meaning, "but a lot of water also affects us."



Figure 5. Rainfall in Salvador Urbina, Chiapas – Photo Credit: Author

Another *Café Justo socio*, Juan Carlos, explains the true impacts of unknown rain patterns and inconsistent season cycles:

“Antes tenía ciclos...por ejemplo de verano los días que no llovía eran más y digamos que en Mayo ya inicia ver agua pero ahora no. Ahora ya esta todo cuatrapiado el tiempo. Es como que se trastorno el tiempo porque cuando llueve hoy hace verano hace calor hace frío, pero sí nos ha afectado bastante. Ya no hace mucho verano...hay granitos maduros y todavía no estamos en el tiempo. Tuvieramos en Julio ya se mira porque ya empieza a madurar el café en julio pero no en la manera que estamos en mayo y hay granitos maduros. Por qué? Porque se adelanto la floración...el que esta estresado es la planta porque mientras que la planta no este estresado no florea pero cuando este estresado luego hace florear esta estresado la planta.”

“Before there would be cycles...for example during summer there would be days without rain, you could say that rain would start coming in May, but not anymore. Now everything is all messed up and in disarray. It’s like the times [or seasons] have been disturbed, because now when it rains, it’s summer time, but also hot and cold at the same time, but yeah, the climate has affected us a lot. Now there isn’t really a summer season...there are now mature beans and we still aren’t in the right season. If it were July you would expect to see mature beans because that’s when they start to mature, but not right now because we are in May and you

can see mature beans already. Why? Because the blooming period has sped up...the thing that is really stressed right now is the [coffee] plant because when the plant isn't stressed, it doesn't bloom, but when it is stressed it blooms right away."



Figure 6. Mature Coffee Beans – Photo Credit: Author

As noted in Juan Carlos' explanation, inconsistent rainfall is detrimental to healthy, predictable harvests. To the extent that the *campesinos* would have to alter their expectations of coffee outcomes, by producing less each year, the unpredictable weather could cause high stress among *campesinos* and the cooperative as a whole, assuming that the cooperative aims to produce a certain amount of coffee each season. Magdalena, a Café Justo *socia*, in agreeance with this stressful feeling about unpredictable rainfall

asserts that, “aquí a veces es demasiado...ay años que lleve demasiado y hay años que no,” meaning, “here it is too much sometimes...there are years in which there is too much rain and years that there is not.”

It is very clear that the Café Justo’s *campesinos* are very in tune with weather conditions, in particular rainfall, and how drastically it has changed since their parents were their age. The agreed upon preference, as it was outlined explicitly by the 19 respondents, is that the weather is “un clima...que no sea ni muy lluvioso ni muy seco,” or “a climate...that is neither too rainy nor too dry” as Martelino, a Café Justo *socio* described it. Although the *campesinos* love and need the rain for their plentiful harvests of coffee, too much water and rainfall can produce negative consequences as well. The consistent heavy downpours do not allow the coffee plants to continue growing in a healthy manner, so the seed will eventually ripen; the torrential rain can also cause the seed to be stripped from the plant and fall to the ground.

Alonso, a Café Justo *socio*, explains another negative consequence of too much rain; he asserts, “que no debe de llover a agua en tiempo para que las flores de las matas den sus granitos, porque hay veces que florean,” meaning, “it shouldn’t rain too much all the time so that the seeds from the plants produce their seeds, because there are times when the seeds bloom”. Instead of allowing the seed to mature the way it needs to, the over watering of the plant will cause the seeds to bloom, therefore, completely destroying the ability to harvest the bean for further processing. The stress and anxiety felt by the *campesinos* is present when there is too much rain, but also when there is not enough. It is necessary for the climate to be, “templado...ni tan frío ni tan caliente,” or “temperate...neither too cold nor too hot,” posits Lebestáin, a Café Justo *socio*.

Unfortunately, as the *campesinos* have affirmed, the predictable temperate weather and rainfall patterns are long gone.

In addition to the challenges with reliable and moderate rainfall, the increased humidity and heat have created ripe conditions for plagues, in the form of coffee-bean-eating-bugs, to appear. The *campesinos* referred to this insect as *una broca* (a drill bit), though after researching the bug, I found it to be a *Hypothenemus hampei*, or a coffee cherry borer beetle. The coffee cherry borer is small enough to crawl through the very tip of the bean, past the outer layer of the coffee rind, and inside the actual coffee bean. Once inside, it begins eating the coffee bean from the inside out. According to US Department of Energy's Lawrence Berkeley National Laboratory, "this beetle can burrow its way into a coffee bean and withstand a massive amount of caffeine – normally a powerful insecticide – for its tiny size. It is estimated that it can withstand the fatal equivalent of 500 shots of espresso for a 150-pound human and cut a crop of coffee beans by 80 percent" (Gallagher 2015). After the coffee cherry borer has eaten the inside pulp of the coffee bean, the bean then becomes black, eroded remnants of what once was a growing coffee bean inside the outer layer of hard rind. Since Café Justo coffee requires organic growing and harvesting practices, and fumigation techniques or chemical sprays are banned from being used in or around the *parcelas*, the *campesinos* are having an extremely difficult time finding a way to keep the bugs from attacking their plants.



Figure 7. Eroded Coffee Bean – Photo Credit: Author



Figure 8. Evidence of *La Broca* – Photo Credit: Author



Figure 9. Evidence of *La Roya* – Photo Credit: Diaz 2013

Edmundo, a *Café Justo socio*, stresses that disruptions in the climate have already taken shape within his lifetime. He explains that climate variations have brought about many problems for his land and coffee production, and the reason *campesinos* might have decreased yields is, “por las plagas...antes no existía las royas...cuando mi apa era [campesino], no...eran grandes producciones de café, pero no existiría de plagas. Puede ser que por el cambio de clima exista las plagas,” meaning, “because of the plagues...before stem rust didn’t exist...when my dad was [a campesino], there...weren’t large productions of coffee, but the plagues didn’t exist either. The existence of the plagues could be because of climate change.” Interestingly, the only town facing the *plaga* infestation was the hotter, more humid Salvador Urbina. *Campesinos* in Agustín de Iturbide, and El Águila, had not been affected by the same type of *plagas*, yet.

These bugs or plagas, as the *campesinos* call them, cause their cash crop and livelihood to be highly dependent on consistent, temperate weather, so that rising heat

and humidity do not continue providing ripe conditions for even more plagues. The more the climate fluctuates and affects the rainfall, temperature, and humidity levels, the more plagues and decreased crop yields are bound to result. Though regardless of natural disasters, whether they have been generational or recent appearances, the *campesinos* appear to be determined to continue dedicating their lives to their *parcelas*. Further, they are committed to continuously embedding indigenous traditions into their agricultural practices. Luckily, Café Justo has allowed the campesinos to maintain the Mayan way of life, by producing necessary crops while using deceptively simple practices. Two respondents spent a great deal of time talking with me about the importance of the moon when planting and caring for one's coffee plants.

Although my background and expertise are most decidedly not in agricultural practices, let alone those specifically related to coffee production, learning about the moon's importance to this process was new for me. Once the topic was introduced, or mentioned by either the *campesino* or me, they became energized by the explanation of the moon's significant role in coffee production and were delighted to share their knowledge on the matter. Both Beltran and Juan Carlos talked extensively about the moon's involvement in the coffee production process. When I asked for more clarification, Juan Carlos gladly took on the challenge:

“Nosotros, cuando vamos a sembrar, cuando ya la luna ya esta en punto de ser, antes de llegar a llena, digamos de cuarto creciente ya, el punto de ser redonda la luna en ese tiempo se siembra para que la plantita no crezca mucho y de suficiente granos. Pero sí la sembramos cuando la luna esta tiernita apenas digamos que hoy nació la luna, esta chiquita la luna... no nos va a producir. Si va a crecer la planta pero sí va a ver en pura oja, en puro follaje pero no va a dar fruta. Ni los granitos ni nada. Pero, sí miramos que no dio fruta hay una palabra que dicemos, gobiar la planta entonces se gobeia cuando la luna esta llena se gobeia la planta y ya le salen los hijelitos y esos hijelitos sí van a dar café... Entonces los hijelos, es que sí

estuveira sembrando de nuevo pero esta planta ya no le va a servir porque ya no va a dar, lo que va a dar van a ser los hijelitos”.

“When we are getting ready to plant [the coffee], when the moon is on the verge of being full, before it becomes full, let’s say when it is the fourth crescent moon, the very moment before it is all round and full is the time to plant [the coffee] so the plant does not grow too much but produces a sufficient amount of seeds. But, if we plant [the coffee plants] when the moon is already full, let’s say when a new moon has started, and it is very small...the plant will not produce for us. It will grow, but it will only sprout a ton of leaves, basically pure foliage and will not give us any fruit. It will not produce seeds or anything. But, if we see that the plant is not producing any fruit, there is a word we say, fold the plant with wooden hooks and, so when the moon is full the plant is folded over by wooden hooks so that the plant and little offspring plants appear, and these offspring will produce coffee. The offspring act like if we planted it from new, the original plant will continue to not produce any fruit or seeds, the one that will produce will be the offspring.”



Figure 10. Folding Over the Coffee Plant with a Wooden Stick – Photo Credit: Author

These traditional farming practices are dependent on organic, natural farming practices that require appropriate rainfall, land conditions, and temperate weather. To a modern eye, the ability to use such unpredictable conditions to produce successful crop yields is deceptively simple. Relying on the traditional practices taken on by generational, family farming, will prove to be more difficult if the atmosphere is to be depended on for perfect weather conditions to produce successful crop yields. The dependence on natural rainfall, instead of irrigation water systems, and the reality of unpredictable weather conditions from year to year, instead of temperature-controlled greenhouses, leave *campesinos* in a vulnerable state, consistently wondering how their livelihoods will be affected.

Climate Change Impacts on Livelihoods

Climate variations, as they are explained by Café Justo's *socios*, are currently taking a toll on *campesinos* and their products. They have already witnessed significant fluctuations in weather and plant diseases in their own lifetimes. As I have asked each respondent to recall what they remember during their parents' and grandparents' days as *campesinos* (and potentially Café Justo *socios*), I received many responses that demonstrate the generational differences. As weather conditions have begun to shift, *campesinos* started engaging in discussions about ways to counteract the climatic variations, while upholding their traditions and pledges to organic farming. Future impacts to their livelihoods could prove to be quite challenging and uncomfortable.

As I walked around each *campesino's parcela*, I was able to witness first-hand what part of the "off season" looks and feels like. I noticed some *campesinos* who were

dedicated to being in their *parcelas* every day. These individuals focus on cleaning up any unnatural trash left behind by others, redistributing organic “trash” to be concentrated to the roots and base of each coffee tree, checking for *plagas*, planting new coffee flora, trimming bushes and trees, and performing other minor preservation tasks. While I noticed *campesinos* who were in or around their *parcelas* on a daily basis, I also noticed *campesinos* who were not in or around their lands very often. When I asked Jaime what a typical “off season” looked like for each *campesino*, his response surprised me. Where I was expecting a blasé answer about how every *campesino* follows the same mundane routine during the off season to continue focusing on and maintaining their lands, I received information that was quite the contrary.



Figure 11. *Campesino* Land Tour – Photo Credit: Author

Jaime explained that for each *campesino* the time spent dedicated to maintaining one's *parcela* outside of the August-December harvest period is completely different for everyone, depending on how much money they have or make during the previous harvest. Money distribution therefore comes down to being split between food, children's school costs, and land maintenance, at the very least. For those who cannot afford to pay someone else to help maintain and clean up their *parcelas* during the off season, they are forced to work alone or their *parcela* does not get much attention. *Campesinos* must therefore make very difficult decisions about how and where to allocate their money, and Jaime confirmed that sometimes, the *parcelas* are not the top priority. For a family comprised of any school-aged kids, it is understood that each child will require adequate school supplies and school fee payments, each year. Should any family members fall ill, doctor visits and medication will be additional necessary expenses, although unexpected ones, Jaime admits. Above all else are the necessities of food and water, which become problematic with large families living in one house.

During the interviews, I asked all respondents if their basic necessities were being met, to which the majority responded with long pauses and vague understandings of how to classify or identify "basic necessities." I struggled to determine appropriate measures for basic necessities with farmers, as they perceived this to be a vague framing. Though, they did emphasize the importance of food to their collective culture as well as to their individual well-being. When I asked the *campesinos* if their basic necessities were being met, Martelino, a Café Justo *socio*, contended that the most important and basic necessity is food, which is all they care about. He went on to say that, "estamos acostumbrado a la forma de vivir de esta manera...nos alimentamos con verduras que hacen aquí en el

campo... así crecimos,” meaning, “we are accustomed to this way of life...we nourish ourselves with the vegetables that grown in the fields here...that’s how we grew up.” He went on to say that, “dios nos ha dejado algo importante que son...los pies y los manos para trabajar y obtener algo,” meaning, “God has left us with something important...feet and hands to work and obtain things.” In other words, the *campesinos* and community members are required to work to secure the most basic of necessities, since these items will not and cannot be secured any other way.

Once the definition and understanding of “basic necessities” was established, only one *campesino* stated that they would consider their family as falling short of meeting their basic needs, owning a vehicle. All other *campesinos* stated that their needs were being met, and there was nothing else they needed to satisfy their desired quality of life. Of all 19 *campesinos* I spoke with, six owned a family car and one owned horse. Technological needs were never brought up by *campesinos* or mentioned as a need to be addressed.

Three of the nineteen *campesinos* notified me that they had previously left their *colonias* (towns) to seek out work elsewhere in Chiapas, México, or the United States. After working elsewhere and upon reaching their predetermined monetary goals, they all returned to their *colonias* to continue working in the coffee fields. Beltran, a *Café Justo socio*, told me about the time he needed to leave Salvador Urbina to work at the *fabricas* (factories) in Nogales, Sonora, México for six years to continue earning money for his family, when the price and value of coffee dropped significantly.

After all the necessary expenses are covered or addressed, the *parcelas* are added to the equation. These costs and responsibilities can become so overwhelming at times, that *campesinos* are faced with incredibly tough decisions about ways to continue supporting their families. Alonso, a Café Justo *socio*, shared with me that after his wife fell ill and his family could no longer afford her medical bills, he traveled elsewhere to find work, ultimately ending up in Atlanta, Georgia, USA. Lazaro, a Café Justo *socio*, talked with me about the tendency of some *campesinos* to sell their leftover products to *coyotes* or smugglers, to be resold to other people or larger food companies. These *coyotes*, Lazaro confirmed, mainly rely on products from *campesinos* who operate outside of Café Justo's cooperative, though it is not uncommon for Café Justo *campesinos* to rely on alternative economic opportunities as well. David and Alonso work part-time in construction; Beltran, Jaime, Lebestain, and Lazaro sell fruits and other types of coffee that grow naturally on their land; Edmundo's wife also works to help to support the family; and Martelino has a small business of selling chicken. Martelino calls these ventures, "negocios pequeños," meaning, "small businesses, but even these do not help as much as the *campesinos* would like at times, says Alonso, because "a veces no alcanza," meaning, "sometimes it is not enough."

To be clear, if a Café Justo *socio* utilizes the assistance of a *coyote* to buy their supplementary agricultural products, the Arabica coffee is reserved solely for Café Justo. Of all the variations of coffee found in Chiapas, and in each *campesino's parcelas*, only one type of bean has been deemed good enough for Café Justo standards; this is the Arabica bean, which is described by the respondents as the most aromatic, flavorful, smooth, and robust flavor of all the beans. This bean, by default, is sold for a higher price

since it is associated with a higher value. Supplementary products that could be sold by individual *campesinos* or *coyotes* include, Robusta coffee beans, bananas, corn, beans, mamey sapote, and rambutans. Though above all these products, Lazaro reminds us that, “es todo el café...sí no tenemos el café no tenemos dinero,” meaning, “coffee is everything...if we don’t have coffee we don’t have money.”

If crop yields were high and the value of the coffee remains stable, and *campesinos* were able to contribute a significant amount of coffee to all of Café Justo’s output, they might have the option of paying someone from the community to maintain their *parcelas* during the off season, so they can focus their attention elsewhere. Another possibility for extra assistance and ease, would be the purchase of a horse. The horse would provide the most support to the *campesino* during the harvest season (between August-December). They are desired for assisting with carrying 50-pound bags of coffee out of each *parcela*, down the side of steep hills, along the half-hour to hour trek back into town and unloading them at the Café Justo *bodega* or main office, to be prepared for depulping and sending off to Agua Preita to be roasted and packaged. Of all 19 *campesinos* I met with, only two used vehicles and one used a horse to carry the filled coffee bags from their *parcelas* to the Café Justo *bodega* or home. For those without the luxury of owning a car or horse, the bags must be carried manually from the *parcelas* all the way to the *bodega*. And, for those who cannot afford to pay community members to assist with harvest time, the work must be done alone or with help from spouses, kids, and/or other family members.

Looking toward the future of coffee production, Café Justo *campesinos* appeared to be cautiously optimistic. Due to their membership in the coffee cooperative, they are

presented with opportunities to talk through production and harvest difficulties in their weekly *juntas* (meetings) at the *bodega* in Salvador Urbina. *Campesinos* from Agustín de Iturbide and El Águila are required to drive down for the *juntas* and be a part of the large discussions. Aside from accessing assistance from fellow cooperative members, a few *campesinos* talked with me about the *ingenieros* (engineers) and students who have taken an interest in the cooperative and its *socios*. Edmundo and Alonso, Café Justo *socios*, told me about the *ingenieros* and students who have visited their *parcelas* to study their organic agricultural practices. These outside individuals have taught Café Justo *campesinos* alternative organic agricultural methods and have taken a great interest in testing new varieties of coffee to be more resistant to the *plagas* and heat. Edmundo, a Café Justo *socio*, talked with me extensively about the group of students who came to teach the *campesinos* different and new ways of planting and assembling new plants in their *parcelas*, so to create a path for the rain to flow, without disrupting the natural path the water will travel downhill. The students taught the *campesinos* to plant their coffee plants in a diagonal pattern all the way down each hill. Additionally, plants should not be in front of another one, and should have a bit of distance between one another to allow for ample growing room. This lesson, Edmundo stated, was a crucial one for him so that he could take whatever measure necessary to ensure the utmost success for his plants and prevent flooding from occurring. As of the production of this thesis, Café Justo is still using only Arabica coffee beans to harvest and sell and has not found a proper way to embed new hybrid coffee varieties to their list of possible solutions to fluctuating climatic conditions.

CHAPTER 5

ANALYSIS

In this ethnographic study, it was apparent that *campesinos* had salient perceptions of climate variations. The qualitative data collected through interviews revealed that *campesinos* are indeed aware of how shifts in the climate over a few generations are beginning to negatively impact their ability to maintain consistent crop yields. The data also demonstrates that individual *campesino* identity plays a significant role in the interpretation of climate change impacts, as does the collective *campesino* identity in all three towns I visited. These identities transcend the narrative of *campesinos* as mere sustenance farmers or agriculturalists, but instead paint a picture of the lifestyle of peasant farmers who live to farm and farm to live. Although Café Justo *socios* and their families depend on the cyclical seasons to cultivate and harvest successful crop yields, the future livelihoods will indeed be impacted by further climatic disruptions. After all the conversations, tours, and personal experiences of both the respondents and my own, I am left wondering, what does Chiapas tell us about what is going on in the world? What does the qualitative data tell us about *campesinos* and their connection to not only their lands but also their community and its identity?

Table Results

Based on demographic data I collected regarding age, educational background, and years spent working with Café Justo, general information about all Café Justo *socios* could be surmised. Table 1. Age provided data in regard to respondent age; the age range for the 19 *campesinos* with whom I spoke was from 40 to 83 years, with an average age

of 58.5 years. This data validates the notion that being a *campesino* is a lifelong endeavor and is not merely a career taken up for a pre-determined number of years. This sample of Café Justo *socios* can give us insight into the generational aspect of working for or alongside parents, whether or not they are a part of the cooperative as well. With the average age leaning more toward the later end of the age spectrum, the data provides evidence that the current *campesino* population is aging and in need of passing down their land and knowledge to the next generation.

Although most if not all respondents commented on their desire to pass down their land and knowledge to their children as their next goal, it is unclear how interested the next generation is to take over where their parents and grandparents left off. During the interviews, I got the impression that most of the *socios*' school-age kids were indeed in school, which would surpass the level or years of education many of the *campesinos* received. Is the next generation of interested in maintaining the *campesino* lifestyle to perform arduous labor and live simply but tough lives in order to continue performing the same work their parents and grandparents before them did? Youth flight could complicate the continuance of local knowledge production and generational agricultural work in Chiapas. The dynamics of the small-scale farming communities could drastically change if the newer, younger generations of would-be *campesinos* decide to pursue employment and lives outside of the hometowns. We do not know if the next generation of *campesinos* is going to stay on the land to learn this localized knowledge and engage in the generational work of coffee farming. Small-scale farming communities could face the potential loss of intergenerational exchange of knowledge if youth flight occurs on a more frequent basis than it ever has. If the younger generation views the current

campesino life as unsustainable or unfulfilling, what will happen to such communities if the *campesino* life is unable to be maintained?

According to Table 2. Highest Level of Education, the span of completed grades ranges from second grade to high school graduate. None of the *campesinos* I interviewed pursued college degrees or specialized training outside of their main primary and secondary schooling. The average grade completed among the nineteen respondents was seventh grade. All respondents identified that their completion of school was a result of required help in the *parcelas*. Respondents explained that when their parents or grandparents started requiring their help with cultivating and harvesting either the coffee or other products, they were expected to work full time in the *parcelas* instead of continuing on with school.

As outlined in Table 3. Years with Café Justo, the amount of time spent working with and for Café Justo ranged from six to sixteen years. Café Justo was first formed in 2002 and has continued growing into the cooperative of today with the thirty-six *socios* that oversee the cultivating, harvesting, preparing, roasting, and packaging. Since its inception, through all the growing pains of barely receiving any compensation initially for the amount of coffee contributed, eleven out of the nineteen respondents have remained a part of the cooperative. Both Juan Carlos and Jaime commented that there were many more founding members, though the lapse in compensation and unknown future of the coffee cooperative were enough to deter them from staying. Unsurprisingly, the average time spent as a socio for Café Justo, based on data from the nineteen respondents, is fourteen years.

Campesino Identity

The respondents took much pride in sharing their story and experiences with me; they took advantage of the chance to educate others in regard to the *campesino* life and lifestyle, while also proving their knowledge to the world, and leaving behind a legacy for the next generation of *campesinos*. Jaime, a Café Justo *socio*, saw the opportunity of sharing his story as a way to add something to the world and ensure that the world recognize his existence. He commented on several occasions how he never thought someone from the United States would ever be interested in his story or the information he could contribute to any piece of writing. For him to be viewed as a hidden part of society while he committed his life to produce a product the Westernized Global North, arguably, can't live without was quite an interesting paradox.

Alonso, a Café Justo *socio*, also pointed out that it is very important to him that he produces coffee liked by Americans since he is aware of their affinity for both organic products and coffee and is consequently very proud that he satisfies both criteria. It appears as if validation of their products equates to feeling validated as a person by individuals from faraway lands with whom they will never meet. Though the recognition and appreciation from customers is of great importance to the coffee farmers, the *campesinos* ought to be aware of how valued they already are in their own communities and households. It is integral that Western audiences view the *campesinos* for what they really are, experts in their fields and the best agents of their own personal or communal development (Vanderhoff Boersma 2009: 52-53). Audiences in the Global North ought to take more time to understand the perspectives of the peasant farmers because of their specialized and localized knowledge (2009: 52-53). Though, as researchers, it is also

crucial that we recognize our inherent privileges while working with the community members and respondents, to avoid perpetuating harmful power dynamics (Nagar and Geiger 2007).

The desire to be recognized, perhaps as worthy, by Americans (specifically) makes one believe that the *campesinos* think of themselves as being only as good as their products, which is highly problematic. The *campesinos* of Café Justo are dedicating their lives to producing products for citizens in the Global North to consume, in specific conditions deemed worthy by those in the Global North but are not abiding by the same lifestyles choices as those in the Global South – specifically in the wetlands of Chiapas, México. While the *campesinos* dedicate their practices and lands to organic methods, the impacts of climate change are harshly affecting their communities much more dramatically. Unfortunately, they reside in a certain mountainous terrain that is disproportionately sensitive to climate change (Leemans 2010: 58). Impacts such as, “shifts in the rainy season and variations in temperature and precipitation can negatively affect coffee plant physiology, flowering and fruiting resulting in reduced yields,” (Gay et al. quoted in Frank et al. 2011: 68) in addition to climatic stresses like droughts, landslides, soil degradation, reduced biodiversity, coffee pests, and fungi (Frank et al. 2011: 69). If *campesinos* are poorly prepared to deal with such stresses, the likelihood of experiencing severe adverse consequences will increase dramatically (Ebi 2010: 128).

It is often convenient to divide the world into developed and developing nations, and for purposes of geographic location, the dichotic labels allow for social and economic division. The reality for greenhouse gas emission purposes, however, remains that “the regions implementing the mitigation measures could be different from the regions

experiencing their impacts. The current generation of industrialized countries may invest in mitigation measures, and the main beneficiaries may be the next generation in the developing countries,” (Sathaye 2010: 271) and not those in the developing countries who fare far worse.

Community identity and traditions are integral to learning agricultural processes and should be taken into consideration by outside scientists, students, and communities when coming in to meet with *campesinos* to shared new information or technology. Organic processes also translate to minimalist practices in terms of using technology or mechanisms to assist with the cultivating, harvesting, and roasting processes. Should processes and practices need to be updated to combat the effects of the changing climate, the expectations of radical changes to *campesino* methods should be taken into consideration and kept at a minimum.

Changes to agricultural methods in rural areas in the Global South are not as easy or feasible as someone from the Global North might think. The availability of (new) machines or tools are not as accessible or practical as they might be in the Global North, especially for organic methods. In terms of cultural traditions, the Café Justo *socios* believe the moon to be of great importance to the cultivating of coffee plants and will therefore be a major part of the knowledge passed down from generation to generation.

General Perceptions of Climate Change

As stated by Frank et al., “Climate is paradoxically both a familiar and foreign topic to farmers: as an integral part of their experience as producers and rural residents, it is thus within the domain of their ‘in-group’ knowledge, but it is also an enigmatic and

esoteric subject accessible differentially to those with higher education” (2011: 74).

Though the *campesinos* demonstrated a striking understanding of the impacts of changes in the climate to their world in terms of how their coffee plants and *parcelas* are being affected, I am not convinced that the respondents are aware of the relation between these changes and climate change versus general changing climatic conditions or weather. The farmers talked about climate change more in relation to climate variability due to their highly localized knowledge. The difference in perception of climate in relation to climate change scholars and local farmers is that farmers have more localized knowledge of climate variability and climate change scientists have more knowledge about global climate change patterns. The *campesino* risk perception and climate change knowledge are not necessarily linked to worldviews, as is described in identity creation theory, so much as they are linked to community identity.

The awareness of low crop yields and high levels of rainfall was very apparent during the interviews, as was the understanding of how such phenomena affect their communities, yet *campesino* knowledge about climate change impacts was highly localized. None of the respondents mentioned their awareness or level of understanding about changes occurring in neighboring communities or other communities throughout México, aside from those in El Águila. *Campesinos* residing in El Águila talked about the existence of the *plagas* in Salvador Urbina and what components attribute to the ripe conditions for the *plagas* to continue flourishing (i.e., the lower elevation and heat). They also discussed the shifting rainfall amounts and dry seasons as if they are potentially bound to return to “normal,” predictable cycles. In other words, there was no mention of

human contributions to the climate disruptions, and their knowledge about how much more detrimental these disruptions can be for their communities.

Speaking solely in terms of the *plagas*, the *broca* insect will prove to be highly problematic in the next few years. According to US Department of Energy's Lawrence Berkeley National Laboratory, "this beetle can burrow its way into a coffee bean and withstand a massive amount of caffeine – normally a powerful insecticide – for its tiny size. It is estimated that it can withstand the fatal equivalent of 500 shots of espresso for a 150-pound human and cut a crop of coffee beans by 80 percent" (Gallagher 2015). Researcher Javier Ceja-Navarro has discovered the secret to the *broca*'s successful caffeine ingesting abilities: the beetle has bacteria in its guts that detoxifies caffeine (Yong 2015). The solution to rid coffee lands of this beetle may be reduced without the use of pesticides, if there is a way to "disrupt the bacteria and make caffeine as toxic to this pest as it is to other insects" (Ceja-Navarro quoted in Gallagher 2015). This endeavor will be integral to future successful crop yields.

Other than the El Águila residents, no other respondents talked about conditions in other communities, whether the conditions are fluctuating or stable. The *campesinos* are able to name the various changes they have seen and experienced but made no attempt to compare or contrast these occurrences with those of other communities, whether domestic or abroad. The respondents may very well be in tune with altered weather conditions or climate conditions, but only so far as to how they are affected by such conditions on a personal or immediate community-based level. Climatic disruptions are thought to affect the Earth uniformly and gradually, though climate change scientists have proved that this could not be farther from the truth (Holdren 2010). *Campesino*

knowledge is highly localized whereas scientific knowledge is more global. This lack of awareness about global patterns and misconceptions of climatic disruptions speaks to a need for scientific and farmer knowledge exchanges and partnerships.

Climate Change Impacts on Livelihoods

A little less than half of the respondents confirmed that they are required to perform other work in order to support their families and afford necessary items. Seven of the nineteen *campesinos* indicated that they are invested in alternative work outside of harvesting coffee for Café Justo. For these *campesinos*, relying solely on compensation from Café Justo is no longer an option. On the other hand, for those who have not yet investing in planting more products or engaging in alternative methods of earning wages, the continual shifts in the climate will require such measures to be taken. Small-scale farmers have a very complicated relationship with the environment because of how dependent they are on its temperate, agreeable conditions to provide a primary or sometimes only source of income (Frank et al. 2011: 68).

Coffee farmers are particularly vulnerable to climatic disruptions and stresses associated with economic and geographic marginality (Eakin et al. 2006). The changing nature of climatic disruptions will force the coffee cooperative members to engage in conversations about the future goals of or plans for the cooperative. Is the interest of the members in having a larger connection with international markets or remain small-scale? Will members remain in the three regions of Salvador Urbina, Agustín de Iturbide, and El Águila, or will membership be open to residents of other rural and urban communities,

including but not limited to the closest major city of Tapachula? What could be done to keep Café Justo alive?

The communities in which Café Justo socios reside appear to be plentiful in fresh produce and hand-made food items, though lacking in ways to make livable wages and save portions of those wages to pay for medical expenses, household expenses, or school fees, let alone having left over money to begin saving for the future. Per earlier evidence of Café Justo *campesino* age ranges, it is apparent that Café Justo community members are required to continue working well past the usual American retirement age of 67 (What is the Social... n.d.). Café Justo *socios* live in food oases rather than food deserts. They have access to bounteous water and fresh fruits and vegetables all around their homes and throughout their communities, though outside of the very basic necessities of nourishment and water, the options for making and saving money for necessary expenses are limited.

Final Thoughts

After all the data is compiled and analyzed, what does it tell us about Chiapas, México, and on a grander scheme, what does it tell us about what is going on in the world? This case study served as a starting point to investigate the changes occurring in the Southern wetlands of México. It affirmed that there are indeed variations in temperature and rainfall consistency, and differences in the previous cyclical and predictable nature of weather. As stated in Chapter Two, reduced or unknown crop yields present a significant problem for farmers because the “highest yields [are] observed when temperatures are close to average and yield declines [are] observed both in extremely

warm or extremely cool years” (Lobell 2010: 117). Warm temperatures, “reduce yields in most regions by altering the length of each phase of crop development, including critical yield-determining stages such as grain filling, affecting dormancy or vernalization requirements such as for winter wheat, and increasing respiration rates and water stress” (Lobell 2010: 115).

Reduced or unpredictable crop yields further perpetuate the food oasis narrative due to *campesinos* being dependent on weather conditions to allow crop yields to be successful, so compensation can be received for fruitful harvests. Not only should the weather conditions and temperatures be cyclical, but also the *campesino* way of life. The *campesinos* are dependent on consistent, temperature weather and rain to allow suitable conditions for fruitful harvests, which in turn are dependent on the amount of attention and money spent on coffee plant/*parcela* care and maintenance. The weather then assists with *parcela* maintenance by giving the coffee plants exactly the type of sunlight, rain, and climate to be fruitful. Additionally, “another important but less direct consequence of climate variability is that farmers cannot match management practices to the climate of an individual year, but must manage based on a range of possible outcomes” (Lobell 2010: 118).

In addition to the impacted crop yields, high temperatures are affirming what has been posited by scientists about the ripe conditions being created for new and unknown diseases or plagues. The appearance of the *plagas* that are now presenting issues for the *campesinos* have come about due to the ripe conditions of rising temperatures, which is consistent with what scientists have argued in the past. According to Kristie L. Ebi, “small changes in temperature or precipitation may cause previously inhospitable

altitudes or ecosystems to become conducive to disease transmission or cause currently hospitable conditions to be inhospitable” (2010: 126). For now, *campesinos* are only seeing plant diseases, which are problematic for high crop yields, though future tropical conditions might prove favorable for diseases attacking the community members.

The data gleaned from the *Café Justo campesinos* affirms what scientists have been saying for years about climate change impacts resulting in uneven climatic disruption in developing countries. The world is therefore already experiences the warning signs that scientists have been describing as results of the beginning stages of climate change impacts. Though it is with ease that experts can divide the globe into developed and developing countries, climate change impacts will affect every country; The inequity lies in the reality that developing nations will be most harshly affected. As the *campesinos* in Chiapas demonstrated, their livelihoods and lives depend on naturally produced coffee, and they cannot survive without this cash crop.

Although countries in the Global North, “are the ones who have historically caused most of the climate change problem, it is not fair, not environmentally prudent, for the many affluent...and rich elites...[in] developing countries to be absolved of duties regarding climate change;” However, it is within the realm of possibility that global citizens and government officials alike will judge affluent leaders in developing nations even more harshly than leaders in developed nations simply because “the former had (and still have) a choice about whether to jump on the consumption bandwagon” (Harris 2010: 320). It is clear that the countries of the Global North have accumulated their wealth due in part to the unrestricted greenhouse gas and fossil-fuel usage, and thus they have

acquired an ecological debt to pay for emissions reductions worldwide (Sagar and Baer 2010: 266).

The instabilities of climate change are leading to a massive increase in migration. Youth flight from communities that have been historically owned and maintained by peasant farmers could dramatically shift the makeup of what are now aging *campesino* communities. The Mayans and their descendants have effectively defended their lands, traditions, and identities from generations of enemies. These enemies have threatened to strip the Mayans from their lands and their ability to pass down local knowledge to their offspring. The *campesinos* have successfully held on to their land tenure since their ancestors began harvesting and maintaining the land in Southern México. Although the lands have been maintained against adversaries and their terrorizations, and continuously passed down to the next younger generation, the next challenger will not be as visible or apparent. The next threat the Mayan descendants now face is climate change.

Frederick A. B. Meyerson suggests that, “climate change itself may...begin to drive human migration, either by attracting people toward areas with improved conditions as a result of warming, or by driving them away from areas negatively affected by sea level rise, storm frequency, changes in precipitation, and desertification” (2010: 248).

According to Todd Miller, typhoons and superstorms have caused displacement of nearly 15 million people since 2013 (2017: 19). While people try to stay in risky or vulnerable areas, “approximately 244 million people currently live outside their country of birth, up from 80 million in the 1980s (and a 41 percent increase from the year 2000)” (Miller 2017: 23). And while these numbers are staggering, there is currently no climate refugee status available in any legal framework on international or country specific levels. As I

witnessed on a personal level with the respondents, a handful of them had previously opted to travel North in hopes of securing more stable and predictable work so they could continue supporting their families when coffee no longer provided the necessary means.

CHAPTER 6

CONCLUSION

The ethnographic methods I employed throughout my research allowed me significant access to the *campesino* life and lifestyle to better understand how the wetlands of Chiapas, México is and has been experiencing climatic disruptions. The evidence provided by respondents and Café Justo *socios* represents a small portion of community members in Salvador Urbina, Agustín de Iturbide, and El Águila, though magnify the effects felt by all community members in all surrounding areas of Southern Chiapas, and more broadly, all of Southern México. As an outsider from México's northern neighbor, I was able to break through pre-established social and cultural barriers to perform close-range research with the *campesinos*. I was trusted by the cooperative members and given significant access to the inner-worlds of not only the cooperative of Café Justo, but those of the individual *campesinos* as well.

The respondents who chose to take part in my research allowed me to accomplish two tasks: (1) to give voice to their expertise and bring their concerns into the scholarly discourse; and (2) to connect with a community of people in order to learn from and challenge my own assumptions about indigenous rural communities in México. Although I differ from each *campesino* in various multi-layered and complicated ways, I found comfort in their company once I was able to communicate on my own with each person – participant or not. Every cooperative member seemed to go out of their way to grant me access to their worlds, while I was simultaneously trying my best to provide a platform for their voices and stories. Employing the *speaking-with* model allowed me to tackle the complexities and nuances embedded in research performed by a white urban American to

study stories and experienced as they were provided by brown rural Mexicanos. Through the periods of reflexivity – arguably one of the most integral portion of the *speaking-with* model – I was able to make better connections with ideas and knowledge presented by the *campesinos*, especially as I experienced them first hand, as well. Instead of remaining firmly rooted in the beliefs and truths I was raised under, I was devoted to seeing and understanding experiences as they are lived by the *campesinos*. The insight I gained into their lives and worldviews generated from their lived experiences and cohesive community identity, allowed me to also remain rooted in an abstract identity-based focus, and contextualize all the data I gathered to analyze it appropriately.

This exploratory case study suggests that *campesinos* and Chiapas residents are experiencing changes in the climate and its once predictable weather cycles. Through the generations of the respondents, they have witnessed firsthand how different the climate is now than how it was during their parent and grandparents’ time spent cultivating and harvesting coffee. Identity plays a significant role in the interpretation of how changes in climate will reverberate through current and future generations of *campesinos*. While a perceived perceptive population conveys legitimacy to climatic disruptions, it does not necessarily convey knowledge about how or why climatic disruptions are now present. Cooperatives, scientists, students, and the government all have roles to play in conveying knowledge and information not only to *campesinos* but to all community members. Nevertheless, the contributions of the *campesinos* are circumscribed by their access to Global North scholarship and their positioning as “one of them.”

There is a need for further research into the effect of climatic disruptions on migration patterns and *campesino* perceptions of the causes in the changing climate and

weather cycles. Although *campesino* knowledge of the production challenges deriving from shifting weather cycles provides scholars with a localized understanding of climate change, more time needs to be spent investigating the true understanding of why these changes are occurring. I believe this work could be appropriately conducted by using participatory action involving learning exchanges between younger and older generations, along with scholars and climate change scientists, as well. Each party would bring valuable perspectives on localized knowledge and future ambitions, in addition to the understanding of global patterns of climatic disruptions.

Additionally, the scientific community, academics, and peasant farmers alike would benefit from the understanding *campesinos* have of how neighboring communities are handling the changing conditions in ways that support their identities, traditions, and cultural beliefs. Even further, it would be interesting to gain an understanding of what *campesinos* believe to be beneficial about understanding mitigation or adaptation efforts being employed by community members of geographically dissimilar areas either inside México or abroad. This research could hopefully generate an opportunity for *campesinos* to generate or demonstrate true risk-perception as it relates to continued and more destructive climatic disruptions. Future research could also benefit from a comparative case study between perceived climate change impacts on the wetlands of Southern México and those of the arid desert lands of Northern México.

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APPENDIX A
INTERVIEW QUESTIONS

Interview Questions (English):

1. How old are you?
2. Are you a man or a woman?
3. What is your race or ethnicity?
4. How many children do you have?
5. How many years did you go to school? Or what grade level did you complete?
6. For how many years have you worked with Café Justo?
7. Can you meet your basic needs?
8. If not, what do you need/what is missing?
9. Have you ever had times when you were hungry and there was no food or money in the house?
10. Do you have to do anything besides agriculture to earn money or have food to eat?
11. How long have you been a farmer?
12. What was the process of becoming a farmer?
13. Is the food you grow to be consumed in your home, or do you sell it to earn money?
14. How do you earn money?
15. How do you cultivate your products?
16. Do you use chemical products?
17. What do chemical products do?
18. What does the word organic mean to you?
19. Do you have livestock?
20. Do you rely on your family members to help with agriculture, or do you pay other members of the community to help you?
21. Did you help your grandfather or father with agriculture when you were younger?
22. What do you remember about the agricultural practices of your grandfather or father?
23. Did your grandfather or father have to do other things besides agriculture when they were your age?
24. Is it easier or harder to harvest crops now than when your grandfather and father were your age?
25. How have your agricultural practices evolved over the years?
26. How important is agriculture to your community?
27. What opportunities are available to help or support members of your community with agricultural needs?
28. Are there cooperatives among several neighborhoods or communities that work together to grow different crops?
29. What kind of climate do you need to have a good crop cycle or season?
30. Is the weather better or worse than it used to be?
31. What do your cultures and traditions say about how you should cultivate?
32. What are your future objectives for your agricultural practices?
33. Does the livelihood of agriculture still provide a way of life for you and the members of your community or is there pressure to join the international market?

34. Could you show me the most important places in your home and community, and take pictures of them that I can keep?

Interview Questions (Spanish):

1. ¿Qué edad tiene?
2. ¿Es usted hombre o mujer?
3. ¿Cuál es su raza o etnia?
4. ¿Cuántos hijos tiene?
5. ¿Por cuántos años fue a la escuela? O ¿cuál es su grado escolar?
6. ¿Por cuántos años ha trabajado con Café Justo?
7. ¿Puede usted satisfacer sus necesidades básicas?
8. Si no, ¿qué es lo que le hace falta?
9. ¿Alguna vez ha tenido momentos en los que tenía hambre y no había comida ni dinero en la casa?
10. ¿Tiene que hacer algo más además de la agricultura para ganar dinero o tener comida para comer?
11. ¿Por cuánto tiempo ha sido agricultor?
12. ¿Cómo fue el proceso de volverse agricultor?
13. ¿La comida que usted cultiva es para ser consumida en su hogar, o vende parte de ella?
14. ¿Cómo gana dinero?
15. ¿Cómo cultiva?
16. ¿Usa productos químicos?
17. ¿Qué hacen los productos químicos?
18. ¿Qué significa la palabra orgánico para usted?
19. ¿Tiene ganado?
20. ¿Confía en los miembros de su familia para ayudar con la agricultura, o le paga a otros miembros de la comunidad para ayudarlo a cultivar y cosechar?
21. ¿Ayudaba a su abuelo o padre con la agricultura cuando era más joven?
22. ¿Qué recuerda sobre las prácticas agrícolas de su abuelo o padre?
23. ¿Su abuelo o su padre tuvieron que hacer otras cosas además de la agricultura cuando tenían su edad?
24. ¿Es más fácil o más difícil cultivar ahora que cuando su abuelo y su padre tenían su edad?
25. ¿Cómo han evolucionado sus prácticas agrícolas a lo largo de los años?
26. ¿Qué tan importante es la agricultura para su comunidad?
27. ¿Qué oportunidades hay disponibles para ayudar o apoyar a los miembros de su comunidad con las necesidades de la agricultura?
28. ¿Existen cooperativas entre varios barrios o comunidades que trabajan juntas para cultivar diversos cultivos?
29. ¿Qué tipo de clima necesita para tener un buen ciclo de cultivo o temporada?
30. ¿El clima es mejor o peor de lo que solía ser?
31. ¿Qué dicen tus culturas y tradiciones sobre cómo debe cultivar?
32. ¿Cuáles son sus objetivos futuros para tus prácticas agrícolas?

33. ¿El sustento de la agricultura todavía proporciona una forma de vida para usted y los miembros de su comunidad o existe la presión de unirse al mercado?
34. ¿Me podría mostrar los lugares más importantes de su hogar y de su comunidad, y tomarles fotos que yo pueda conservar?

APPENDIX B

PHOTOS OF THE RESEARCH TEAM

Photo Credit: Author



Figure 12. Current Café Justo President, Guadalupe



Figure 13. Café Justo *Socio*, Alonso



Figure 14. Café Justo *Socios*, Germán, Gabriel, Leandro, José Nelvi, Adán



Figure 15. Café Justo *Socio*, Lázaro



Figure 16. Café Justo *Socios*, Jaime and Edmundo with Café Justo Secretary, Eva