

AN ABSTRACT OF THE THESIS OF

Kyle Henry Piispanen for the degree of Master of Arts in Applied Anthropology presented on March 11 2011.

Title: Andean Roots, Coca, and Grassroots Development in the Bolivian Yungas: Food Sovereignty and Agrarian Change for Native Farmers

Abstract approved:

---

Joan E. Gross

Since the 1952 Bolivian agrarian reform, farmer unions have sought to establish themselves as producers for regional markets. Development strategies led by the World Bank and IMF have largely jeopardized small farmers, and challenged farmers to meet market demands. At present, a new agrarian revolution is being implemented and is conditioned by objectives, which include land redistribution, food sovereignty, and public food enterprises. This research was conducted in the Yungas region of Bolivia in isolated mountain communities that are part of the established traditional and legal area for coca growing and thus clearly integrated into the world “commodities” market via the illicit cocaine economy. Curiously, many farmers continue to grow crops for local markets, their homes, and organic coca for traditional use. Is this part of a greater movement of revolutionary agrarian policy or concern for food

sovereignty in local communities? Under this context, I explore how some individual farmers and farming associations have developed a tradition of growing Andean root crops and their lived experience of their involvement in the associations. Through participant observation and ethnographic interviews with members of two Yungueño community associations and with regional technicians, this study explores how associations and individuals negotiate national and international policy, and NGO activity, in order to create specialty niche markets for native crops.

This thesis argues that alternative agricultural development that has focused on coca reduction, export-oriented agriculture, and food security has, to a large extent, been a failure. Rather, local initiatives that focus on ecological coca, food sovereignty, and native crops for local markets taken together are meeting some local development goals. This study provides an opportunity for reframing development theory and expanding the literature on food sovereignty. The concept of the La Paz-El Alto food-shed is used as a tool for exploring the potential of reorienting the moral economy around food in re-creating a more sustainable food system. From the perspectives of an Andean root crop association, I explore particular challenges members face in farming in contested lands of commodity coca production. Associations begin by meeting specialty market needs for ritual uses of specialty Andean crops, and may utilize a variety of assistance programs but are determined to maintain a high level of autonomy. Associations are often cautious in searching for assistance because farmers cannot afford to lose time expanding alternative crops that could be better spent in coca production. Failure is common, and few associations achieve goals of significantly increased incomes. Rather semi-subsistence and diversification along with coca growing provide greater autonomy and sovereignty in practical terms when many of the anticipated

national reforms are yet to be seen in these particular Yungueño communities. In addition, I briefly explore with farmers the environmental considerations and perspectives to climate, gardening, biodiversity loss, and the concern about the use of chemical applications.

©Copyright by Kyle Henry Piispanen

March 11, 2011

All Rights Reserved

Andean Roots, Coca, and Grassroots Development in the Bolivian  
Yungas: Food Sovereignty and Agrarian Change for Native Farmers

By  
Kyle Henry Piispanen

A THESIS

Submitted to

Oregon State University

in partial fulfillment of  
the requirements for the  
degree of

Master of Arts

Presented March 11, 2011  
Commencement June 2011

Master of Arts thesis of Kyle Henry Piispanen

Presented on March 11, 2011

APPROVED:

---

Major Professor, representing Applied Anthropology

---

Chair of the Department of Anthropology

---

Dean of the Graduate School

I understand that my thesis will become part of the permanent collection of Oregon State University libraries. My signature below authorizes release of my thesis to any reader upon request.

---

Kyle Henry Piispanen, Author

## ACKNOWLEDGEMENTS

This thesis is dedicated to all those that helped me along the way and made the process an adventure.

Thanks to all of the farmers of the Yungas, especially those that took the time to talk with me and show me the intricacies of Yungueños agriculture. Dona Theodora who was especially helpful and inviting. She even took the time to help me learn a bit of practical Aymara. I would also like to thank Joan Gross for her guidance on this project and final revisions. Bryan Tilt for his input into the direction of the project. Peter C. Little for his revisions and copy-editing. My parents, Ruth and Willie Piispanen, were great support and encouragement throughout the duration of the project. Hugh Smeltekop was a great friend at Carmen Pampa and mentor in teaching at the UAC, as well he help coordinate my stay in Carmen Pampa. Sarah Mechtenburg, Sarah Purcell, and David Flannery shared a house with me and they provided me with great dinner conversation while in Carmen Pampa. Alison Spedding who was a wealth of insight and inspiration in the field. Stephen Taranto first allowing me to work in food systems in Bolivia. Marolyn Vidaurre for her friendship in Bolivia as well as providing me with an in-depth introduction into the frontiers of the region. Prem Jai Vidaurre for his friendship, and insight into ethnobiology and his knowledge of the projects that I was working with. Efrian for his local insights and motorcycle rides to communities. Last but not least, Johnny and Vicente helped me in the field in San Juan de la Miel.

## TABLE OF CONTENTS

<b>CHAPTER ONE: INTRODUCTION .....</b>	<b>1</b>
<b>Bolivia Today .....</b>	<b>12</b>
<b>The Yungas Area of Bolivia and Coca Farming .....</b>	<b>14</b>
<b>Context of Research .....</b>	<b>28</b>
<b>CHAPTER TWO: LITERATURE REVIEW .....</b>	<b>32</b>
<b>Post-Development, Political Ecology, and Food Sovereignty .....</b>	<b>32</b>
<b>Post-Development .....</b>	<b>32</b>
<b>Political Ecology .....</b>	<b>37</b>
<b>Food Sovereignty .....</b>	<b>40</b>
Agrarian Revolution .....	43
<b>La Paz-El Alto Foodshed .....</b>	<b>44</b>
<b>Moral Economies and Andean Reciprocity .....</b>	<b>47</b>
<b>CHAPTER THREE: METHODS AND METHODOLOGIES .....</b>	<b>51</b>
<b>Field Research Site .....</b>	<b>51</b>
<b>Methods .....</b>	<b>54</b>
<b>Data Analysis .....</b>	<b>55</b>
<b>CHAPTER FOUR: FINDINGS .....</b>	<b>57</b>
<b>Subject of Study .....</b>	<b>57</b>
Coca .....	59
Jamachi'p'equé and Racacha .....	65
<b>Development and Agrarian Change in the Yungas .....</b>	<b>70</b>
San Juan de la Miel's Experience .....	75
Minachi's Experience .....	79
<b>Frustration with Assistance .....</b>	<b>81</b>
<b>The Strategies for Food Security .....</b>	<b>84</b>
Off-Farm Strategies .....	92
<b>Agrobiodiversity and Food Sovereignty .....</b>	<b>93</b>
Pesticides .....	103
Climate Change .....	105
<b>¿Algo MAS? .....</b>	<b>107</b>



## **TABLE OF CONTENTS (Continued)**

<b>CHAPTER FIVE: DISCUSSION .....</b>	<b>110</b>
<b>CHAPTER SIX: CONCLUSION .....</b>	<b>115</b>
<b>Bibliography.....</b>	<b>120</b>
Appendix 1 .....	129
Appendix 2.....	130

## LIST OF FIGURES

<u>Figure</u>	<u>Page</u>
Figure 1.1. <i>Wachu</i> Terraces recently planted with coca .....	1
Figure 1.2. Quilted mountain landscape of the Yungas.....	7
Figure 1.3. Eroded hill-sides after an attempt to plant coca. ....	8
Figure 1.4. Papa Walusa growing under a backdrop of forest and coca.....	9
Figure 1.5. Racacha being washed.....	10
Figure 1.6. jamachi p'equé.....	11
Figure 1.7. Map of Bolivia.....	16
Figure 1.8. Map of the Yungas. ....	17
Figure 1.9. Recently built <i>wachus</i> .....	22
Figure 1.10. Taking a break in the shade to chew coca .....	23
Figure 1.11. Coca leaves drying in the sun on mesh netting. ....	24
Figure 1.12. Farmer in the foreground weeding coca fields .....	25
Figure 1.13. Planting coca in newly built <i>wachu</i> terraces .....	26
Figure 4.1. A woman picking coca .....	63
Figure 4.2. Communal work in the coca field .....	64
Figure 4.3. San Juan de la Miel.....	68
Figure 4.4. jamachi p'equé growing under the shade of plantains. ....	69
Figure 4.5. Making <i>bizcochuelos</i> from jamachi p'equé.....	70

## LIST OF TABLES

<u>Table</u>	<u>Page</u>
Table 4.1. Interview results regarding improved living conditions .....	74
Table 4.2. Interview results regarding food insecurity .....	90
Table 4.4. Matilda's garden .....	96
Table 4.5. Interview results regarding diminishing agrobiodiversity .....	98

## LIST OF ABBREVIATIONS

ACDI/VOCA - Agricultural Cooperative Development International  
and Volunteers in Overseas Cooperative Assistance  
ADEPCOCA – Association of coca producers  
APRADE –Association of Racacha Producers  
CIA- (US) Central Intelligence Agency  
EMAPA- Company to Support Food Production  
FAO- Food and Agriculture Organization  
GMO- Genetically modified organism  
IMF- International monetary fund  
MAS- Movement Towards Socialism  
MNR- National Revolutionary Movement  
NACLA- North American Council on Latin America  
NGO- Non Governmental Organization  
PROINPA- (Organization for the) Promotion and Investigation of  
Andean Products  
UAC-CP- Peasant Academic Institution – Carmen Pampa  
UN-United Nation  
USAID- United State Agency for International Development

## NOTE ON TRANSLATION AND NAME CHANGES

All of the words that are not English are italicized once, and their definition can be found in the footnotes in which I also indicate the language from which the word originates: (Ay.) Aymara and (Sp.) Spanish. The first time I mention the name of a plant species, I provide the Latin names in parenthesis in the text. Beyond their first mention, I do not provide a footnote or alternative Latin names in parenthesis.

This thesis has sections from interviews that I conducted in Spanish, which were translated to English by the author. The original transcription is also located in footnotes at the bottom of the page. All names from interviews have been changed to protect the identity of the farmers, The names of the “urban professionals” I interviewed have remained unchanged.

# **Andean Roots, Coca, and Grassroots Development in the Bolivian Yungas: Food Sovereignty and Agrarian Change for Native Farmers**

## **CHAPTER ONE: INTRODUCTION**



**Figure 1.1. Wachu terraces recently planted with coca**

*Coca is everything, coca is life, coca is money, coca is food, coca is everything for us. Juan is a native farmer and member of native root crop association in the community of Minachi Nor Yungas Bolivia.*

Juan's sentiment above is clearly felt by many in the Yungas region of Bolivia, where thousands of coca fields make a quilted landscape of small-scale farms (Figure 1.2). Farmers have cleared land and built block terraces called *wachus*<sup>1</sup> to plant this traditional crop (Figure 1.1). Coca (*Erythroxylum coca*) is the most reliable crop in the Yungas. It was recently reported that coca in the Andes was used traditionally as a mild stimulant for over 8000 years (Dillehay et al. 2010). Coca is also the raw material from which cocaine is made and this is not unrelated to the over production and exhaustion of the soils in which coca is planted. That being said, compared to other common crops, coca has fewer diseases, fewer pests, and is a perennial that can be harvested up to four times a year. Many farmers who live in the area of traditional and legal cultivation of coca, face adversity in that soil conditions in the region that has planted coca for centuries is marginal for food production. Central to the problem is that, while coca grows well on the degraded soils, little else does. After years of intensive planting, the *cansada*<sup>2</sup> soil takes many years of fallow to recover its fertility. Many native farmers find themselves migrating to more fertile frontiers to sustain their farming traditions and livelihoods. This thesis presents some compelling examples of community associations who have attempted to find alternatives to environmental degradation and migrating from their communities of origin.

---

<sup>1</sup> *Wachus* (Ay.) Block terraces in which coca is grown

<sup>2</sup> *Cansada* (Sp.) is the common way of describing land that has been overused without fallow.

I find that native farmers in the Yungas are interested in all of the following: autonomous community management, ecological coca, crop diversification, utilizing the principles of agroecology, reducing chemical applications to protect their health, increasing incomes and conserving soils. Taken together, I feel this represents what the Via Campesina has coined as food sovereignty.<sup>3</sup> At the same time, many farmers see intensifying and expanding coca as the most assured form of economic mobility, especially when farmers are combating food insecurity and environmental degradation.

Food sovereignty is a powerful concept, spanning both the farmers' goals of ecological sustainability and autonomous control of their production, along with helping to demonstrate a need for just prices for their agricultural goods along with healthy food in the community. First, we must recognize that the low prices farmers often receive for their small-holder goods is a result of the political-economic structuring and development policies shaped by the World Bank and IMF. Food sovereignty provides an alternative compass for development but one that needs to be further explored and contextualized to the individual, and fitted within community action. Additionally, food sovereignty has become an objective of the Bolivian state. National pluricultural policies are giving increasing attention to localized native solutions. This thesis attempts to add milieu to the individual farmer and local community association in the context of a nation-state that call for a more

---

<sup>3</sup> La Via Campesina coined the term food sovereignty in 1996 to the demands of small and medium scale farmers: meaning people's right to food, culturally appropriate food and the means of controlling the production within ones territory.

democratic voice to native communities (Albó and Suvelza 2006, Postero 2007).

Analyzing Juan's opening quotation, one could assume that more intensive production of coca production is on the horizon for many farmers. Furthermore, we may assume Juan too would be a farmer exclusively dedicated to coca leaf production. After all, he is an Aymara Yungueño in a region that has been dedicated to coca cultivation by his ancestors before the arrival of the Spanish in the 1500s.<sup>4</sup> Based on his experience with NGO assistance programs, Juan is optimistic, along with members of the association, that his life and his reciprocal relationship with earth will improve by expanding and revitalizing the native and wild crop *jamachi p'equé* (*Marantaceae*). He sees the economic gains of coca as a short-lived benefit. He also cites concerns for agrochemical contamination and that he wants the land to be useful for future generations. Therefore, he has helped to form an association to revitalize native root crops and with money from growing coca he has invested in a facility to commercially produce *jamachi p'equé* (Figure 1.6). The root has made resurgence in La Paz<sup>5</sup> markets, along with other "native crops." However, Juan remains surrounded by literally thousands of coca fields. Furthermore, erosion of the steep slopes planted in monoculture is common, pesticide use is on the rise, and water supplies run thin for many farmers in the area (Figure 1.3). This unfortunate situation begs the following

---

<sup>4</sup> Aymara are the dominant ethnic group surrounding La Paz and El Alto. Nativeness to the Yungas can be determined by tracing your family back to the time Spanish estates and their re-appropriation after the revolution. This can make you makes you a native Yungueño.

<sup>5</sup> La Paz is the core city in western Bolivia and the de-facto capital.



question: is food sovereignty on the horizon for farmers like Juan or are more failed development projects and environmental destruction in store for the communities of the Yungas? Neighboring community members think Juan and his associates are wasting their time: they expect the project will never be fulfilled and would rather dedicate time to a more immediate income; planting more coca, while simultaneously increasing the use of pesticides and synthetic fertilizers. We may note that while Juan's sentiments above are representative of most farmers in the Yungas region, his agricultural activities are not; his association, for a variety of reasons, is looking for a new marketable crop.

This thesis is about this minority of farmers seeking alternatives and who have found, or are looking for, a unique niche market. Some farmers do this through assistance programs, some through community organizing, and others through their own enterprise and entrepreneurial creativity. This is a thesis about how food sovereignty and crop revitalization projects are lived and imagined and how these two goals play out in a region dominated by Bolivia's most important cash crop, the coca leaf. These individuals and associations are an under-studied topic in the literature on Yungas farmers.<sup>6</sup>

This study highlights how grassroots development and native food revitalization programs operate in a region of commodity coca production. This type of development is what I label a "grassroots" development project in which I believe NGOs have a shared vision for farmers. The shared vision is a result of overlap in goals such as seeking reliable incomes, stronger communities, environmental health, and culturally appropriate foods.

---

<sup>6</sup> Alison Spedding in her book *Wachu Wachu* has already done an extensive and detailed ethnography of the cultivation of the coca leaf and identity in the Yungas.

Alternative development has created a great degree of skepticism about development in the Yungas. Most recently the term alternative development in the Yungas has been to a large extent been related to some form of coca reduction, providing economic incentives to plant crops other than coca. Furthermore, alternative development has been historically shortsighted and conditioned by frequent policy shifts, which directly affect the financing of development projects. Grassroots and NGO funding cycles are also often particularly short-lived, which will be discussed in greater detail later in the thesis. We may begin to imagine a post-development era as Escobar suggests (Escobar 2005). I contend that an emerging post-development question should be “can envisioning and realizing food sovereignty offer for farmers an alternative to development?”

I attempt to answer the following three questions in thesis. First, how are native crop development projects experienced in the two identified communities of San Juan de la Miel and Minachi? Second, what strategies do community members use to obtain food security and food sovereignty and how are these experienced differently? Lastly, how are farmers experiencing environmental changes and acting to reverse them?

The thesis is organized as follows. I begin by introducing you to the region and the political ecological issues at stake. In chapter two, I explore the theories of development and underdevelopment, and the construction of the peasant. Next, recognizing the inadequacies of recent encounters, I attempt to connect post-development theory and food sovereignty for a re-envisioning of development. In addition, the ecological perspective of the historic and current foodshed may help in furthering this vision. Furthermore, to advance theories

of food sovereignty, I incorporate a substantivists' moral economy perspective. In the third chapter, I will explain my rationale for choosing the field site, research subjects, and the methods employed. Chapter Four contains the results of the research, including an analysis of the qualitative data collected. I conclude with a discussion of critical questions and areas in need of further research with regards to food sovereignty and the efficacy of ecological theories of food systems couched in a foodshed perspective.



**Figure 1.2. Quilted mountain landscape of the Yungas.**



**Figure 1.3. Eroded hill-sides after an attempt to plant coca.**



**Figure 1.4. Papa Walusa growing under a backdrop of forest and coca.**



**Figure 1.5. Racacha being washed**





**Figure 1.6. Jamachi p'equé**

## **Bolivia Today**

Bolivia is a country of nearly ten million people of which nearly half make at least part of their subsistence on meager earnings from small-scale agriculture. The largely rural and indigenous population in these municipalities depends heavily on partial household subsistence agriculture. However, contemporary political and environmental-climactic changes increase the risk of food insecurity for many of these farmers. Bolivia has now reached a point where the urban population has grown to outnumber the rural population; with this there will be an increasing demand for a relatively stable rural population to produce increased amounts of food on less land. The environmental conditions in rural areas are worsening and certain development strategies have undoubtedly jeopardized the livelihoods of tens of thousands of small-scale farmers. Agricultural modernization has proceeded in the absence of effective land distribution, and development programs have emphasized high input production, contributing to land degradation and other environmental problems. Bolivia continues to see some of the greatest income disparities in the world according to the Gini index (CIA World Factbook, Bolivia).<sup>7</sup> Structural adjustment programs supported by the IMF and World Bank aided in creating a new rural elite in the eastern lowlands. Here, a small population tied to the multinational agro-industries began to develop an industrialized agriculture. The result has been, a food system controlled by fewer farmers. Traditional food systems, rich in traditional knowledge and in resource conservation, are abandoned (Hunn 1999). The multinational food system

---

<sup>7</sup> A measure of the inequality of a distribution of wealth used by the UN and CIA



increased income disparities in the country by dumping commodity goods in the name of “food aid” and further undercutting small-scale farmers.

The current government of President Evo Morales promises to follow through with new agrarian reform. In addition, he has to increased national revenues through the partial nationalization of natural gas production and begun creating a public food enterprise. These shifts have a potential to decrease the poor-rich gap. However, as will be discussed later on in this thesis, many of these reforms have not been realized in the isolated mountain communities in which this study took place.

Meanwhile, one way farmers have escaped the challenging conditions of agriculture in the highlands is to migrate to the Yungas to plant coca where a greater sense of autonomy in production (compared to the option of urban migration) and a reliable market exists. The market for coca has provided its own mechanism of mobility for many farmers. ADEPCOCA, the coca union that all coca farmers from the Yungas belong to, is a powerful political force. The Union of ADEPCOCA has the most powerful political voice in the region and offers a means of bringing the issues of Yungueño farmers to the attention of the Bolivian national government.

Evo Morales’ rise to presidency in 2005 was set in motion by his effectiveness as a leader in the coca grower movement and by his resisting intervention of forced coca eradication. Evo Morales’ symbolic victory for indigenous people is now tied to the restitution of the symbolic power of the coca leaf. Moreover, the election of Evo Morales created a new sense of citizenship for the indigenous majority in Bolivia (Postero 2007), even though the Yungas coca growers are not always aligned with the Morales government,

(Morales comes from the Chapare region). He also gained popularity from his opposition to the US “war on drugs.” Within the legal coca growing areas of the Yungas, the U.S. supported eradication did not take place and the sentiment is at times supportive and at other times divisive within the new national government. An enduring fact is that the Coca union ADEPCOCA is the political organization that represents most Yungueños.

### **The Yungas Area of Bolivia and Coca Farming**

This research took place in the Yungas of Bolivia. Yungas is the humid northern slope of the Andes where the high Andes drastically drop off into the Amazon Basin (Figure 1.7). This situates the Yungas as a band that separates the highlands and the lowlands. There are many agricultural, cultural, and political differences connected to these distinct regions. The Yungas is mostly within a distance of 50 to 200 km north and northeast of La Paz and slightly further from the pre-Colombian capital of Tiahuanacu.<sup>8</sup> Coca was grown in the Yungas in colonial times and sold to the miners in the Altiplano. After a revolution dismantled the hacienda system in 1952, the region has been dedicated to the small-scale, traditional production of coca. This means coca is cultivated legally alongside citrus fruit, coffee, bananas, and root crops, where

---

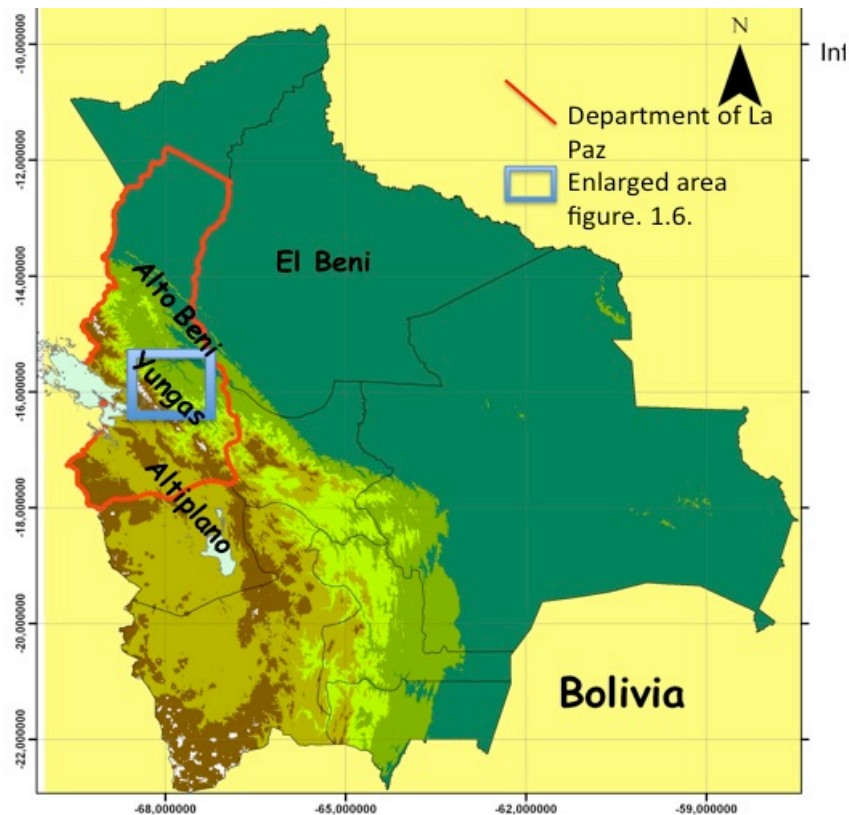
<sup>8</sup> Tiahuanacu is an important Pre-Columbian site in western Bolivia, near Lake Titicaca. It is recognized by Andean scholars as one of the most important precursors to the Inca Empire, flourishing as the ritual and administrative capital of a major state power for approximately five hundred years.

farmers often maintain high levels of agrobiodiversity on their lands and in their communities.

Historically, stone paved llama trails connected the region to allow for the trade of coca and other tropical fruits to the highlands before a road was built to the highlands using Paraguayan prisoners in 1930s. This road that connected La Paz to North Yungas' administrative city of Coroico became known as the world's most dangerous road due to its two-way traffic on a steep single-track road that includes dozens of hair-pin turns and sheer drops to the valleys below. Now a new, mostly paved road, connects La Paz to Coroico. Despite these infrastructural improvements, it still may take up to 24 hours by bus to access the most important frontier towns of the region from La Paz. The administrative capital of South Yungas is Chulumani and is even further and more difficult to access than Coroico. South Yungas remains a coca stronghold, while Coroico has a more diversified agricultural economy. In spite of the difficult access, these regions were considered important in the pre-Colombian empires for providing tropical fruits, coca and wood.

Current demographic trends in the Yungas indicate that the region is currently a source of migration toward agricultural frontier zones to the north and east of the Department of La Paz cutting into previously uninhabited forested zones (Figure 1.8). Throughout the region, there is a net gain in population. The most accelerated population growth is occurring in the agricultural frontier. Much of the expansion to uninhabited lands is from traditional coca growers, who require more land and may let their other home community land fallow, but it is also comprised of migrant farmers looking for

new opportunities. Many of these migrants may have learned the trade by working as day laborers in coca fields while young.



**Figure 1.7. Map of Bolivia.**

The three ecological and cultural regions discussed in this thesis are represented in this map: Altiplano, Yungas, and Alto Beni. All three are represented in the department of La Paz, which is also the location of the de-facto capital city La Paz and is included in the enlarged map of the Yungas on the next page. Each region represents different ecological floors. Each color represents a 1000 m elevation difference. Most of Alto Beni is in the dark green which is below 1000m, Yungas is mostly between 1000 and 3000 meters and the Altiplano (the large swath of light brown) is mostly between 3000 and 4000 meters.

In this map each shade represents a difference of 1000 meters. The Yungas area is represented in the two shades of green representing elevations between 1000 m – 3000 m. with the altitudes for growing coca is in dark green 1000-2000m. Parts of San Juan de la Miel is at elevation slightly above where most coca is grown at with the community ranging from 1700 m to 2100 m. Minachi is between 1600 m and 1800 meters making it a better climate for coca. Chulumani is the municipal capital of Sud Yungas and Coroico is the municipal seat of Nor Yungas. San Juan de la Miel and Minachi are both in Nor Yungas. The frontier can be noted because there are no long established towns represented by red dots in those areas.

Media coverage of coca often focuses on its most infamous derivative product, cocaine—the little green leaf is its key ingredient—and the “drug war” that surrounds it. In Bolivia, international trafficking of coca is largely in the hands of the rural elite groups, including the agro-business elite. These

elites avoided expropriation of their large estates after the revolution of 1952, and were beneficiaries of much of the international investment in an export-oriented economy through the 1970s and 80s. While foreign policy has dedicated significant time and money to failed policy and study of coca's role in the drug trade, far less understood is coca's centuries-old contribution to Andean diet, ecology, religion, medicine and social relations. Indeed, coca is integrally woven into the fabric of Andean society and along with the potato; it could be considered the most culturally important crop in the Andes. Nowhere is coca's ancient, vital importance for Andean people more apparent than in the Yungas region.

Yungas is considered the most important region for growing a pleasant and sweet coca leaf suitable for chewing. The methods of producing the coca leaf have remained relatively unchanged in the years of documented coca production (Spedding 1994). However, the quantity, market power, and commodity destinations for coca have changed significantly. In the 1961 United Nations Single Convention on Narcotic Drugs, coca was categorized as a narcotic together with cocaine. While not directly affecting Yungas farmers significantly<sup>9</sup> the 1980s and 90s U.S. "war on drugs," in agreement with the Bolivian government, was committed to eradicating excess coca production. This "war on drugs" came at the expense of coca farmers destroying livelihoods and contaminating the countryside with pesticides. In addition, the policy was a failure in its efforts to curb production. For every acre of coca destroyed, there was another acre planted elsewhere, thus accelerating the

---

<sup>9</sup> There has only once been forced eradication in the Yungas

expansion into even further frontiers of the forest (Millington et al. 2011, Painter and Durham 1995, Sanabria 1993).

Bolivian coca farmers have long been demonized in the discourse of development as agents for destroying the rainforest. Roberto Laserna (1996) clarifies many of the misconceptions noting that much of the coca growing region has not been historically inhabited and therefore food production has actually increased. However I found that to a certain extent in the Yungas legal area of coca growing, food production has been replaced with more coca. At the same time, many of the coca farmers and the coca unions have adapted some principles of ecology into their rhetoric and have recognized that dedication to exclusively one crop has its downfalls. These groups however are commonly criticized for their non-purist environmental approaches such as promoting organic coca, and more controls on burning. In contrast to the claim that all agriculture in the Yungas is going toward a monoculture of coca, my research reveals that many farmers in communities studied live in and cultivate diverse agroecosystems that often incorporate perennial polycultures,<sup>10</sup> small animal production, and bountiful gardens. This non-conventional environmental approach shows its grassroots development as re-orienting development toward local goals of ecological coca and increased food sovereignty and a moral economy that values reciprocity with the mother earth of *Pachamama*.<sup>11</sup> It seems like a critical find and contribution to the study of the political ecology of farming in the Yungas. This finding also exposes the

---

<sup>10</sup> Polyculture is agriculture using multiple crops in the same space, in imitation of the diversity of natural ecosystems.

<sup>11</sup> *Pachamama* (Ay.)(*Quechua*)(*Sp.*) Mother earth

critical importance of the ‘political ecology’ framework in that a combination of efforts impact agrobiodiversity in the environment.

The coca leaf is part of everyday life for most indigenous Andean people. It is used in religious ceremonies, as medicine, in fortune telling, at festivities, and almost always accompanies workers in the fields (Allen 2002). Many outsider accounts mention the traditional use of “chewing” coca, though coca is not really chewed, but rather placed in one’s cheek for several hours to extract its mildly-stimulant juices. This practice is part of an Aymara tradition called *Acullt’ar* (or *akulliku* by the Quechua people) taken as part of breaks from work.<sup>12</sup> It is similar to the way North American workers gather in the break room for a coffee break. Often Andean farmers, miners and other workers gather while sitting and grabbing at the green plastic bag that coca is usually sold in. In more remote or traditional communities, coca is stored in a woven *ch’uspa* pouch that is worn as part of one’s outfit.

Bolivian workers selectively choose the leaves that will become “*la bola*” or the wad to be held in their cheek while they go back to work, leaving some of the leaves behind as an offering to the Pachamama or mother earth. Often a small amount of *llujt’a* is wrapped in a coca leaf before inserting it into the cheek: *llujt’a* is an alkaline piece of lime or ash that is sold with coca leaves.<sup>13</sup> A small piece of the *llujt’a* is combined with the coca leaves to activate its alkaloids and create some of the beneficial effects. In the La Paz

---

<sup>12</sup> *Acullt’ar* (Ay.) The tradition of “chewing” coca. Other region have variation on the word.

<sup>13</sup> *llujt’a* (Ay.) Some form of alkaline substance like ash or bio carbonate which changes the ph in the mouth to allow for some of the mild stimulating effects of coca.



region *lluji'a* is usually made from the ash of either plantain flowers or anis. Coca chewing accompanies most work in rural communities and is said to give increased stamina for a long day of hard labor. This harmless ritual is considered an integral part of everyday life for most Andean people. In fact, there may be many nutritional benefits to *Acullt'ar* and even more if it is made into food products such as tea or flour. A 1975 Harvard study showed that coca has unusually high levels of calcium and other nutrients (Duke, Aulick, Plowman 1975). In diets often lacking in fresh fruit and vegetables—diets based on meat and potatoes, for instance—the vitamins and minerals gained from coca chewing may be vital (Plowman et al. 1986).

The coca plant is a relatively short bush that grows well in the foothills of the Bolivian Andes. The plant is cultivated for its leaves in which it is harvested three to four times a year. In the Yungas women typically harvest, prepare food, and care for the children, men are responsible for preparing the fields and building the block terraces or *wachus* (Figure 1.9). Young girls and boys often accompany their parents and learn the intricacies of the difficult work from an early age.



**Figure 1.9. Recently built *wachu* terraces with recently planted coca (right), next to robust field of coca two to four years after planting.**



**Figure 1.10. Taking a break in the shade to chew coca after picking in the sun, the plants stripped of their leaves in the background.**



**Figure 1.11. Coca leaves drying in the sun on mesh netting.**



**Figure 1.12. Farmer in the foreground weeding coca fields. This is a particularly large holding. You can tell where the workers in the background have already picked the leaves because of the brown coloration.**





**Figure 1.13. Planting coca in newly built *wachu* terraces**

Although the coca plant has been cultivated in the subtropical Andes for thousands of years, the global demand for cocaine has pulled farmers into previously unsettled forests. The expansion of coca, particularly into the agricultural frontier of the tropics, has had a negative impact on the environment (Millington et al. 2003). Tropical soils also erode quickly and the increasingly wide availability of agrochemicals is an issue for both the producer and the consumer of the coca leaf. On recently burned patches of forest at lower elevations, fertile soils yield large leaves. These leaves are less desired by indigenous consumers, who prefer the small, sweet Yungas coca for its traditional uses.

While alternative development projects are common in these “non-traditional” zones of coca cultivation, they are often not successful, if not outright failures as few agricultural products can economically compete with the coca leaf. This is in part because radical neoliberal trade policies implemented in the 1980s and 1990s eroded the market value of peasant-produced crops, which could hardly compete with the cheap, industrially produced imports that flooded the country. Also, coca can be picked and brought to market three to four times a year while most other perennial crops can only be collected once a year. In a highly de-regulated agricultural economy, prices for most crops fluctuate greatly, leaving small farmers unsure if their labor will pay off. As a result, farmers have periodically veered away from traditional food crops in order to intensify their coca production. In the “traditional zone” of the Yungas, coca continues to grow on stone and mud terraces that have been in production for centuries. The plant is particularly coveted for its ability to grow in highly eroded soils. Most coca-farming experts agree that coca is a well-adapted crop to the Yungas region and one that has been sustainably grown for generations. Coca, and its many everyday cultural uses, will no doubt remain an integral part of Andean society and a pillar of the Yungas economy for years to come.

Many coca-growing communities are committed to maintaining their biodiversity and producing organic coca. Even the federation of La Paz coca growers (ADEPCOCA), to which all Yungas growers belong, has adopted agroecology as a key principle. The expansion of coca into the forests and its intensification with agrochemicals, however, is a problem that must be addressed. The root cause of this problem is rural poverty and the lack of stable and viable markets for the diversity of fruits and vegetables that Andean

farmers are able to produce. The moment may be ripe for this sort of change, with current support in the government for food sovereignty, and the countless NGOs and people's organizations working to re-build local food systems on the ground.

There are many important and powerful voices in the debate over the development of the Yungas, but frequently the farmers, who form small grassroots associations, are left out of this discourse. Any study that intends to successfully address development of agricultural markets and social well being of the area must emphasize the voices and experiences of these innovative farmers and include them in the "development" discourse. Through participatory research and community-based research, this thesis engages fieldwork data collected at the local level, and both the interviews and observations attended to here aim to include the input of the farmers seeking both food sovereignty and ecological sustainability. We can see Yungas as a region that has fought against hegemonic powers of development. It is also a region that has come to rely more on ordinary people, local NGOs, and farmers to construct a more prosperous livelihood, even amid a common trend of grassroots development failure.

## **Context of Research**

I first came to Bolivia on a Prescott College course to study "Food Systems and Agroecosystems of the Central Andes." After graduating from Prescott College I returned to Bolivia, impressed with the ability of small-scale



agriculturalists to feed large urban populations a highly diverse diet with limitations of accessibility, political instability, a lack of mechanized equipment, and working on terrain that would be considered highly marginal to most western agronomists. I worked as an intern for an organization to develop a small piece of private land near Chulumani into an educational conservation garden. The goal of the project was to showcase the agro-biological diversity in the region in a setting complementary to coca production. The land was the typical size for a small holder in the region (about one hectare). The land eventually served as a place for environmental education programs for school children. While working on this project, I studied and planted the native crops of the region so that the gardens demonstrated the diversity of native locally adapted crops. At this time, I also found, talking to farmers, that they were concerned about the waning of food production and the increased environmental degradation in the region. I began to theorize about the changes happening in the region and the impacts on both regional and individual food sovereignty.

It was in the context of this internship experience and work that I first visited the Unidad Académica Campesina – Carmen Pampa (UAC-CP) acts as a rural university in North Yungas. The UAC-CP acts a regional university for low-income students and provides educational opportunities, practical knowledge, and quality research for students of the region. The largest degree program at the UAC-CP is in the agronomy department with an emphasis in agroecology and ecological principles. When I returned in January 2010 to conduct the research explored in this thesis, I spent six months at the UAC-CP teaching ecology, while at the same time interviewing local farmers and

regional technicians. The University kindly hosted me as a guest lecturer and provided me with housing in the rural community of Carmen Pampa.

This research presented many challenges and exposed me to the difficulty of finding clear answers to seemingly simple questions like, why do some farmers hold onto a tradition of farming native root crops while coca farming dominates the region? I quickly discovered that the Andean root crops were not being viewed as traditional as one might suspect. Although native to the region, the local projects of revitalization of the root crops were considered innovative, while growing coca was considered the tradition. The next problem that was encountered when I attempted to find answers to the above question is that the root crop organizations are not separate from the coca growers. Therefore, the farmers engaged in revitalization projects were actually rather ambiguous, and had to be viewed in the context of the coca farmer and socio-political structure of the region. Lastly the revitalization projects being studied have not actually maintained the traditional knowledge of growing root crops, but rather the question became why they had re-discovered the tradition and why had farmers abandoned the tradition in the first place. This led me to rethink revitalization in terms of what Swartley (2002) calls invented tradition.<sup>14</sup>

This thesis examines crop revitalization in a region that is becoming increasingly exclusively dependent on the global commodity market of

---

<sup>14</sup> 'Invented tradition' is taken to mean a set of practices, normally governed by overtly or tacitly accepted rules and of a ritual or symbolic nature, which seek to inculcate certain values and norms of behavior by repetition, which automatically implies continuity with the past. (Swartley 2002)

coca/cocaine. Particularly worrisome in the Yungas is the increasing dependency on food subsidies in the form of food aid, and waged farm labor, as small landholders cannot make a significant income from exclusively coca with the limited land they hold. Agriculture in the Yungas has become increasingly dependent on irrigation and petrochemicals, due to the consequences of increasingly intensified production. Expansion into the forested frontier zones has rapidly expanded, leaving the traditional zone of cultivation comparatively eroded of nutrients. Many agroecologists recognize the resilience of traditional forms of production that have developed over many centuries and are beginning to integrate traditional agricultural knowledge into the new western science of agroecology. It is clear that the tradition of growing coca is one that is long held in the Andes and that coca will continue to be part of Yungueño agriculture. The question this thesis attempts to address is how can farmers address their concerns for diminishing food production and environmental constraints, while the coca/cocaine market entices farmers to intensify their coca production.

## **CHAPTER TWO: LITERATURE REVIEW**

### **Post-Development, Political Ecology, and Food Sovereignty**

#### **Post-Development**

Post-development theorists have noted that the post WW II era was marked by a strong emphasis on the study of the so-called third world (Escobar 1996; Ferguson 1994; Rahnema and Bawtree 1997). Anthropology has a long history of studying pre-capitalist and so-called “underdeveloped” peasant societies (Wolf 1955). Wolf and other theorists have noted increased interconnectedness invoked by the modern world-system (Frank 1967; Wallerstein 1976; Wolf 1982). Later the peasant was reconceptualized in the context of Latin America in more articulated forms (Kearney 1996; Meyer 2002). In response to these world-system theorists, post-development theorists critically engaged the topic of “development” and the social construction of “underdeveloped” and “third world” terminology. I find post-development particularly intriguing because the communities in which I worked were frustrated with development projects. From the perspective of post-development, we can begin to note some of the intrinsic problems that development agendas and ideologies present. For example, post development theorists have suggested that, ‘peasants are constructed by development agents prior to their interaction with them’ (Escobar 1996; Ferguson 1999; Sachs 2009). In a similar vein, Henry Bernstein (2010) notes that development

processes are never equal or neutral, while peasants are classified into categories, like the “rural poor” development disproportionately benefits land-owning peasants of a certain category.

Others, like Anderson (2002), identify a common misconception about integrating markets. He contends that what is causing disorder in the world is not increased “fragmentation” and “disintegration,” it is “integration” efforts and agendas that instead spark more violence and social disruption. Similarly, James Ferguson (1992) attends to the actual practices of international development, showing the difference between “true intentions” of development and what he calls “concealed intentions.” His point is that development disproportionately benefits those not identified in the rhetoric; it makes development agents wealthy while disrupting the poor. Ferguson (1994) outlines four apparatuses that are requirements for the World Bank to consider rural development: 1) they must be aboriginal, 2) they must be agricultural, 3) they must constitute a national economy, and 4) they must be subject to the principle of “govermentality” (Foucault 1991). For example, in the African state of Lesotho, most of these four characteristics in rural communities are rare. Instead, development projects attempt to integrate and then develop what does not need developing and then leave when things get tough. The result in Lesotho is that all rural development projects have failed. Failure in rural development, Ferguson argues, has become the norm. Not only do the projects fail, but they also have disastrous consequences. He claims that development projects have overwhelmingly focused on the development of social infrastructure, which correlates to integrating communities into the state structure. In reality, these projects have no meaningful impact on the

alleviation of poverty in rural communities; instead, they often only extend the power of the state in rural territories.

Post-development discourse focuses much attention on the need to rely more on ordinary peoples who struggle to construct a more humane and ecologically sustainable world. Many have noted the importance of grassroots NGOs as the basis for moving toward a new development era (Holt-Gimenez 2006; Healy 2001; Shiva 1993). Since the 1990s, a significant number of NGOs operating in Bolivia have focused on rural development and the preservation of the environment as mutually achievable goals (and in this thesis, in-situ crop conservation as a means to these goals). Some NGOs have had foresight and influential impacts on the future development of government-sponsored programs (Healy 2001). Andersson (2008) reports the state is dependent on NGOs to instigate new reforms, and Altieri (2000) shows that principles of agroecology and traditional cropping can be adapted to increase productivity by biologically restructuring small-farms. NGOs have had a tendency to side more with grassroots development efforts and those funded by northern governments tended to side more with alternative development projects, especially in the context of the Bolivian Yungas.

Bolivia has seen numerous failed development projects. Oftentimes, these development projects have focused on the subsistence agrarian nature of the region in which reciprocity and redistribution is commonplace. Conventional development requires redevelopment through the infusion of capital, government-based management, and often pressures of international organizations to integrate peasants more fully into an exchange economy. Again, these integration processes tend to further extend the power of the state.

Development sociologist Kevin Healy writes about many successful grassroots development projects in Bolivia and he contends there are seventeen characteristics that have long term impact on improving the quality of peoples' lives. According to Healy (2001:403-17), these characteristics include (Summarized by Conzelman (2007a:69):

1. Popular participation (Community self-management, Training of local people, Popular education, Employment of paraprofessionals, Professional education for selected grassroots participants, Group empowerment)
2. Tackling of institutional barriers and discrimination
3. Energetic and committed leadership
4. Resident skill
5. Community motivation and tenacity
6. Community resource mobilization
7. Contributions of social research and participatory research
8. Outside organizers as key actors
9. The participation of foreigners
10. The role of the Church—depends on level of paternalism vs. advocacy
11. The role of the outside funder—depends on respect for local knowledge and leadership
12. Historical-structural economic factors
13. Single-minded project zeal
14. Sustainable development
15. Interdependence among Andean nations
16. Replicability
17. Luck and synchronicity

Clearly most NGO development projects driven by the grassroots lack the necessary capital to fulfill all seventeen requirements outlined above, but Healy's analysis offers a framework for creating successful projects. It also offers insight into possible factors that lead to project failure and success.

In my analysis of development in the Yungas region, I looked closely at how and why farmers distrust outsiders on the simple basis that they do not

know local conditions, nor understand the lived experience of Yungas farmers themselves. Farmers explained to me that when they see one farmer's success the rest copy or "monkey see, monkey do" in their own words.<sup>15</sup> The farmer-to-farmer movement recognizes the ability of farmers to teach other farmers in creating more sustainable, profitable, and low-input agriculture (Holt-Gimenez 2006).<sup>16</sup> The success of these practices represents innovation while often preserving traditional methods and autonomy over production. Combining these logics as a basis of investigation, I interviewed Yungueño farmers to further understand the balancing of individual agency, the power of community organizing, and the perceived objectives of NGOs.

Ethnography, as a research tool, offers a unique perspective that research that is conducted under the auspices of a development agency may miss. It generates detail and context that can often go against the preconceived conclusions and vested goals of the development project and workers. In the case of Bolivian farmers, current development studies literature has not given sufficient attention to the farming associations' role in orienting agricultural practices and taking control of local markets. To fill this knowledge gap, this study explicitly looked at how farmers are currently adapting to new practices and if these adaptive strategies are beneficial in terms of their capacity to increase food security, attain food sovereignty, and augment agrobiodiversity.

---

<sup>15</sup> *Uno ha aprobado, y otros han visto, y como los monos van copiando.*

<sup>16</sup> Farmer-to-farmer emerged as a response to agricultural extension agents not understanding the local conditions that small-scale farmers understand between themselves.



## **Political Ecology**

In addressing the question; how are farmers experiencing environmental changes and acting to change them? I find a political ecological approach appropriate. While it is important to note that “political ecology” is indeed a complex concept with multiple interpretations (Robbins 2004), a well established focus of political ecology is “how power relations mediate human environmental relations” (Oliver-Smith 2010:74).

Political ecology is generally thought of as a theory that combines ecology and political economy. According to Paulson, Gezon, and Watts (2003), political ecology is about “relations of power and difference in the interactions between human groups and their biophysical environment.” One overlying theme in many political ecological studies is the emphasis on localized solutions, which are often overlooked in an attempt to centralize power (Esteva and Prakash 1998; Escobar 2008; Lansing 2006; Peet and Watts 1998). In Zimmerman’s (2003) analysis of cropping patterns in the mountainous regions of Bolivia, he concludes that many social agencies that were not as extensively studied contribute to planification and this cannot be understood without attending to the interrelations of structure and agency. In the context of my own research, political ecology involves studying both political institutions and individual agency involved in transforming the post 1952 Yungas agrarian landscapes.

Early ideas in ecological and environmental anthropology focused on ecosystems as ecologically closed systems. Anthropologists like Roy

Rappaport and Julian Steward treated human ecological systems like ecological ones. The political ecology breakthrough came in defense of some the principles of ecology, but additionally recognized that the local environmental conditions are shaped by political conditions, including markets. In this sense, it brings together political economy and ecological anthropology. Political ecology recognizes the need for a “will” for ecological principles to be integrated into politics. As Robbins (2004) points out, understanding the relationships of politics and land use is not something only political ecologists do, but something people do in all aspects of planning; both in first world cities and in periphery communities. This thesis focuses on specific Yungueño communities in which land use patterns have been altered by in-situ crop conservation and development projects. While there have been many attempts to use the cocaine economy to connect Yungueño coca farmers to the larger capitalist superstructure, these assertions fail to answer a key question of why farmers have sought to correct environmental degradation, maintain small land holdings in diversified agricultural systems, and interact with development projects?

Lansing et al. (2006) present historical problems that emerge at the intersection of structure and agency in studies of human-environment relations. They outline Marx’s perspective of nature as a historical process in which social actors modify the environment. It identifies the problems of using ecological tools of analysis when existing social realities and interactions inform present ecological conditions. They explain the ways in which human agency generates structure and how structure itself is historically constituted. The authors use examples from Bali to illustrate this theoretical framework. Balinese have used ecological systems such as the naturally occurring rivers to

create a complex system of terraced rice agriculture. This is managed through a political system that allocates water. Temple networks control the irrigation networks. While increased development agencies have attempted to centralize management, this has proven largely ineffective.

The approach Leons (1993) takes, is to understand the political economy of choices, choices negotiated by farmers involved in illegal activities, which in turn are mandated by the state. In opposition to this approach, this thesis focuses on the choices farmers make to restore food production. More specifically, how farmers attempt to revitalize the role of traditional crops with emerging market values. Current thinking by outside agencies in the development and under-development of the Yungas region is not informed by the complex social context that the Yungas represents today. Likewise, the development objectives of the local unions do not necessarily match the vision of the outside agencies. This research is an effort to elucidate that local vision based on interviews and field assessments of local conditions and traditions. The Yungas represents a “point of friction” as Anna Tsing (2004) puts it, whereby these points of friction end up invoking innovation. In addressing what strategies community member use to obtain food security and food sovereignty, we may find the analysis of these communities particularly interesting. because of their unique way of integrating and working with markets in a non-traditional way. As will be discussed in more detail in the concluding chapter, the Yungas is potentially a site of innovative approaches.

## **Food Sovereignty**

It was recently announced in Bolivia that the new food subsidy programs are being cut so that prices can come closer to matching real production costs. Bolivia's poor spend roughly 50% of their income on food. With food prices rising 11.63% in 2010 and a much greater increase likely in 2011, the nutritional situation for Bolivia's poor may reach critical levels (Los Tiempos 2011).

The globalized food system is well noted to be unsustainable based on the three pillars of sustainability, which are economic, social, and environmental. Many groups have actively resisted corporate control and the homogenization of food through a globalized food system. Food, possibly more than any other globally traded good, has been recognized as a commodity in which popular control over production is necessary to ensure food for all.

From the point of view of *La Via Campesina*,<sup>17</sup> the corporate globalized food system has caused environmental destruction and global warming. As a result, the ecological systems in which small farmers depend on are on the verge of collapse (La Via Campesina 2009). Peter Rosset (2008) has examined the current global food price crisis. He posits that, in order to escape this crisis, countries must rebuild and protect domestic peasant and family farmer food

---

<sup>17</sup> *La Via Campesina* (Sp.) The Peasants' Way: describes itself as "an international movement which coordinates peasant organizations of small and middle-scale producers, agricultural workers, rural women, and indigenous communities"

production and public inventories. Rosset states: (2008) “The ‘food sovereignty’ paradigm put forth by the global peasant and farmer alliance, La Via Campesina, may well offer a plausible way out of the current conundrum.”

According to La Via Campesina, food is a basic human right and “all peoples” and states must have the right to define their own agricultural and food policies. Other principles outlined by La Via Campesina are as follows: agrarian reform, protecting natural resources, reorganizing food trade, ending the globalization of hunger, social peace, and democratic control of the food system (La Via Campesina 2009).

Food sovereignty has emerged in Bolivia as an objective of the Agrarian Revolution of the MAS (Movement Toward Socialism) government. Food Sovereignty is essentially an anti-capitalistic attempt to reconnect moral economies, place, food, nature, and community (Wittman, Desmarais, and Wiebe 2010) 2010 As is the rhetoric of the Bolivian government, which is essentially anti-capitalist in nature, it has fit well with the leftist policies of the Morales government and its labor/small-farmer supporters. Agricultural modernization projects around the world have had impacts on the food sovereignty of small land holding communities. Occasionally, small land holding farmers can enter the expanding market economy to make modest gains in their ability to exchange and integrate more fully into the market economy.

In terms of food security, it is very important that with increased income, farmers can in fact gain access to purchased food. However, most small farmers worldwide have not been able to create significant incomes through standard free-market policies. Food sovereignty challenges the theory

of food security and the policies associated with it (Schanbacher 2010). Food security has failed to address traditional valuation of farmers that rely heavily on subsistence, thus undermining the reciprocal value of food grown and distributed locally outside of the formal exchange economy and farmers' rights to land to grow the crops that they see fit. While it has been recognized that many of the government-instituted policies associated with food security have failed (as we are seeing play out in Bolivia today), farmers have employed their own strategies in maintaining food security.

Food sovereignty emerged and continues to emerge as a popular local resistance movement that seeks to retake control over local production and reorient exchange to one beyond purely exchange value. In doing so, reducing the stakes of the agro-industrial food production, in which case revaluating the importance of production for the small-land holder

We can begin to understand the importance of anthropological observations through its perspectives on food and localization. Food is intrinsically embedded in culture and local economies. Early anthropological studies attend to the interface of food and culture. Camacho (2006) states that, "Food represents a sense of the identity, place, and community mediated by ecology, politics and culture." Mintz (1986) pioneered anthropological research on food—focusing especially on sugar production and consumption—showing how the industrialization of food production and distribution has affected local dietary patterns. Through capitalist relations, colonialism, and global trade, the industrialization of food has pushed people away from the means of production, increasing dependency on food business. Of the food

produced in Bolivia between 1961-1963, 82% of it came from small farmers, compared to 39.7% in 2001-2002 (Ormachea 2009).

Many are concerned that the Bolivian state has for the last few decades chosen to go down the road of market liberalization and unequal agricultural development. Market-oriented agriculture policies have seen increasing control from profit driven agrochemical corporations, which has jeopardized the sovereignty of farmers (Shiva 1991).

## Agrarian Revolution

In the same years that high-input agriculture was emerging and being institutionalized in the U.S., Bolivia was enduring a chaotic period of upheaval and civil unrest. On 9 April 1952, the MNR (National Revolutionary Movement) led a successful revolt and set into motion the Bolivian National Revolution. Land reform quickly became the center of politics from the onset of the new state. New agrarian reform eliminated coerced labor and introduced a program involving confiscation of the rural real estates of Bolivian landowners and allocation among peasants. However, it did not alter the harsh reality of exploitation for those at the bottom of the social hierarchy (Leons 1979).

Entering the 21<sup>st</sup> century, Bolivia still had the most inequitable land tenure in South America. Official estimates were that large landholders controlled 60-70% of the land, while small holders only had access to five to ten percent (Hertzler 2007). A new land reform program was launched in

Bolivia in May 2006 by the government of Morales. The program started with immediate reallocation of land in the country. This initiative was taken up in order to tackle and stop a long history of unequal allocations of land. To this effect, the administration under Morales passed legislation, like the Agrarian Reform Law of 1996. On the May 2, 2006, Morales announced an allocation of approximately three million hectares of lands among sixty native Bolivian groups and communities. In addition, he promised to award another twenty million extra hectares of lands within the coming five years. This amounts to 13% of the total land area in Bolivia being distributed among 28% of the Bolivian peasants.

### **La Paz-El Alto Foodshed**

In defining a rural community, Sumner (2005), notes that the exploitation of natural resources is principally for the benefit of the rural areas' urban counter-part. "Rural" is generally equated with the extraction of primary products from nature for the purpose of manufacturing commercial products in urban areas. Ruralilty is also defined by quantification. For example, rural communities are often statistically marked as less industrialized, less service oriented, and producers of primary natural resources. In rural communities, economic opportunities exist through alternatives to market capitalism in which values growth and minimizing cost is valued over quality and sustainability.

In *Bringing the Food Economy Home*, (Norberg-Hodge et al. 2002) reveals how a shift toward localized food systems would protect



agrobiodiversity, give farmers a larger share of the money spent on food, and provide the consumer with healthier and fresher food at more affordable prices. The term “foodshed” is used to describe a complex local network of producers and consumers of food that work together. Kloppenburg et al. (1996) have used the concept of the foodshed to describe the flow of food products from the area where they have been grown to the place where they are consumed. Specifically, a foodshed refers to a particular population’s complex network of providers and distributors (Biodiversity 2007). The core cities of La Paz and El Alto create a foodshed that encompass many ecological regions including the Yungas. This region presents an excellent example of a foodshed, particularly in terms of sustainability. For example, the farmers that make up the La Paz-El Alto foodshed operate in a region that exists in a reciprocal economy where seed saving is commonplace, GMOs are virtually nonexistent, agrobiodiversity is high, and synthetic fertilizer and pesticide use, while present, are limited to production for emerging market destinations (e.g., modern super markets). The second feature that makes the La Paz el Alto particularly remarkable and an example of a moderately sustainable foodshed, is that a high percentage of the producers live within a 200 kilometers radius of the urban core. While foodsheds do not work outside the logic of market capitalism, they do require a reorienting of market capitalism. They require a revaluation of local production, and therefore a deeper integration of social and ecosystem values.

Murra(1968), on the notion of “verticality.” Verticality attempts to explain Andean capitalism through the networks of exchange between the

diverse ecological zones of the Andes.<sup>18</sup> Murra (1968) argues that pre-Inca kingdoms and the Incan empire controlled commodity production and redistribution of diverse geographic zones of which exist within relatively short distances. A system of reciprocity and redistribution is still an integral part of the La Paz, El Alto food system in which food travels relatively short distances but takes advantage of the diverse ecological floors that surround La Paz, which in turn provides a greater diversity of foodstuffs. Lehmann (1982) focuses his research on the impact of capitalist development on both the peasant economy and the landed elite in the Andes. In particular, he explores the ways in which capitalist intrusion has been shaped by a specific Andean culture and ecology. His discussion of Andean power and economic control focuses on like Murra on verticality. Thus the Yungueño farmers, from this perspective, hold a distinctive niche in the diverse agriculture and markets of historical Andean societies. Moreover, with the development of new roads, this system of vertical exchange is changing rapidly. As pointed out by Alison Spedding (1994), in the 1980's, in moving from a local to an increasingly global commodities market, traditional farmers are met with increased competition from the newly industrialized and colonized farms.

---

<sup>18</sup> Murra was the first to coin “verticality” in his ethnohistorical study of the Andes

## **Moral Economies and Andean Reciprocity**

In addressing the second question to be explored in this thesis—what factors are involved in a farmer’s decision to get involved in crop revitalization projects—we must first turn to the substantivist-formalist debate. Lehmann (1982) has provided an excellent review focusing on the impact of capitalistic relations on peasant economies in the Andes (Lehmann 1982). The changes in capitalistic relations described had significantly changed the ecology and culture of the region. Lehmann (1982) focused specifically on the ways in which market penetration, capitalistic development and exchange impact verticality, as described by Murra (1968).

Figuerola (1982) finds that for a typical Andean family nearly half of all income is derived from wage labor or the sale of production. He concludes that peasant households are also proletarian households and that as they become less able to compete with industrialized agriculture, wage labor will become the primary mechanism by which they are integrated into the national economy (Figuerola 1982).

Colin Sage (1984: 94) puts it this way:

[I]t is now generally recognized that the speed of capitalistic relations of production does not inevitably lead to the transformation of peasants into wage labourers; rather the household production may remain the dominant form under the rubric “petty commodity production”. Nevertheless, capital is able to extract surplus from petty producers by regulating the market and conditions of production until such time that direct competition may result in their elimination. This is the structure that currently represents the production of coca.

In a similar vein, Daniel Jaffee's *Brewing Justice* (2007) explores the importance of the critical ideas of Karl Polanyi to explain present agribusiness conditions. Jaffee clarifies Polanyi's ideas and states: "the danger of the market economy lies in its inability to perceive any signals other than price" (Jaffee 2007: 22). Polanyi uses the term "marketness" to categorize exchanges where price is the dominant factor in consumption. Besides exchange, Polanyi recognizes reciprocity and redistribution as other factors in economic decision-making. (Jaffee 2007)

Many anthropologists have documented the importance of reciprocity in Andean Societies (Spedding and Llanos 1999, Allen 2001). Coca leaves and traditional crops play an important role in reciprocity. The results of this thesis show that reciprocity is a major factor in farmers' decisions to get involved in a revitalization project.

The foodshed concept is a jumping off point to re-establishing a moral economy framework for theorizing food. Scott (1977) tells a tale of the encroaching market-violating informal notions of social justice and traditional rights for subsistence-level peasants, for whom the market economy is transformed from a society based on reciprocity and redistribution to an economic one in which one fears hunger.

Reciprocity, the term that is referred to frequently when talking about Andean people, has evaded the modern economist in quantitative terms. While these notions have been difficult to understand for economists, anthropologists have devoted quite some time to the topic (Orlove 1997; Goodman 2004; Wolford 2005). I contend the reciprocity based line of research is valuable in creating a moral economy of food perspective. The purpose is not to idealize

the past and subsistence practices, nor to promote a food culture based only on exchange in which the right to food is a more difficult proposition. Instead, moral economies, include two rapidly eroding Andean values: reciprocity and redistribution.

The most important way reciprocity is talked about in the Andes is through *ayni* or neighborly aid that is to be reciprocated in the community.<sup>19</sup> Catherine Allen (2002) noted that as farmers became more entwined with the market exchange economy, they relied less on *ayni* or the community and more on external inputs. For example, before this era of marketization, there would be days that the community dedicated to weeding. Today, with the emergence of more market-focused communities, there is greater reliance on chemical herbicides (Allen 2002).

When re-envisioning development we must focus on the moral economy of the people. Such a focus includes concern for the increased use of chemicals in agriculture over production and the deterioration of community work. In terms of producing safe sustainable food, we must recreate not the environment as a market problem but the market as an environmental problem (O'Keefe 2001).

Using Polanyi's (1944) notion of embeddedness, we may move away from a culture that values price above all else.<sup>20</sup> For producers in rural areas, prices are essential to their livelihoods. The emergence of native foods markets, with the non-embedded price in local markets, point to a class of

---

<sup>19</sup> *Ayni* (Ay.) Symmetrical reciprocal exchange.

<sup>20</sup> In Polanyi's terms the amount culture and economics are "embedded" as part of the same sphere.

consumer that is willing to pay attention to more than market values. In La Paz, such an emerging class exists that will be discussed briefly in the findings. It is worth noting that this group of people does not make up the urban white consumer. Instead, it is composed of indigenous urbanites with a taste for nativeness.

## **CHAPTER THREE: METHODS AND METHODOLOGIES**

### **Field Research Site**

The research for this thesis involved six months of fieldwork in Bolivia from, January to June 2010, followed by seven months of data analysis and writing from July 2010 to January 2011. The ethnographic data collected were based on participant observation and interviews in two farming communities in the Yungas region. The ethnographic fieldwork was conducted primarily in two communities in the province of Nor Yungas. The communities were selected based on the criteria that they have a native crop association. The two communities selected were San Juan de la Miel and Minachi. Additional research was also conducted in two other communities in Nor Yungas (see figure 1.7.). Munipata contained a multi-community association of native root crop producers. Chubacollo, a neighboring community to San Juan de la Miel, was primarily composed of coffee farmers. Other ethnographic fieldwork was carried out near Chulumani (figure 1.7.) in Sud Yungas. While there, I assisted an Irish public radio production company that was interviewing farmers on a topic that dovetailed with the focus of this thesis.

All of these communities are within the traditional coca growing zone in which coca is a legal and vitally important crop among most producers. Both San Juan de la Miel and Minachi are ex-haciendas. The haciendas where the Spanish held large land holdings in the Yungas before the revolution in

1952. They have now become the region now designated for legal coca production.

I went into this project thinking I would be able to interview growers in communities which were both coca and non-coca dependent. It quickly became apparent that this division is not as clear-cut as one might assume. In reality, there exist no divisions between coca farmers and non-coca farmers. Nearly every community in the Yungas region that I encountered had at least some coca. On the other hand, there are diverse opinions and clues that indicate a movement towards more food sovereignty and sustainable communities. These movements counteract the movement toward relentless intensification and increasing dependence on external inputs to combat increasingly marginal returns from the land.

I began working in both communities, San Juan de la Miel and Minachi, after attending community meetings. I gained approval of the *secretario general*<sup>21</sup> of the communities to conduct my study.<sup>22</sup> I generally approached farmers in the afternoon after a long day's work when they were ready to eat and talk with company. Early in the study, I would set out on foot to the fields in the morning, I quickly learned that this was a misguided decision. While I offered my assistance in the field, the work to be done did not lend itself well to nuanced conversation. Yelling across a field while working was difficult, especially when explaining something in detail. As an

---

<sup>21</sup> *secretario general* (Sp.) The general secretary is an elected community member that holds various responsibilities including managing a monthly community meeting.

<sup>22</sup> While approved in San Juan not all community members welcomed the study and many opted not to participate.



obvious outsider in the Yungas communities, the community members were initially very hesitant to divulge information to me. Many told me about previous professionals who came to the villagers, making unfulfilled promises, and then stealing knowledge from the town to make themselves rich. I found myself asking questions such as, what do I have to offer the community? How could I repay them for the professional development that I was experiencing?

We saved our conversations for chats while chewing coca during work breaks. The influential anthropologist and writer Clifford Geertz (1977:374) states that the ethnographer “merely scratches the surface.” My ethnography was originally intended to be based on recorded interviews with community members. Due to the sensitivity of the topic, community members would often not allow me to record the interview. Many even felt uncomfortable with me taking notes. Only after long hours of picking coca in the field with women, did some people start to open up. The community members began to divulge sensitive information more freely, but not without making sure I was not going to abuse my right to the information. At the first few community meetings I attended, some community members were adamant that because I was taking time out of their day, I should be bringing something in return. At this point, I informed community members that I would offer my work in the fields. I quickly found out that, even with my background working on farms, I was completely ignorant of their specific methods. Despite these fieldwork challenges, I eventually gained respect for trying. I gained even more respect when I shared with them a bag of coca. They were especially impressed when I told them that it was grown without chemicals or *coca ecológica*.<sup>23</sup>

---

<sup>23</sup> *coca ecológica* (Sp.) Organic coca leaf

## **Methods**

Semi-structured interviews and participant observation were used as methods for understanding the experience of Yungueño farming associations. I worked closely with twenty-two community members from Minachi and San Juan de la Miel who worked principally as farmers. By the end of the ethnographic fieldwork, I interviewed a total of ten community members from Minachi, of which five were men and five were women. In addition, I interviewed twelve members from San Juan de la Miel, of which seven were women and five were men. I also interviewed ten urban professionals of which six were men and four were women. As mentioned earlier, a variety of other communities were included in my research. I used a snowball sampling method as described in Bernard (2006:193). I also interviewed three members of the community of Chubacollo (two men and one woman) and one from Munipata (one woman). In total, I conducted semi-structured interviews with thirty-six participants, of which eighteen were men and eighteen were women. I also have included in this thesis some narratives of coca farmers whom I met traveling and interviewing farmers with the program, Newstalk 360. I began with a survey in the communities but the responses were too brief, the response rate too low. The depth of perspective which I aimed for could not be achieved. As a result of this I abandoned that method (see appendix 1). Instead, I relied exclusively on semi-structured interviews and participant observation throughout the duration of fieldwork.

Participant observations were recorded through notes taken while visiting communities. The first interviews were conducted with urban professionals in La Paz and the Yungas region. These were conducted at the initial stages of fieldwork while still establishing relationships with local farmers and attending community meetings to present my work and take notes. The semi-structured interviews were conducted using some pre-formulated questions (see Appendix 2). I transcribed interviews that I was allowed to audio record. These interviews were then coded for relevant themes. If a research participant elected not to be recorded, I would usually just take notes if they felt more comfortable with that.

Two UAC-Carmen Pampa students aided the project with their help as research assistants. I paid them each 40 Bolivianos or \$5 USD equivalent to a typical day labor *minga* in coca fields.<sup>24</sup> Each student worked one half day and provided a valuable resource in identifying participants during the initial days of fieldwork.

## **Data Analysis**

The data collected for this thesis were mostly in the form of interviews and the resulting narratives. In total 194 pages of interview material in Spanish and 16 pages in English were transcribed. All 210 pages were coded which allowed for certain themes to emerge. Chapter four contains the bulk these

---

<sup>24</sup> *minga* (Ay.) Reciprocal work in which money, food, or goods compensates for work or service provided.

narratives and themes that emerged in the interviews. In addition, I formulated graphs to quantitatively represent the experience of farmers who had experience with assistance programs.

## **CHAPTER FOUR: FINDINGS**

### **Subject of Study**

The Yungas is a stretch of forest along the eastern slope of the Andes Mountains from southeastern Peru through central Bolivia. The population consists of three ethnic groups; primarily Native Aymara with a small, yet significant, population of Afro-Bolivians and Quechuas. Most members of these ethnic groups have developed a strong sense of identity based on the most important economic activity in the region, which is based on commodity coca leaf agriculture. The incessant labor required of the farm workers often extracts a high price on their health and well-being. Callus-covered hands and cataracts are common for many farmers over age 40. The effects of unmistakable constant poverty requires continuing reflection of one's preconceived notions of the reality of scarcity, inequity, and development in their lives

Most farmers are extremely proud coca growers. The production of the crop and its traditional use gives them a sense of shared identity and therefore helps mobilize indigenous identity (Allen 2002). Coca is openly grown, dried, and chewed at nearly every social occasion. Many people appear to be unconcerned about the political tensions surrounding the crop but there has been an upswing in indigenous pride related to recent political shifts. In the current political climate, indigenous farmers have an increasing sense of voice and power (Lucero 2008, Postero 2007). Currently, international agencies, the

government, and development groups do not seem concerned about the production of coca in this traditional zone. The farmers, however, are anxious about the future of regional coca production. This region, more than other coca growing areas in Bolivia, has seen intensive planting over many years, resulting in nutritionally depleted land. This puts farmers who want to remain in the region in a predicament. They struggle to decide what they will plant next and where (sometimes those with even more foresight will consider the next generation).

It is important to note how farmers talk about and categorize traditional crops. For these farmers traditional cash crops, in order of importance, are coca, coffee, and mandarin oranges. Traditional and native *raíces Andinas*<sup>25</sup> are the foods of the ancestors and in some communities part of the households' subsistence diet. Occasionally these crops are traded to the highlands, as in the case of potato scarcity, to ensure the food security of the population centers of the highlands (Spedding 1994). Farmers plant several other crops, such as a variety of fruits that, while native (most have their origin in South America), are not entered into these two categories. With the exception of the banana, an important staple, these other crops are not considered staples in the diets of the farmers.

Cynthia M. Goody (2002) sampled the perceptions of 20 women on food in a rural Guatemala town. From this, she identified two central themes: foods for celebrations and foods for sustenance. The highland women in Guatemala, much like Yungueños, identify only a few foods for sustenance. In the case of Guatemala, it is corn and beans. In the case of the Yungas these

---

<sup>25</sup> *raíces Andinas* (Sp.) Andean root crops

foods are -root crops or tubers, rice, bananas and occasionally meat. Foods for celebrations, as identified in Guatemala include many of the common readily available industrialized foods often associated with North American foods. Examples include soda, bread, gravies, and cake; this is similar to the perceptions I came to understand when talking to farmers. Interestingly, the reemergence of *raíces Andinas* from the Yungas and its inclusion as celebration food seems to be a recent emergence in Bolivia. The three crops I concentrated on in this study are coca, racacha, and jamachi p'equé; all of which bring high prices because of their ritual or celebratory uses. I focused on the latter two because they have recently established commercial market value.

## Coca

“This is a green coca leaf, it is not the white of cocaine, this coca leaf represents Andean culture, it is a coca leaf that represents the environment and the hope of our peoples.” (Evo Morales at the General Assembly of the UN, September 19th, 2007)

“From the standpoint of respect for ancestral cultures, both Andean and Amazonian, and the indigenous population’s identification with the coca leaf as a sacred cosmological element, there is a need to re-examine the value and importance of the coca leaf.” (Félix Barra, Vice Minister of Coca and Integral Development)

“Coca is the only income in this zone for 50km radius so about 90% of the people live off coca.”<sup>26</sup> (A coca farmer)

---

<sup>26</sup> *Coca es el único ingreso por esa zona, como unos 50km de área radial, entonces un 90% (de la gente) vive de la coca.*

In the Yungas, it is important to stress that coca is not considered the same as cocaine (Sp.) *coca no es cocaína*. To coca farmers the leaf represents their income as well as a key element in their spiritual life and identity. Additionally, Allison Spedding told me that coca can evidently be grown sustainably (Spedding 4/18/2010). On her property in the Yungas, she has found *wachus* that are clearly ruins from pre-Colombian times. Most Yungeño farmers see coca as the only way a peasant can gain a foothold in the market economy. It is important to them because, as frequently stated, “it can be harvested three to four times a year, it is a perennial that does not require yearly tilling and planting, it is easy to transport, and it has a better price by weight than, for example, coffee.”<sup>27</sup> Coca has emerged as a preferred crop, not only because of its relatively stable and high price, but because the market prices for “alternative development” crops are low. Coca, in fact, has been meeting many of the same objectives that market-oriented development programs have encouraged, but has done so autonomously with little to no dependence on assistance programs.

Why have we returned to coca farming? Because before there was coca, but now it is more coca...it is because citrus and oranges do not cost as much as they did before, the price is down, so then how is the campesino going to support himself. So people have shifted to coca, and coca at least every three months, 90 days. Coffee doesn't produce every 3 months but only once a year, so people have looked at the alternatives and decided to grow coca out of necessity.<sup>28</sup>

---

<sup>27</sup> Text from an interview *La coca es mas liviana para cosecharla, secarla también, el precio de la coca de 50 libras está entre 800 y 1000 bolivianos dependiendo la calidad, y el café 100 libras está en 300 bolivianos.*

<sup>28</sup> *¿Por qué nos hemos vuelto cocaleros? Porque antes sí había coca. Pero ahora...¿Por qué soy cocalero? porque el cítrico de la naranja no cuesta*



A young University of Carmen Pampa (UAC-CP) student I interviewed from San Juan de la Miel stressed that coca is much more than just a crop to make money; it allows him to have a wedding, parties, and celebrate other cultural activities common in the region.

You see with coca you can get money, but it can also get you a girlfriend or boyfriend and a family, and for example on All Saints Day and the carnival festivities coca is always a part, it is a very important product that the Pachamama (mother earth) put here in the world on this occasion in Bolivia.<sup>29</sup>

Coca is shared, gifted, and exchanged in almost all the social gatherings of Andean people (Allen 2002). Ironically, despite its traditional use, coca farmers are involved in the primary level of production of one of the world most sought after commodities—cocaine. Furthermore, farmers are aware of their involvement in this global trade but have fought hard to legitimize their profession and have been basically successful in raising their status to the level of petty commodity production (Sage 1984) or articulated peasantry (Mayer 2002). In this way, it is important to view coca as both an agricultural

---

*como antes. El precio está más bajo. Entonces ¿con qué el campesino y el productor se van a mantener? entonces han cambiado (su producción) a la coca. La coca por lo menos da cada tres meses, noventa días, el café no da cada noventa días, cada doce meses, no vé? Entonces han visto esa alternativa y ahora producen la coca, hoy día(es) por la necesidad.*

<sup>29</sup> *Mira, con la coca uno puede conseguir dinero, pero también puede rogarle a la novia o al novio: una familia. Por ejemplo, en Todos Santos y algunas fiestas de carnavales siempre ocupan la coca, es un producto muy importante que la Pachamama ha puesto aquí en el mundo, o en este caso, Bolivia.*

commodity and a central symbolic element of Andean culture and religion. For Yungueño farmers, the coca leaf represents an increased potential for income, tradition, reciprocity, unity, resistance, and autonomy. For northern governments, the leaf has only been viewed as the raw product for cocaine. However, we must equally recognize that the coca leaf as an exportable commodity did not arise until late in the 19<sup>th</sup> century. It therefore leads to a potentially interesting analysis of agrarian change in the context of the first viable agricultural global commodity for Yungueño farmers and a shift into the world economy and greater *articulization*.

Since the 1961 UN Single Convention on Narcotic Drugs, efforts have focused on coca reduction, eradication, or crop substitution. For this reason, there is a direct impact on the price of coca and on the lives of the Yungueños. Healy (1991) notes that Yungueño farmers are well organized into unions or *sindicatos* and they are determined to resist programs that threaten their local economies. The moral economy of the Yungas recognizes coca as a key component of regional agriculture, but it has limitations. For some farmers, raising too much coca is considered greedy and disrespectful to the *Pachamama*.

Coca, Caroline Conzelman (2007a) writes is the principal development agent in the region. Many suggest that the production of coca leaves may be a way out of poverty if farmers were allowed to cultivate without restriction (Andersson 2008). While coca has continued to further integrate some farmers more into the market economy, it has not provided a means for all farmers to significantly improve in life. It was noted earlier by Bernstein (2010), that poverty is not evenly distributed in rural areas and that rural modernization

projects have furthered unequal development. In the communities where I worked in, there were stark differences between those who had access to capital through either land or assistance and those without such privileges. In fact, coca prices, while high in comparison to other goods, requires substantial land and labor to make any significant profit. This type of more industrial - style development frequently occurs in the frontier zones and requires colonization of previously uninhabited lands. Coca is a growing, labor-intensive industry that require significant off -farm resources that enriches many through commodity chains. This represents exactly what neo-liberalism and development agents have sought for rural Latin American societies.



**Figure 4.1. A woman picking coca**



**Figure 4.2. Communal work in the coca field**

Native farmers in the region are usually small landholders because their native ex-hacienda lands have been subdivided several times. These farmers, who toil in native ex-hacienda (non-migrant) communities, frequently find the emerging market of *raíces Andinas* root crops, such as jamachi p'eqe and racacha, will surface as an alternative cash crop that can, in certain circumstances, provide greater income than growing a small coca field.

If the price of coca goes down, this is how we are going to survive, that is what we are thinking, because the land is tired, coca will no

longer produce, and we have no more land.<sup>30</sup> (One Minachi farmer's perspective on jamachi p'equé as an alternative)

### Jamachi p'equé and Racacha

Before our grandfathers knew how to and would always grow jamachi p'equé, racacha, walusa and all of these crops. Then they began changing, they began forgetting, and then about fifteen or fewer years ago they started to recover racacha. Before the racacha producer was next to us, this was the production zone of racacha, but they replaced it with coca, and San Juan became the producer.<sup>31</sup>

It is worth mentioning that many other native crops and native root crops are grown in the region. These include but are not limited to: *achira*, *yacón*, *ajipa* and *papa walusa*. Racacha, jamachi p'equé and possibly papa walusa (which was traded and consumed as a food security strategy for Altiplano farmers in case of potato shortages in the highlands) have most often recently emerged as cash crops. I observed that two communities have developed niche markets based on racacha and jamachi p'equé—native root crops used in celebrations. In Bolivia, racacha is consumed at weddings and

---

<sup>30</sup> *Si baja el precio de la coca, con ese (jamachi p'equé) vamos a poder vivir, en eso pensamos y porque la tierra ya está cansada, y la coca ya no va a producir y no tenemos mas terrenos.*

<sup>31</sup> *Antes los abuelos lo sabían. Habían cultivado jamachi p'equé, racacha, walusa, todo estos cultivos, pero después (los) han ido cambiando y se han ido olvidando más o menos hace unos quince, tal vez menos años, han empezando a recuperarlo. Anteriormente, el productor de racacha estaba aquí al lado y esa era la zona productora de racacha, pero ellos la han remplazado por la coca y San Juan se ha vuelto productor.*

baptisms. Jamachi p'equé is used for *bizcochuelos*<sup>32</sup> or *tanta-wawas*,<sup>33</sup> the bread made for the Day of the Dead or All Saints Day celebrations.

Racacha is better known in Ecuador as the “white carrot” (Sp. *zanahoria blanca*). The root is similar in flavor and appearance to a blend of sweet potato and carrot. It is boiled in the same manner as potatoes and other tubers are prepared in the Andes. For three decades, farmers in San Juan de la Miel have been cultivating racacha. In that time the production has declined significantly because of the intensive way that it was produced and its genetic vulnerability. After intensive successive plantings and successful commercialization, the root became infected with a virus that community members have been unable to combat. Commercialization, in this sense, led to contamination.

Jamachi p'equé is a wild plant that adapts well to being grown in soils shaded by citrus crops and coffee. It is used in some communities as food. In the case of the Minachi community, it is an important product for which they are recognized as some of the most successful. They transform the plant into bread by combining its starch with sugar and egg whites and then baking it in clay ovens. Minachi is particularly accustomed to taking advantage of this wild crop. It grows from a simple transplant from a plant found in the wild. When integrated into the existing perennial agriculture of small-scale coffee and citrus surrounding the homes, it makes for a particularly strong cropping system. This system is recognized by agroecologists, because the multiple

---

<sup>32</sup> Square bread made with jamachi p'equé for the All Saints Day celebration.

<sup>33</sup> Tanta-wawas are special breads baked into the shapes of children or pets for the All Saints Day celebration.

perennial crops that are produced at various times of the year offer increased food security. Jamachi p'equé is usually harvested in September when the bulb on the root is large enough to be useful. In Minachi, they peel and grind the bulbs with rock to extract the starch and then bake the *bizcochuelos*. The bread has developed a market in the region and the farmers I talked to said it is an important medicine for controlling fevers.



**Figure 4.3. San Juan de la Miel: Coca in the foreground and multiple different crops including racacha in the higher elevation background**





**Figure 4.4. jamachi p'eqe growing under the shade of plantains.**



**Figure 4.5.** Making *bizcochuelos* from jamachi p'eqe

### **Development and Agrarian Change in the Yungas**

I have seen a lot of projects, but very few that involve traditional crops, native crops. The majority of the projects are related to exotic crops that are strange to the Andean culture, for example, coffee, right? The native people here live upon the cultivation of coca principally, but because the problems of coca and drugs, projects never arrive here and or never function because of coca, and if there are, they

are hidden, these projects of coffee and others, are strange to the knowledge of the peasant.<sup>34</sup>

While the discourse of development, modernity, and progress was touted during the 1980s and 90s, the small amount of USAID projects designed to increase export-oriented agriculture from Bolivia were outright failures and led to meager prices for the tropical globally desired products (coffee being the best example) that the farmers in the Yungas region were most likely to produce. None of these could compete with the coca, but at the same time, the eradication efforts came at the expense of the poorest and least powerful actors in the global commodity chain (Farthing 2001). I attempt to answer the question of how native crop development projects were experienced in the two identified communities of San Juan de la Miel and Minachi.

In contrast to what post-development theorists have called for: an alternative to development. In the 21<sup>st</sup> Century the tag “alternative development,” was placed on projects that sought alternatives to coca expansion. This “alternative development” agenda was frequently accomplished by promoting non-native crops for export-oriented markets, providing substitution in place of eradication. Farmers had little trust in

---

<sup>34</sup> *He visto muchos proyectos, no? Pero muy pocos que involucren cultivos tradicionales, cultivos nativos. La mayor parte de los proyectos que vienen están referidos a cultivos exóticos, cultivos extraños a la cultura andina, por ejemplo, café, no? Por ejemplo, los nativos de acá, viven del cultivo de la coca principalmente, pero por los problemas de la coca y las drogas, así que casi nunca los proyectos vienen en función de la coca, nunca, nunca, y si hay, son casos ocultos, digamos. Pero éstos proyectos que vienen hacia el café y otros son extraños al conocimiento del campesino.*

growing export-oriented projects because the price would fluctuate as much as it did in the decades before when farmers had experimented with growing coffee. “Time and again organizations that come into an area promoting the newest anti-coca scheme: plant coffee, plant citrus we just don’t understand it.” The projects typically begin as monumental projects (e.g. orange juice plants, coffee processing plants, etc.) that often require significant maintenance and continued funding, as well as capacitating farmers in the new industry. While these projects were often short sighted and lacked the ability to be self-sustaining on their own, the steep topography and lack of infrastructure made any large-scale production particularly difficult.

The current term that USAID uses in coca growing regions is “integrated development.” While the policies have shifted slightly, the focus on marketability and exchange and diversification remain. USAID has continued to help some farmers find markets for their goods other than coca and has done significant work in infrastructure, water, and sanitation (USAID/BOLIVIA 2010). I commonly heard from many USAID related workers that “the market for coca does not need any help.” Unfortunately, the bad impression that was created during the periods of alternative development maintains tension between the programs, the government, and the local people. Problematic development projects of the past has led to the necessity for community unions to organize and control USAID projects that now require municipality approval to operate. The municipal governments are primarily controlled by the coca union, circumventing the problem of the short-lived political life of many of the municipality leaders. Departmental Association Of Coca Producers (ADEPCOCA) has organized in solidarity resisting most of the “projects” stating that coca will be part of their “own model of alternative

development” (Chauvin 1993). Caroline Conzelman (2007a) states: “Yungas coca growers are using the syndicalist system in attempting to grow a value added product now that staple crops do not provide enough income to meet the development goals of the farmers.” Noting that coca unions and western style unions have been an important factor in self-determined development and mobility in the region.

When considering alternatives to market capitalism, development projects may be better suited if they focus on native crops for which farmers feel a sense of identity, autonomy, and have added value because of their celebratory use. Additionally, when there are export-oriented practices, it would seem that training for farmers in growing crops desired in the global north displaces local food, and is not accounted for in nutrition or educational programs (Romero and Shahriari 2011). In San Juan de la Miel, amaranth seeds and black beans have been given to farmers; however, they do not know how to eat or prepare these crops because they have not been a recent part of the community’s diet. Furthermore, although some farmers have demonstrated that the crops are well adapted to the region, there is little instruction on exactly how to cultivate them. Farmers were curious as to how to grow and eat such crops but felt little autonomy over them and continually asked me for advice. While I would sometimes share the little information I know about amaranth and black beans. There was certainly something lacking in the market-oriented project (which I was not involved in). The educational information necessary for farmers to use these crops was not being made available to them.

The market-oriented projects have frequently focused on economic development in the communities. The results often miss the importance of education, environmental degradation, and nutrition. While most farmers interviewed agreed that living conditions are marginally better, they have seen no radical change, even with the intervention of development and assistance, and cite more inequity. (See tabulated results in Table 4.1.) Farmers stated that any changes were the result of their own labor and force—not because anyone intervened. Most felt equally ignored by government and insisted that the coca union is the only organization watching out for them. In certain circumstances, the assistance programs working directly with the individual association were seen as helpful.

Have your living conditions improved in that last few years since being involved in the project?

Minachi:

Better	Same
8	2

San Juan de la Miel:

Better	Same
6	7

**Table 4.1. Interview Results Regarding Improved Living Conditions**

## San Juan de la Miel's Experience

Before people from the city did not eat racacha. They did not know of it, so we formed APRADE... We went to La Paz to prepare food and different types of dishes and that is how people began to eat racacha.<sup>35</sup>  
(A San Juan farmer)

The NGO Condesan (The Consortium for Sustainable Development in the Andean Ecoregion) identified racacha growing in the community of Ciénegas. Its seeds were recovered and grown-out by the community of San Juan de la Miel. With the assistance of the International Potato Institute based in Lima, Peru, they identified the varieties and evaluated the nutritional properties. Initiatives have since intervened noting the importance of in-situ conservation of the native crop and assistance in the promotion and revaluation in regional markets. San Juan de la Miel, through its community association APRADE, has now become the principal producer of the root. Further, the crop has become important to the region of Nor Yungas and the municipality has included it as part of its official regional cuisine.

The Coroico market, for reasons that are beyond the scope of this study, has fallen out of favor with the region's producers. One woman cites that she enjoyed selling racacha in Coroico and reminisces about the good times. Today she cannot find a place to sell her product because the markets

---

<sup>35</sup> *Antes no conocían la racacha en la ciudad. Así que hemos empezado a formar este grupo de APRADE de productores de racacha. Hemos formado esto porque en La Paz, no había mercado y hemos ido a hacer propaganda. Hemos salido a La Paz a preparar comidas... diferentes tipos de platos con la racacha y de allí la ha empezando a conocer la gente.*

are no longer accessible to farmers; instead, the cash crops are taken to La Paz. She laments: “I made stuffed racacha, I would make mashed racacha and mix it with rabbit, or pork. Now they still look for it in Coroico, but there is nowhere to sell it, or I don’t know where to sell it.”<sup>36</sup>

They would come and help us with events in Coroico, and because the association already existed we were able to go to La Paz... and through promoting the crop the price went up to 400 Bolivianos for a 100 pounds.<sup>37</sup>

Research and interviews could not discern exactly when or how racacha became the typical food at weddings, but the consensus in the communities is that it began recently. According to most interviews and research, it was through promotion in La Paz that racacha became a high priced, in-demand product for celebrations, such as weddings and baptisms. Most think it was not a typical part of the urban Bolivian diet until relatively recently. This brings up the interesting phenomenon of an invented tradition.

---

<sup>36</sup> *Y yo hacia relleno de racacha, ese era mi temita. Primero hacía puré de racacha, y se llenaba la racacha con conejo, con chanco, con todo...y ahora mismo lo piden en Coroico pero no hay donde vender, no sé donde vender.*

<sup>37</sup> *Han venido y nos han ayudado a hacer ferias en Coroico...como ya (lo) había (hecho) esa asociación de productores de racacha. Hemos salido a La Paz y había un fondo y ellos movían dinero de algún lugar para podernos trasladar y después ha subido el precio de la racacha también y el quintal ha llegado a 400...100 libras...100 libras de racacha estaba a 400...o sea 4 bolivianos la libra.*



Racacha is a food for celebrations, for baptisms, and more than anything, weddings, it is a special plate, it is not just any old root crop; it is only for very important ceremonies.<sup>38</sup>

Similarly, in Mexico, a resurgence of once forgotten native foods, such as huazontles and amaranth, made for a particularly interesting study. Bordi (2006) identifies the reintroduction of “authentic” foods as a reaction to the globalization process. In her study in Mexico City, Bordi (2006) shows how the middle and upper classes were able to boost the demand for ‘pre-Colombian variety’ in a consumer reaction to homogenization. Wilk (1999) notes that national and regional cuisines are in constant flux. In La Paz and El Alto, racacha has emerged as symbolic of wealth among the indigenous urban working class. It is considered to be more exotic than the potato, which is standard fare at most meals. Because of its high price, racacha represents a symbol of wealth for those responsible for a festivity and it is almost exclusively consumed at celebrations.

APRADE, in San Juan de la Miel, has been decidedly successful in becoming the largest producer of racacha in Bolivia. The Association coordinates all of the producers in maintaining a steady flow of racacha into the La Paz market and represents some of the exclusive producers of commercial racacha for the La Paz foodshed. In San Juan de la Miel, they have prohibited the selling of racacha seed outside their community. While seed can

---

<sup>38</sup> *La racacha es el alimento de festejos, bautismos, más que todo para el matrimonio, es un platillo especial, la racacha no es cualquier tipo de raíz. Para ceremonias importantes la utilizan, para platos especiales.*

be freely exchanged within the Association, anyone caught selling seed elsewhere is fined 500 Bolivianos. Unfortunately, after years of using the same intensively-planted seed, it developed a virus and farmers were forced to abandon the traditional racacha for one that has less market value. This has led many farmers to switch from racacha to *zapallo*, *tomate*, or *locoto*<sup>39</sup> and the disbanding of much of APRADE. The virus appears to have had a severe impact on farmers' yields in addition to soils that are depleted from years of intensive planting. The virus only affected the desirable yellow sweet variety of racacha, while other varieties of racacha have practically no market value in La Paz. In researching diseases for which racacha are prone, there is conclusive data suggesting the virus that has been contaminating the racacha could be controlled by longer rotations (less intensive production with longer fallows), and increased genetic diversity (Naylor 1996).

A farmer in San Juan de la Miel told me: “we would like to learn more about native crops, because they are ours, and when they bring us coffee, it is not that good because we have to learn the fluctuation of the price in the market, to process it, and those things are not at our reach.”<sup>40</sup>

In San Juan de la Miel, three people have primary control over all the transportation of their product. Some farmers have small parcels of land, do not produce in quantity, and have to pay the more successful farmers with trucks to transport their goods. For farmers in San Juan de la Miel,

---

<sup>39</sup> *zapallo*, *tomate*, *locoto* (Sp.) Squash, tomato, and chili pepper

<sup>40</sup> *A nosotros nos gustaría aprender de esas cosas porque son de nosotros y cuando nos traen cultivos de café, no es muy bueno porque tenemos que aprender, a veces bajan los precios, a veces hay que saber procesar y esas cosas no están en nuestra posibilidad.*

transportation is key and it allows them to act as both middleman and producer.

### Minachi's Experience

The other association that I observed was formed relatively recently (seven years ago) to produce and commercialize jamachi p'eque, a wild root crop native to the region. Community members claimed that the plant has always been found locally but no one considered it marketable until the recent resurgence in native foods. The root is the basic ingredient of a bread that has become well known in the region and has generated a significant local market. This market has expanded, with the breads sold at *ferias*<sup>41</sup> in the municipal seat of Coroico. Because of the success of this market in Coroico, the fifteen-member association was formed. It believes that a national and international market might exist after receiving reports of the nutritional qualities of the product.

The fifteen producers, with assistance from Linindígena and Proinpa, built a plant intending to commercialize jamachi p'eque. They received a grant with a 70/30-payment agreement. This (*counter-parte*) money inevitably came from coca because they and their neighboring communities have become quite successful coca growers. In this circumstance, it is only those who have been able to gain access to capital through coca who have the ability to use such assistance. The particular case made to access funds was that in Minachi they

---

<sup>41</sup> Market days or event days in town

have smaller land holdings than some of their neighboring communities and have continued this long tradition of making *bizcochuelos*. It is worth noting that Minachi farmers generally have more amenities because they are directly connected to Coroico by a dirt road. This provides more farmers with the opportunity to become middlemen trading coca in La Paz.

Both nutritional analysis and marketing research have been done in La Paz and the processed jamachi p'equé starch is in high demand. It has recently been recognized in nutritional studies to have exceptional properties and produces an extra fine starch for further processing into other foods. According to community members, it is also of interest to drug companies as an especially fine starch for medical uses.

This project, while the farmers are hopeful about its success, has not yet provided much in regard to development for the farmers. As of this date, they have not been able to sell their product because legal requirements have delayed the plant's operation. The farmers see commercializing and processing this native crop as the next option in a sequence of development. "Here in Minachi we do not have land left to put coca on, the land is all taken, so we started this project with jamachi p'equé which grows in the shade of citrus and coffee and can be processed into starch that we can sell."<sup>42</sup>

---

<sup>42</sup> *Nosotros en Minachi ya no tenemos terrenos para poner coca, nos hemos acabado el terreno. Entonces ese proyecto que hemos hecho con (el) jamachi p'equé que crece en la sombra de los cítricos y café, ya vamos a poder vender (el jamachi p'equé).*

## Frustration with Assistance

In Minachi, after six years of work and \$5,000 of community investment, the community is still hopeful. The plant was supposed to process jamachi p'equé into a starch to be made into cookies and bread for sale in La Paz. The men showed me that they had a great deal of pride in the building they constructed, but controlled their anger as they spoke of the bureaucracy involved in getting to this point of near completion. One informant told me:

We have the plant, but now we are stuck again, they tell us the plant is not completed. We went with the engineers from Proinpa and they told us the plant is not suitable for operating, it is not suitable for processing, but we want to start processing already but the Proinpa engineer told us it is not done yet and we do not have any money left to finish what they require we need ceramic on the floors as well as the walls.<sup>43</sup>

They are frustrated with the engineers from La Paz. I found that outsiders often make suggestions and promises but then leave never to be seen again. Obviously the farmers have observed this behavior and are annoyed:

The other engineer also came to offer [jamachi p'equé] seeds but they still haven't arrived.<sup>44</sup>

---

<sup>43</sup> *Ya tenemos la plantita y allí hemos parado. Y como dicen que no está bien concluido, hemos ido con los ingenieros de raíces andinas y dicen que no está apto para operar. No está apto para elaborar, pero nosotros ya queremos elaborar así mismo. El ingeniero de Proinpa nos ha dicho que todavía no está en condiciones para hacer eso. Necesitamos esa cerámica para tanto el piso, como las paredes.*

<sup>44</sup> *Ese otro ingeniero también ha venido a ofrecer esa semilla y no (la) ha hecho llegar todavía.*

In the community of San Juan de la Miel, there was a sentiment that assistance programs arrived and left on a regular basis. It was important for them to note that the community was responsible for their success as racacha growers. The assistance programs and technicians who recently visited the community have not followed through with lasting help. While talking about a meeting we had attended the previous day, a community member mentioned, “Yesterday in the reunion they were bothered that the engineers get involved but don’t follow through”<sup>45</sup> referring to one of the technicians who talked about projects but did not accomplish anything meaningful for the community.

Another young member of the community commented that:

APRADE is an association that worked well with the help of other associations, they would always come and help, but then we were abandoned. It is always putting a co-investment... but while you are waiting for the return on the investment what are you going to eat?<sup>46</sup>

In some ways they have not been that considerate, one thing is that they bring seeds and the seeds have adapted well, but that was 5 or 7 years ago since then we have been abandoned, and now after so many years they start to say that it is time to replace the traditional plants

---

<sup>45</sup> *Ayer en la reunión estaban molestos porque el ingeniero se mete y no cumple...*

<sup>46</sup> *APRADE es una asociación, que digamos, nos ha funcionado bien, digamos, con la ayuda de otras asociaciones que nos han ayudado... siempre han venido a ayudarnos, pero nos abandonan. Siempre es poniendo contraparte al mismo tiempo... y unos digamos no salen ganado poniendo contraparte y mientras tanto, ¿qué vamos a comer?*

with another variety, other varieties. And markets are just beginning to develop for these.<sup>47</sup>

This young farmer was talking about the variety of racacha that had been so successfully, but that now the seed is infected with a virus and rooting in the ground so they are beginning to replace that variety with others that grow better. But the market in La Paz does not recognize the white varieties of racacha and would only buy the sweet yellow varieties that farmers are having so much trouble with. He told me:

Sometimes they come and meet and learn, and then take it all for themselves and for us they leave nothing, in great detail they take information, and for us nothing they take out ideas and with it they make a ton of money and meanwhile we get nothing and that is why the people do not trust the passing groups, they just talk and don't accomplish anything.<sup>48</sup>

---

<sup>47</sup> *De alguna forma, digamos, no han sido tan considerables, pero sí... porque han traído semillas, digamos. Semilla que han adaptado bien, pero de eso hace 5 ó 7 años que la trajeron. Entonces nos quedamos abandonados y ahora después de tantos años empezaron a decir que tenemos que remplazar la planta tradicional, Digamos, con otra variedad, otras variedades. Estamos viendo recién mercados para estos.*

<sup>48</sup> *Sí, mejor en algunas partes, porque a veces vienen, se reúnen, aprenden y se lo llevan ellos todo. Para nosotros no hay nada, todos las ideas que tenemos nos las sacan a buen detalle. Se las llevan y con eso se hacen ellos un bruto de plata...pero mientras (para) nosotros nada..por eso digamos (que) la gente ya no confía tanto. De paso, ya vienen instituciones a hablarnos un rato pero no cumplen.*

## The Strategies for Food Security

I just started three years ago planting coca, before that I did not plant coca.<sup>49</sup> (A Minachi farmer tells me noting he is different from the farmers around him because he held onto growing coffee and citrus until that last year.)

Risk management strategies can be risk prone or risk adverse (Beck 1992) and the Yungas farmers vary in their negotiations of risk. Today few farmers in the Yungas are exclusively household oriented; rather they rely on a combination of household subsistence, barter and cash cropping. Coca may be replacing subsistence crops displacing native foods. Nevertheless, as I noted earlier in this thesis, native crops are moving from subsistence to cash, simultaneously occupying more space and displacing subsistence crops. Just as farmers are generally seeking new strategies to enter the commodities market, coca is only one. The second strategy discussed is the growing of native foods for ritual uses for local markets.

Most farmers in the traditional and legal coca-growing zone feel safe producing at least some coca to generate a small cash income. Still, it is only when coca is grown in large holdings that it generates significant cash incomes. A combination of a lack of available land, legal restriction on the quantity of coca one farmer can grow, and a moral economy that encourages food production, prevent some from exploiting coca production to its full potential as a cash crop. The risk of the moral economy points to a concern by

---

<sup>49</sup> *Yo recién estoy cultivando coca (desde) hace unos tres años nada más, más antes no.*



farmers about the expansion and environmental degradation that a large-scale coca monoculture presents. For most farmers, coca represents the equivalent of money and it has a relatively stable price that reduces the need to experiment with other cash crops. A UAC-CP study showed that farmers with more coca have a higher standard of living. (Ballivan Vasquez 2009). This explains the status quo of replacing the household subsistence crops with more coca. In terms of food security, coca gives farmers enough money to purchase most of their food from *ferias*. A friend told me, “For people who want to stay and live in their communities and improve their lives, their best option is growing more coca. That way they can just buy food in La Paz and not gamble with other crops.” This presents another problem for most communities. Even for those with modern bus transportation, the markets in La Paz are a full day away. Because of the high prices in the municipal capital, only those who are more integrated into the cash economy can afford frequent trips to La Paz. Some of the staples frequently purchased are wheat flour, *tallarines*,<sup>50</sup> sugar, potatoes, *chuños*,<sup>51</sup> rice, oil, and if there is some extra money, meat. The wheat usually cast off from government-subsidized farms in the United States. Bananas, papa walusa, yuca (*Manihot esculenta*), citrus, and peanuts are foods that farmers often grow close by in small plots for household consumption. Cash crops, however, are usually planted in fields that may be an extensive distance from their homes.

Garden crops are decreasingly available at a low price in the local *ferias* because fewer farmers grow them or the crops do not have enough

---

<sup>50</sup> *Tallarines* (Sp.) noodles

<sup>51</sup> *Chuño* (Ay.) A freeze-dried potato product traditionally made by Quechua and Aymara communities

market value. Rather, citrus and bananas have found a comparative advantage in the nearby lower elevation of Alto Beni (see figure 1.5). The more industrialized farms there bring fruits to the La Paz market in great quantity, bypassing the regional markets of the Yungas. For local farmers to get many of these products inexpensively, they need to be purchased directly in the core markets of La Paz and El Alto. Because many Yungeño farmers cannot afford to buy in the regional market or travel to La Paz, the risk of abandoning these subsistence crops altogether is too great for many farmers, especially those with limited land.

The second strategy is diversification with assistance, which the two communities in the study have attempted to implement. Farmers attributed this strategy to their extraordinarily small landholding, with little capacity for coca expansion. Moreover, as prices for coffee and citrus have not kept up with those of coca, the alternative has been to search for assistance programs through community organizations. In the case of this thesis, these programs provided capital to start native root projects that can be more profitable like coca / ha but require great quantities of fertile soil held around their homes in traditional poly-culture/garden production. These farmers do not rely exclusively on coca for cash incomes because they have found unique niche markets for native crops. They command higher prices because of ritual use among the consumers in the core markets of La Paz and El Alto and the farmers have ecologically conducive land producing crops that cannot be cultivated at the higher elevations of the Altiplano. This presents an interesting contrast to the development promoted by international government agencies.

Farmers cited concerns about applying pesticides to coca and the risk of personal contamination. Minachi found jamachi p'equé particularly appealing in the reduced amounts of intensive outdoor labor involved in growing the crops and were principally attracted to the high price that the starch could bring. In this sense, the farmers found that processing the plant into a value-added starch would create employment for them in addition to the relatively simple harvesting of the plant. No less important, the farmers noted that they already know how to grow this traditional crop:

We grow jamachi p'equé, which is one of the products from maybe even before coca. And this product is very nutritious...as you know all products have their time, 15 years ago coffee was in its prime, and we all had coffee, and then coffee fell, and then there was nothing, now it is coca, and coca will also be for only a time, but this product we have formed an association for ancient roots.<sup>52</sup>

The farmers in San Juan de la Miel often had household subsistence plots with *yuca* and bananas being the most common crops for home consumption. Despite the diversity of crops, a study done by students at the UAC-CP suggests that many children still suffer from chronic hunger (Quispe and Jurado 2003). This is ironic, because this and many other studies point out that the community grows a huge variety of edible crops commercially for the La Paz markets that have high nutritional value. In my own research

---

<sup>52</sup> *Cultivamos jamachi p'equé, que es un producto, uno de los productos de tal vez antes de la coca, no? Ese producto tiene mucho nutriente, ni siquiera es como coca, y como la coca no puede alterarse a otras cosas, entonces nosotros como productores, usted sabe que todo, todo, todo producto tiene un tiempo. Un tiempo como de quince años atrás, el café estaba bueno, todos teníamos café, y ha ido cayendo el café y con la broca no hay nada. Ahora la coca y la coca también va a ser un tiempo, pero ese producto que nosotros estamos haciendo son raíces antiguas.*

observations, many families preferred to sell racacha at the market than buy subsidized staples such as rice and wheat. This may be a sign that even though there is more than enough nutritious food produced in the community, the high price in the city provides enough incentive to attempt to sell it.

The market price of many Andean products has gone beyond what most farmers can afford. This has led them to prefer selling native foods so that they can buy inexpensive subsidized foods that may not provide the necessary nutrition. This has also happened with quinoa farmers in the Altiplano where the market price has created more income for farmers but valorization for local consumption remains low. In what are considered some of the poorest soils of Bolivia, farmers have found a niche market of indigenous quinoa that is considered the best in the world. Allison Spedding told me “ it practically pops itself.” As Spedding elucidates the advantages, it is only through a system of trade with the highland farmers that food security exists in Yungan communities. Although potatoes, quinoa, and barley can be grown in the Yungas, farmers have tended to focus on crops that cannot be grown in the highlands thus creating a regionally integrated economy that revolves around the markets of La Paz and El Alto.

In communities such as San Juan de la Miel, farmers are split on the value of native crops. While the increased purchasing power of farmers may meet the demands of food security, it does not recognize the nutritional importance of the food they have grown but export. It is therefore important to focus on those communities that have developed healthy foods sold in local markets in order to re-envision a culture of eating traditional foods for both nutritional and cultural purposes.

Still, I assume the farmers of San Juan de la Miel do not have equal access to transportation for selling their crops and assistance programs have substantially capacitated some farmers; others have become increasingly dependent adding to the common sentiment of frustration among the common farmer.

Food insecurity in both towns was common for those who had less land or were not of working age. Of those I spoke to, women were the most insecure about food. Some people obviously had more food than others did and there was some sharing with those unable to work the land and generate incomes. San Juan de la Miel is more insecure than Minachi, probably because it is not as accessible and has less coca, confirming the study by Ballivan Vasquez (2009). Of those who said that they infrequently or never experienced food insecurity, they did confirm that at times there are food shortages in the community.

Is there ever a lack of food in the community or in your family?

Minachi:

Did not or infrequently experienced food shortages	Frequently Experienced food shortages
8 (5 men, and 3 women)	2 (women)

San Juan de la Miel:

Did not or infrequently experienced food shortages	Frequently Experienced Food Shortage
4 (working men)	8 (7 women 1 elderly man)

**Table 4.2. Interview Results Regarding food insecurity**

The following quotes represent a wide perspective on the instance of food security in the community:

No, there is always food, at least those that have sons and daughters have help, well half or more have help.<sup>53</sup> (A young male San Juan de la Miel Farmer)

It could be that some families need more protein, others more carbohydrates, but personally I have never gone without food.<sup>54</sup> (Male Minachi Farmer)

---

<sup>53</sup> *No, siempre hay comida. Los que tienen hijos, tienen ayuda, ahorita, son unas cuantas personas que no tienen ayuda, la mitad o más tiene ayuda.*

I don't think so, everyone works, of course there are some that have more than others, but everyone has food.<sup>55</sup> (Male Farmer Minachi)

Of course when there is not a crop, our income decreases and we can't buy food. If we don't have family to support us we suffer.<sup>56</sup> (Middle age woman in San Juan de la Miel)

Sometimes yes. There are times when disease attacks and there is nothing to sell.... we would have to do day labor...because sometimes the weeds win.<sup>57</sup> (Woman in San Juan de la Miel)

We are always short because we cannot grow rice here, sugar we don't have and have to buy. But everything else produces; there are just little things.<sup>58</sup> (Woman in San Juan de la Miel)

It is obvious that some families have more than others. They have homes along the road and have diversified their income to work in the transport of goods, sales of small goods, or are dependent on family labor from as far away as São Paulo. These conditions create stratification within the community. Those who own the means to transportation also own more land. When asked if there is hunger in the town it was commonly agreed that no one

---

<sup>54</sup> *Pueden ser algunos quienes necesitan mas proteína, otros carbohidratos, pero mi persona no, nunca había falta de comida.*

<sup>55</sup> *Creo que no, No, todos trabajan, claro que hay unos que tienen más y otros que tienen menos, pero todos tienen comida.*

<sup>56</sup> *Claro, cuando no da resultados, el cultivo disminuye la plata, no ve, y no hay ni para comprar...cuando uno no tiene familia...*

<sup>57</sup> *Algunos veces sí...hay tiempos que la plaga ataca y no hay que vender. Entonces había un tiempo donde se ha llevado la racacha el bicho y no quería dar y no había que vender y de jornalera a veces hay fracaso...a veces no rinde bien...el chume también te gana.*

<sup>58</sup> *Siempre falta...porque arroz por ejemplo no da aquí...azúcar no tenemos y tenemos que comprarla. Pero lo demás podemos, pero son cositas, no mucho.*

starves but there are those who lack basic nutritional necessities. Unable to meet food requirements through farming, some become shamefully dependent upon family members working in the core cities. Working farmers agreed there is always work and therefore always food, those who through disability or age can no longer work suffer from hunger. The elderly are dependent on their children and those who have working children may eat well. Many children have left the community to look for employment in the cities where better opportunities may or may not exist. As a result, some elderly live solitary lives while their health is diminished and their needs are unmet. One San Juan informant put it this way:

There are five or six (who lack food) in the community but the majority get by.<sup>59</sup>

### Off-Farm Strategies

Although this thesis focused on on-farm strategies, it is worth mentioning that the topic came up that farmers are highly dependent on off-farm strategies as well. The Associate Director of Carmen Pampa and Agronomist Hugh Smeltekop describes the situation as follows:

I wouldn't say it has gotten worse but I think that it has improved because people leave and come back, because they have land in another part of the country, like farmers may have a rice field in the Alto Beni for example, or they leave the family and for a couple months or a year, a lot of families in this area have gone to Brazil for

---

<sup>59</sup> *Hay unos 5 o 6 pero la mayoría viven...*



work in clothing factories, Or they go to work part time in La Paz or they work for someone else doing minga for rice especially in Alto Beni, so it seems like the quality of life has improved but not because of things that have been happening here necessarily....Pretty much all the strategies are off farm either doing construction or working in La Paz, or doing agricultural labor in the Alto-Beni, but sometimes coca farmers here go pick coca for other people. Which seems a little ironic to me that they could grow their own coca but they are going to other towns to help others with their coca, and not as ayuni, it is day labor, and people migrating out of the country to work in Brazil.

### **Agrobiodiversity and Food Sovereignty**

Agrobiodiversity is a term used to describe the diversity of food produced in an agricultural region (FAO). It should be noted that the agrobiodiversity in the Yungas is particularly high, concurring with the common misconception of coca growing in food deserts identified by Roberto Laserna (1996).

In studies carried out in Mexico, it was found that farmers with agricultural systems that have high levels of agrobiodiversity generate higher incomes and have greater food sovereignty (González 2001). Ernesto Mendez's (2008) research in the municipality of Tacuba El Salvador compared three coffee co-operatives on the bases of shade tree biodiversity, agrobiodiversity, basic services, income, and perceptions of cooperative networks. This work showed that the composition of shade trees is very different among the three co-operatives. The study found that the diversity of species was important for household incomes. The products derived from the agro-biodiverse system represent considerable savings in materials and food

for the families (Mendez 2008). Diverse species have been shown to benefit food systems at the local level in terms of nutrition (FAO). In addition to nutrition and income, agrobiodiversity helps farmers maintain livelihood in the face of pathogen infestation, uncertain rainfall, socio-political disruption, and fluctuation in the price of cash crops.

Ethnobiologist Prem Jai Vidaurre (2006) notes that agrobiodiversity maintained in agricultural extensions contributes to food security and sovereignty; however, preservation of traditional knowledge is vital because crops have numerous undocumented uses (Vidaurre et al. 2006).

The extensive home gardens I visited are probably the most important way that traditional knowledge, agrobiodiversity and in-situ conservation, is maintained. Home gardens in this region add important nutritional elements for farmers in the Yungas. They provide many of the food elements that are not found or not easily transportable from the La Paz markets. They play an important role in preserving diversity of foodstuff (Perreault 2005).

Perreault (2005) notes that in Ecuador:

Despite increasing integration with the cash economy, diverse small-scale garden agriculture production remains vital to lowland farmers' food security. Garden cultivation also remains a valued symbol of (highly gendered) cultural identity.

It is worth noting that women and children commonly manage the gardens and gardens that can serve as grounds for experimentation of new unknown crops. This leads to the question of women's role in conserving agrobiodiversity. While this was not the focus of this study, a feminist critique of women's role in maintaining agrobiodiversity lends itself to further study.

This research adds substance to the statement by La Via Campesina, “Food sovereignty is about ending all forms of violence against women.”

I had the good fortune of meeting with Matilda, a widowed woman from San Juan de la Miel. Matilda took me through her garden where she maintained the most diverse collections of plants in town. She was one of the few community members who told me that she was mostly self-sufficient in her food. Most of her crops were hidden and dispersed near her house and expanding into the forest shade. Matildas’s garden consisted of the following crops:

Common name (Bolivia)	Latin Name	English
Ají	<i>Capsicum baccatum</i>	Chili Pepper
Ulupica	<i>Capsicum cardenasii</i>	Chili Pepper
Locoto	<i>Capsicum pubescens</i>	Chili Pepper
Ajipa	<i>Pachyrhizus Ahipa</i>	Andean Yam Bean
Yacón	<i>Smallanthus sonchifolius</i>	Yacón
Amaranto	<i>Amaranthus caudatus</i> <i>and Amaranthus</i> <i>mutabilis</i>	Amaranth
Racacha	<i>Arracacia xanthorrhiza</i>	N/A
Café	<i>Coffea Arabica</i>	Coffee
Perejil	<i>Petroselinum crispum</i>	Parsley
Papaya	<i>Carica papaya</i>	Papaya
Maíz	<i>Zea mays</i>	Corn

Papa	<i>Solanum tuberosum</i>	Potato
Chirimoya	<i>Annona cherimola</i>	Chirimoya
Mandarina	<i>Citrus reticulata</i>	Mandarin
Naranja	<i>Hybrids</i>	Orange
Lima	<i>Hybrids</i>	N/A
Papa walusa	<i>Xanthosoma sagittifolium</i>	Arrowleaf
Poroto	<i>Phaseolus vulgaris</i>	Beans
Frijol	<i>Phaseolus vulgaris</i>	Black Beans
Acelga	<i>Beta vulgaris L. subsp. cicla.</i>	Chard
Plátano	<i>Hybrids</i>	Banana
Postre	<i>Hybrids</i>	Plantain
Tomate	<i>Solanum lycopersicum</i>	Tomatoes
Estevia	<i>Stevia rebaudiana</i>	Stevia
Maracuyá	<i>Passiflora edulis</i>	Passion Fruit
Tumbo	<i>Passiflora tarminina</i>	Banana Passionfruit
Quirquiña	<i>Porophyllum ruderale</i>	Bolivian Coriander
Romero	<i>Rosmarinus officinalis</i>	Rosemary
Yuca	<i>Manihot esculenta</i>	Yucca

**Table 4.3. Matilda's garden**

One may assume the expansion of interest in native Andean crops has led to a reinvention of using higher levels of agrobiodiversity in farming

systems. While it is true that reintroduction of native crops would add diversity to the food system, it is not necessarily true that it increases on-farm agrobiodiversity. This is often related to the assumption that native crops are grown in the traditional forms of polycultures, which was not true in San Juan de la Miel where racacha was planted intensively in monoculture exclusively year after year. More quantitative results would be needed to confirm this observation.

Farmers would frequently let me know “*antes había todo*” or “before there was everything,” “We had fruit trees and animal productions throughout the town,” mentioned one San Juan de la Miel farmer who was growing native root crops. Although native, the recent market-driven intensive monocultures of racacha appear not to be a sustainable strategy. Still, there is an agreement that the diversification of crops for new markets increases biodiversity from a few years ago but elder farmers all agree that agrobiodiversity has diminished overall in their lifetimes. One farmer told me:

Everything produces here in reality, onions, banana, everything we cultivate produces. The problem is that we don’t plant certain products because other products have a more elevated price, and that is why we dedicate to this one. For example carrots grow well, but it is more work and you earn less money.<sup>60</sup>

---

<sup>60</sup> *Sí, todo da aquí en realidad...produce cebolla, banana...todo lo que cultivas produce. El problema es que a veces no ponemos porque algún producto está más elevadito el precio y por eso nos dedicamos a eso. A decir por ejemplo, la zanahoria por ejemplo podemos poner pero es más trabajo y sacas menos en digamos la venta.*

How has agriculture changed in relation to diversity of crops?

Minachi:

Increased	Decreased
0	10

San Juan de la Miel:

Increased	Decreased
0	8

**Table 4.4. Interview results regarding diminishing agrobiodiversity (four participants with no response in San Juan de la Miel.**

An ample definition of traditional agriculture is one where a high level of agrobiodiversity is maintained in poly-cultural systems along with fishing and hunting in what outsiders would define as a highly food sovereign community. In that sense, the combining of traditional agriculture and food sovereignty is important in envisioning what a food sovereign community might look like.

Traditional agriculture methods can make an important contribution in that they offer what Gerald Marten (1986) calls “principles of permanence.” These methods have advantages in that they (1) use few external inputs, (2) accumulate and re-cycle natural nutrients effectively, (3) protect the soil from nutrient depletion and wind or water erosion, and (4) rely on plant genetic diversity. “Neither modern Western agriculture nor indigenous agriculture in their present forms are exactly what will be needed by most small-scale

farmers” says Marten (1986). The challenge for agricultural research is to improve agriculture in a way that retains the strength of traditional agriculture while meeting the needs of the changing times (Naylor 1996).

As Fisher and Benson (2009) speak of Guatemalan farmers expanding into non-traditional agriculture: the farmers remain “more autonomous than their factory working counterparts, and simultaneously entrepreneurial, and simultaneously embedded in social networks and cultural tradition” (Fischer and Benson 2009). The main difference is that coca expansion can be seen as an increase of traditional agriculture and not only a traditional agriculture but also solidification of identity and autonomy. Still, exclusive dedication to coca agriculture is not viewed as traditional agriculture by the farmers interviewed. While some communities are observed to be dedicated almost exclusively to coca, farmers employ a varying level of food grown for home consumption. In other words, “traditional agriculture” in the Yungas becomes increasingly difficult to envision because farmers have shifted and changed their products depending on the trends of the global political economy.

Food sovereignty helps explain the two distinct models of agriculture: the transnational, agro-industrial model and that of the small-scale farmer. Yungas is particularly interesting in that when asked, farmers usually agree that coca is the most important crop for providing food security, while at the same time they are concerned about losing control of the production of other important food crops that provide sustenance for their families. Much of the food that was grown, such as citrus, is now being produced by industrial farms farther down, in the flatter and warmer lowlands of Alto Beni. It has been demonstrated that agrobiodiversity in other parts of the world diminished as

the market economies have focused on export-oriented crops (García et al. 2003).

On the other hand, coca offers food security through greater cash incomes but home gardens and subsistence crops do not seem to have disappeared in the Yungas. Farmers refer to the coca field as their “bank account.” They are aware that a farmer who has enough land and labor can “turn” that money into cars, houses, and maybe become a driver or a merchant. This is well represented in a local Yungueños account of coca’s role in creating economic opportunity.

I know one person that did not have a coca field, he produced fruit, he had banana, mandarins, oranges and all of that, and he would say “I don’t want to plant coca, but I have no other option because the oranges wouldn’t sell, so with coca I can do better and it is improving.” and then he said “I’m only going to produce coca until I have enough money to buy a minibus, and then with this I can start to make more money.”<sup>61</sup>

While farmers may be more food secure (in the sense that they feel they always have access to sufficient caloric intake) in that they have enough income to buy more urban foods. The variety of the food diminishes and it comes from further away. They consume more sugars and carbohydrates. This appears to be the trend in further studies of peasants shifting to single cash

---

<sup>61</sup> *Conozco a una persona que no tenía cocal, o sea, producía frutas, tenía plátano, tenía mandarina, naranja y todo eso...y principalmente me decía: “no quiero, no quiero colocar coca” sin embargo no tengo de otra porque la naranja no la vendería, entonces yo con coca sí puedo estar mejor y está mejorando, y lo que dice es “yo voy a producir coca hasta tener un auto y después con eso voy a empezar a ganar plata.”*



crop production or away from agriculture (Immink and Alarcon 1993, Kuhnlein and Receveur 1996). More research on the shifts in diet among farmers in this region is warranted. I say this because rarely in the communities I visited were the high-nutrient native crops that farmers attempted to commercialize made into a staple part of their diet. Rather, there was a great variety in the quantity that farmers consume. In San Juan de la Miel the evidence suggests that racacha consumption varies from as frequently as one or two times a week to one or two times a year.

It is evident that coca provides a more substantial income for the farmers to purchase food from the city markets. At the same time, the risk of a drop in prices could be catastrophic for a coca farmer, especially for one without a household plot of tubers and bananas. For this reason, most households maintain at least some land in subsistence production.

There are some commodities in which the region cannot become self-sufficient. For example, they cannot grow sugar and oil is a product they have to buy in the city. Fresh milk is now too expensive for many to consume regularly, because cattle ranching is particularly difficult in the mountainous terrain. Most of these products need to be bought in La Paz, which noticeably exists as the regional core city where goods are the least expensive. While farmers can be generally self-sufficient, they inevitably find themselves relying on a cash income to provide these basic necessities.

While interviewing farmers, I typically found that they have an in-depth understanding of local markets, how they work, and the factors that cause the markets to fluctuate. APRADE has well thought out alliances with buyers in La Paz. They carefully time crop rotations to meet the local markets'

demand and can exact high prices for their products. Farmers expressed a lack of control when discussing international trade and the role of middlemen.

It has been demonstrated that rural market revitalization may need to take place in order to reorient the La Paz/El Alto foodshed to include the important regional markets of the municipality and the *ferias* that exist there. Minachi and San Juan de la Miel farmers do not envision a future that includes bringing their products to Coroico; they prefer to bypass the municipality for markets in La Paz. At the same time, the farmers buy their staple foods in La Paz because they are less expensive than those in Coroico. This represents a clear core-periphery relationship in which inclusion of Coroico and the other market towns of the Yungas would be beneficial, not only to the producers but to the Yungueños consumer. I contend that reliable markets for local crops do exist in Coroico, but they are dominated by merchants who prefer to gouge local consumers with higher-priced industrially produced products from La Paz. This would involve clear political will on the part of the municipality in reorganizing the merchants of the Coroico market place and reorienting other markets to sell more local produce. The Coroico market, from my observation, is dependent on purchasing food from La Paz and lowland industrial farms and then significantly marking up prices. This, of course, is related to the fact that Coroico is a weekend get-away for many residents of La Paz. While these consumers have the disposable income necessary to support local production among the urban upper class, there remains a stigmatization of native foods.

## Pesticides

A young farmer I interviewed for this research was confused about my own moral economy. He asked, “how is it that you guys sell us the pesticides but then you will only buy organic?”<sup>62</sup> In this contrast of conditions, I was challenged to explain the division between the consumer and the political-economic forces behind agricultural modernization.

More farmers, perhaps as many as 90%, are using chemical fertilizers and pesticides on their coca fields with no regulations or understandable usage guidelines (according to an agricultural researcher I spoke with in Coroico). This alarming practice has the potential to severely damage the water and soil in this ecologically sensitive region, not to mention the health of those who use the unprocessed leaf in its traditional forms. The following are a series of quotes that demonstrate the high level of concern farmers have about using agrochemicals.

Other communities are putting chemicals on their coca, but we have seen it is bad for the health so organic coca is all we grow, but you only get 100 pounds from it, and as a community we only have a small amount of land while others have a lot.<sup>63</sup>

---

<sup>62</sup> *Allí en el norte fabrican los químicos que hacen daño no? Y éstos productos al mercado no pueden dar. Porque allí compran ecológico, no ve?*

<sup>63</sup> *Químico le están poniendo, entonces con eso va producir. Pero eso hace mal, no ve? Coca ecológica, eso nomás hacemos y mucha hemos puesto, pero no tenemos, con que? porque 100 libras nomás salen. Nosotros como comunidad, poquito nomás tenemos, pero otras comunidades tienen hartó.*

Agrochemicals are bad for you, the environment, and humanity; we do not want to be contaminated. But we are, mostly because of the coca, but because we fumigate it and then we chew it, and more than on any other crop we use agrochemicals on coca.<sup>64</sup>

Right now we all have coca, we are cocaleros. But I think this can change, because little by little it is affecting my health, because the land is tired, and growing coca organically just won't produce anymore. If you don't use chemicals it won't produce... we have to use them and we are intoxicating ourselves, and little by little we are going to have to give it up.<sup>65</sup>

Jamachi p'equé is almost ecological, because it does not use chemicals... it grows underground... and we don't fumigate it.<sup>66</sup>

While Minachi appears to be adamant that jamachi'p'equé will alleviate their perceived needs to use agrochemicals, the marketability and the impact on expansion are yet to be seen. Because it is a wild plant that grows underneath perennial fruit trees, there may be more potential than with racacha, which was intensively planted year after year in Minachi and led to its current

---

<sup>64</sup> *Te hace daño, no es cierto? Los agrotóxicos te hacen daño. Al medio ambiente y a la humanidad misma, y nosotros, sin querer, ya estamos contaminado más con la coca, porque fumigan, después pichamos, y más que todo aquí en la coca utilizan los agroquímicos.*

<sup>65</sup> *Ahorita todos tenemos coca, somos cocaleros. Pero viendo eso, pienso, ¿por qué no puede cambiar? porque poco a poco, con el tiempo, afecta a mi misma salud. Porque la tierra esta cansada ya, y en forma natural, la ecología ya no dá pues. Aún puede dar, pero no quiere rendir si no usas agroquímico, no produce, entonces sí o sí tenemos que usar agrotóxicos y estamos intoxicando, nos estamos intoxicando, un daño también a la salud y poco a poco vamos a tener que dejar, no?*

<sup>66</sup> *Eso del jamachi p'equé es casi ecológico porque no utiliza agroquímico es como cultivo de la papa crece debajo de la tierra como tubérculo, no ve? No se fumiga digamos.*

problems. In San Juan de la Miel, there is a sentiment that agrochemicals are not the best solution but that they can save their production. Demonstrating that revitalization of racacha has not been successful at reducing the necessity for agrochemicals. Increasing returns have led farmers to over produce and this has resulted in ecological problems. Still, they ask me if there is a technological solution available that will allow them to continue to overwork their soils.

## Climate Change

As stated earlier, cultivation can be divided into two models: one of industrialized agriculture and another of small-scale peasant agriculture. It is commonly acknowledged that the industrial models use an intensive amount of petroleum energy and the deforestation associated with the model contributes to global climate change. La Via Campesina has stated that small-scale farmers are not contributing to climate change but rather cooling the planet with diverse agroecosystems that require minimal petroleum-based energy (The New World Agriculture and Ecology Group 2009; Desmarais 2007). At the same time, small-scale farmers are feeding large populations with minimal threat to the climate. Climate change poses a serious hazard worldwide. Farmers in the Andes face a particular threat because many are working lands that agronomists would term “marginal” even before the climate crisis. The melting of Andean glaciers could result in a depletion of water supplies for many farmers in the region; Yungueño agriculture is no exception. Fields are principally rain fed and frequently dependent on diverting water from glacier-

fed streams. The expansion of coca agriculture is of concern because of deforestation and exhaustion of the limited water supply in the dry season. The forested areas above the Yungas agricultural zones is one critical piece of the region's ecosystem where high mountain water can reach its down-stream neighbors. While this is distressing, more concerning is what farmers understand to be occurring in the industrialized farmlands of the world. One farmer stated: "I don't think we contaminate that much by burning to feed the soil, it is not much in comparison to the big industries."<sup>67</sup> Many traditional farmers recognize the ecological function of these forests and view water in a reciprocal relationship with *Pachamama*. The common sentiment is that *ya no es como antes* (it is not like it was before). They connect this to a hotter sun, a change in the weather patterns, and the earth being "tired". These sentiments are represented in the following statements:

The climate itself has changed, now the rain comes sooner, and the sun is stronger. <sup>68</sup>

It is not like it was before, we used to produce good bananas, but now they are small and the land is tired. <sup>69</sup>

---

<sup>67</sup> *Realizan la quema y fertilizan con la quema. Pero yo digo que es muy poco lo que contaminan el medio ambiente, no? comparado a las grandes industrias. Es muy poco lo que contamina.*

<sup>68</sup> *El clima mismo ha cambiado, ahora la lluvia se ha adelantado, el sol está fuerte.*

<sup>69</sup> *Ya no es como antes y ahora.... produce cálidos plátanos da aquí pero pequeño, la tierra está cansada.*

## ¿Algo MÁS?

The rise of Evo Morales and the government of MAS in Bolivia create new possibilities in a shift away from dependency on food aid. It would seem that the current administration has taken some of the innovative approaches to grassroots development to heart. Morales also challenged multi-national agribusiness by announcing the creation of a new state run agriculture company, EMAPA (Company to Support Food Production), with increased levels of state planning of food production in Bolivia.<sup>70</sup> The director of Food Sovereignty in the Ministry of Agrarian Revolution and Integral Development explained to me, “The ministry has a plan for rural agrarian revolution, recognizing the need for change means implementing a plan for food security and sovereignty that works to support rural peasant family units.”<sup>71</sup> Unfortunately, the programs that existed under neo-liberalism programs of the past, for the most part, continue today and much of it is dependent on NGOs and the civil society for innovative solutions. Still, many social programs are

---

<sup>70</sup> *El gobierno promueve la creación de empresas públicas porque algunos rubros están en manos, obviamente, de las empresas privados, me refiero a la soya, me refiero al maíz, me refiero al trigo, me refiero al arroz, que son básicos de la canasta familiar. Entonces ésta empresa actualmente se llama EMAPA, la primera empresa pública creada para apoyar alimentos de estos cuatro productos: arroz, trigo maíz y soya.*

<sup>71</sup> *El ministerio tiene un plan para la revolución rural agraria y forestal, que significa un cambio con enfoque de modelos de desarrollo rural antiguos, que se estaban desarrollando en Bolivia hasta el 2006. Este plan, obviamente, involucra la implementación de una política específica de seguridad y soberanía alimentaria donde está básicamente enfocada a apoyar con planes, programas, y proyectos del sector agropecuario a unidades familiares campesinas de base comunitaria.*

beginning to be implemented, but have not as yet been experienced by most farmers. This provides another avenue for further investigations. Facing scrutiny, Morales recently admitted that the government erred by allowing the state EMAPA to supply sugar, rice, soy flour, and meat directly to consumers (Los Tiempos 2011). The President said that the company was founded to financially assist medium- and small-sized farms to ensure domestic food security. While I was conducting this research, the loan program was in its initial stages of development. Most farmers agreed it would be a valuable resource for them: “We haven’t seen changes yet, but we understand these things take time. We hear about changes but we have not seen them yet”<sup>72</sup> one farmer in Minachi told me. Most of the community farmers I spoke with looked forward to the programs of the MAS government and believed things could continue to get better with assistance; however, they do not expect it to happen soon.

The programs have been met with much resistance in the eastern lowlands where the agribusiness elite maintain a high level of political power and strive for a more corporate-friendly and autonomous state (Valdivia 2010). In the writing of this thesis, more popular resistance has developed because the program does not appear to be keeping up with demand and food prices continue to rise (Los Tiempos 2011).

In addition, the Morales government is actively seeking legal international markets and foreign support to invest in coca product

---

<sup>72</sup> *Nosotros lo vemos así, como productores en el campo todavía no lo estamos viendo, pero sí escuchamos que va haber nuevos programas, el cambio todo eso. Sí escuchamos, sí, pero todavía no (sucede), tarda.*



manufacturing for export; an issue pushed by the coca unions. The local level agenda is summarized in Caroline S. Conzelman's (2007b) NACLA report.

“1.) Focus on development with coca, as opposed to coca substitution; 2.) Depenalize the export of the raw leaf for chewing and tea; 3) develop medicinal, cosmetic, and nutritional products that use coca derivatives; 4) alter the international image of coca leaf with an eye towards declassifying coca as a narcotic; 5) denounce the fabrication and trafficking of cocaine; 6) promote the participation of cocaleros and other indigenous agriculturalists in local and national politics.”

In this way, food sovereignty and coca are politically constituted and therefore conditioned by policy negotiations. The political context of state level food sovereignty provides many avenues for further investigation.

## CHAPTER FIVE: DISCUSSION

Farmers who live on small pieces of land in the global south undoubtedly have a great deal of insight into food systems, sustainability, and agrobiodiversity. For me, it is especially interesting to investigate the romantic notion of small communities feeding themselves in a semi-self sufficient means and maintaining a reciprocal relationship with the earth. This may represent an ecological ideal but at the same time, Yungueños were clearly traders historically before the arrival of capitalism. Today many Yungeño farmers suffer from chronic malnutrition and limited contact with social services. The marginalization of native farmers can be explained through decades of economic policy that disfavored traditional small-scale farmers. At the same time, for Yungeño farmers there is a long tradition of providing high value crops such as coca for trade with their highland counterpart. Unfortunately, the value of all crops, with the exception of coca and some lesser-known Andean roots, has diminished as agriculture has industrialized in other parts of the country and the world. Subsistence farming persists in the region and it can be concluded that farmers perceive a reduction in agrobiodiversity and food availability in local markets.

Some farmers, especially those in this study, have an understanding of the limits of intensive production on the marginal lands they were dealt (it is depleted and therefore needs to rest) and for those reasons have sought ecological production alternatives. I connect this with a moral economy with reciprocity to the *Pachamama* that native farmers frequently mention. Because

the Yungas presents economic opportunities through intensive exploitation of the land through coca farming, it is an area of net in-migration. According to the accounts of the farmers, many farmers exploit coca and the land beyond its means. Assistance programs for alternative native crops have been somewhat helpful but short-lived. They have therefore lacked the ability to meet long-term development goals of the farmers and in some instances increased inequality, leaving a bitter taste for development in the mouths of many farmers.

This research supports Perreault (2005) who suggests that small, diversified gardens to cash cropping is not unidirectional. He also suggests that garden agriculture is highly gendered (Perreault 2005). Additionally, this research supports accounts that authentic foods can be of a tradition of invented political production (Wilk 1999; Bordi 2006) and that intensified capitalist relationships have the ability to transform and degrade agricultural landscapes (Durham 1995; Jorgenson 2006). Furthermore, development is not equal and highly selective (Ferguson 1994; Rahnema and Bawtree 1997; Bernstein 2010). This research provides deeper contextual data related to food sovereignty and the foodshed concept that may aid in envisioning a post-development era. It suggests further that NGOs have been at times able to develop innovative approaches to meet farmers' development goals but frequently fall short. Still these approaches, when successful, may be important as innovations in government-sponsored programs. I suggest that food sovereignty provides clear goals that can further reorient government policy. Additionally, some research suggests that the La Paz/El Alto foodshed presents an example of a sustainable food system (León 1992). I contend that the foodshed has interesting and admirable aspects; while at the same time

demonstrates that conditions have not significantly improved for farmers in terms of food security, and conditions of environmental degradation have worsened. Therefore, the core-periphery relationship between rural communities and La Paz/El Alto must reorient to provide, in a sustainable way, not only food for the core cities but include regional market towns to achieve more food security in rural areas. Additionally this research was unable to conclude if the variety of foods in the markets was diminishing, but instead determined that agrobiodiversity was perceived to be diminishing. Additional quantitative research would need to be done to conclude that food variety has in fact lost ground.

This study was not a comparison between coca and alternative crops; data was collected only in communities involved in native root crop production. Therefore, this study does not provide conclusive data on the viability of these native crops compared to coca. What it does help elucidate is the moral economy that farmers need to become involved in projects to grow native crops. But, as mentioned, this would include a minority of farmers in the Yungas. Perhaps a more interesting study would be one that illuminates the common inclination of farmers to intensify coca production. Conclusions drawn by farmers in this study create assumptions about the non-root crop farmer but this cannot be conclusive without including those farmers' experiences. In simple terms, my selection of participants likely is not representative of the region as a whole, but instead my association with the two small communities where I worked. Therefore, developing policy based on this information may not be particularly representative of the region as a whole.

Frustration arises when urban professionals arrive in their community but then nothing changes and the farmers feel their time was wasted. I saw myself as a trustworthy individual in the communities, but my presence there and my questions about development, the environment, and food security may have led to answers that could lead to additional funding of projects. I tried to make it clear that this would most likely not happen. Nevertheless, most outsiders who come to communities in the Yungas to do research may be perceived as having the ability to bring additional funds to the community.

Cultural anthropologists can contextualize to how community associations interact or chose not to interface with state and civil society in shaping local development and conservation efforts. Development has been a hotly contested issue in the Yungas region and in the emergence of a new development era. We can undoubtedly learn from the experiences of farmers and especially from their interactions with NGOs. Without understanding their own attempts in meeting their own goals, the new development era will only revive the failures of past expansion projects. Food production is embedded in politics and has profound impacts on ecology through alterations of the environment and the two issues to be studied together. However, a methodology for combining these two domains is only recently emerging in the fields of political ecology, critical development, and the anthropology of food. While this thesis suggests these are three ample and overlapping subjects, I have attempted to use the various emerging methodologies to study the age-old focus in anthropology on small-scale production. It might be argued that there is actually a refocus on the local to solve global problems, which is an

inversion of the age-old perceived need to modernize small-scale food production.

At the end of this research I had spent almost one year living entirely in the Yungas, yet I found myself with even more questions about the region. I envision many more studies that can further clarify grassroots development and sustainable food systems in the Yungas. For me the research generated more questions than conclusive results. Some of the lingering questions include but are not limited to:

- How are the reforms that will be carried out by the Bolivian government going to affect the communities?
- Is national food sovereignty and community food sovereignty part of the same project or are they being recognized as independent of each other?
- How has economic development caused increased social stratification in the communities?
- What has been women's role in maintaining food security in the communities?
- Why are the primarily native associations those with less access to land?
- What role does the revaluation of native foods have in food sovereignty? What would an international market for these foods mean for these farmers?

## CHAPTER SIX: CONCLUSION

Even after the 1952 agrarian revolution in which Native Andean farmers regained access to land, they have faced an onslaught of development policies. Many farmers have been increasingly integrated as petty commodity producers in the globalized food system. Native farmers frustrated with their inability to gain a foothold in the market economy are seeking alternatives with assistance of NGOs to increase the marketability of native crops. For farmers in the Yungas, coca offers a more secure income for those who have access to land suitable for growing coca but environmental concerns are increasing. Some farmers have limited access to land and have searched for assistance, yet problems persist even when they are growing native root crops. While the price for these specialty root crops seems to be comparable to that of coca, the profits are not evenly distributed and the NGOs have not continued with long-term assistance. While some grassroots development projects elsewhere offer innovative approaches that have been documented to be successful, following Healy's outline, many NGOs do not have the means to create a lasting change. On one hand, farmers have demonstrated resilience in organizing and defending the coca leaf economy that supports their communities. On the other hand, due to the contentious nature and misconceptions involved in coca farming, assistance programs face more political battles when working in the Yungas. In Bolivia, legitimizing the coca leaf and initiating projects to restore food sovereignty have been instituted on a national level. Moreover, it is

critical to recognize the fact that for Yungas farmers, the development gains made are the result of their own innovation and hard work, resulting in a few crops of high value. Despite increasing integration with the cash economy, subsistence garden production remains vital to food security.

Coca has provided a means for meeting some of the development goals of farmers. A concern for a waning food system, increased pesticide use, and other environmental issues connected to the peasants' moral economy demonstrate an openness to well thought-out alternatives that respect the reciprocal relationship with nature. Of particular concern to farmers is the increasing use of pesticides and structural violence that limit access to local markets. They desire community-led, grassroots development and have not seen significant improvements in their quality of life or food security. Frequently they attribute their small gains to intensifying and expanding production beyond the means of the land, but they are now suffering the consequences of that exploitation. This research suggests that coca farmers and farmers with assistance in crop revitalization have high incidences of hunger. If development agencies were to listen closely to the clear goals expressed by the farmers themselves, they might find that many of the failures of the past could be avoided. Healy references well-financed and thought-out grassroots development in other parts of the country that have been successful. Food sovereignty provides an additional means of reorienting the moral economy around production and more localized food systems provide a way to meet the goals of increased food diversity and security in local markets.

This research provides a means of envisioning food sovereignty as a lens to look at a post-development era. Food sovereignty is a grassroots



movement that aims to repair a broken food system in which small-scale farmers are hungry while simultaneously protecting agrobiodiversity, feeding urban centers, and, according to La Via Campesina, “cooling the planet.” It presents an obvious alternative to the top-down development strategies of the past and returns the power of production to those who have been most marginalized in global Capitalism. In addition, the core periphery relationship between La Paz and the Yungas could be re-oriented in an attempt to create greater food sovereignty in the rural markets if local farmers had increased access to local markets. As food sovereignty offers a new way to look at healthy communities, recognizing sovereignty over food production often means assuring means of producing enough nutritious foods in communities without causing harm to the producers and the significantly deteriorating ecosystems. The contentious nature of intervening in the Yungas has made most programs ineffective. Market-oriented development projects are missing education programs in nutrition, sustainable production, and community organizations that value equity. While coca plays an important part in the nutritional base of communities—from using the leaves to providing an income to buy food—this alone is not enough for communities to have healthy diets. The fact that food insecurity is common among these small-scale farmers represents a clear flaw in the structure of the urban-rural relationship.

Major changes must be made in institutions, research, development, and policies to make sure that agroecological alternatives are adapted and land is equitably distributed because overproduction is common as new markets become more accessible to farmers. Many traditional farming techniques (including coca farming) support agroecological principles of nutrient cycling, long fallow, and integrated pest management. Minachi sees growing the wild

crop of jamachi'p'equé as the solution to reducing chemical contamination while San Juan de la Miel continues to experiment with new possibilities.

If farmers were to organize democratically as the Via Campesina suggests; farmers may begin to reorient agricultural policy to safely farm without having to apply chemicals leading to the production of more organic coca and native foods. Developmentalists have wrongly viewed coca as backwards, unhealthy and as a detriment to economic development. Coca is native to the Yungas; it is centrally important to Andean culture and has provided a means to minute economic development for many native peoples of the Andes region. It can be considered a self-directed grassroots development under many definitions. ADEPCOCA has shown an interest in growing the leaf in a more sustainable manner with a reduction in pesticide and fertilizer supplements. While recognizing the concerns of native farmers about soil loss, water scarcity, food scarcity, and climate change, coca probably should play a significant part in Yungan agriculture, but not an exclusive part. Coca has often provided some additional money for much needed education and staple foods brought from La Paz. It seems evident that there is a vision of an ideal balance in the economic advantages of coca production coupled with increased development of sovereign food production with a net advantage of food system agrobiodiversity conservation.

Food sovereignty has not only provided a framework in which to reorient the moral economy of food; it is in line with the existing desires of most farmers. A foodshed concept helps us understand what a sustainable, healthy, food system might look like at a local production and regional market level. While a global food system has increasingly disconnected many

community members from native foods, a local sourcing of food would revalue the foods that Yungan farmers have historically produced, thus providing a viable economic future for small-scale producers while preserving cultural and agricultural practices.

## Bibliography

- Albó, X., and F. X.B Suvelza. 2006. *Por una Bolivia plurinacional e intercultural con autonomías*. PNUD.
- Allen, C. J. 2002 *The Hold Life Has: Coca and Cultural Identity in an Andean Community*, 2002. Second Edition. Washington DC: The Smithsonian Institution.
- Altieri, M. A. 2000. Developing sustainable agricultural systems for small farmers in Latin America. In *Natural resources forum*, 24:97–105.
- Anderson, B. 2002. The New World Disorder in *Anthropology of Politics A Reader in Ethnography, Theory, and Critique*. Edited Joan Vincent Malden, Massachusetts, Blackwell Publishers.
- Andersson, V. 2008. Social Movements and Political Strategies. Cocaleros in Bolivia presented at the Social Movements and/in post Colonial Dispossession, Development and Resistance in the Global South., June 23.
- Ballivan Paz, D. 2009 *Estructura agraria boliviana*. LaPaz: UMSA/Plural editores.
- Ballivan Vásquez, J. C. 2009. Identificación de las variables productivas económicas y demográficas que condicionan el estado socioeconómico de las Familias en la Provincia Nor Yungas del Departamento de La Paz. Carmen Pampa, La Paz Bolivia: Unidad Académica Campesina Carmen Pampa.
- Baud, M. 2009 "Indigenous Politics and the State." In *Indigenous Peoples, Civil Society, and the Neo-liberal State in Latin America*, Edward F. Fischer ed. 19-22. New York: Berghahn Books.
- Beck, U. 1992. *Risk society: towards a new modernity*. SAGE.
- Bernard, H. R. 2006. *Research methods in anthropology: Qualitative and quantitative approaches*. Altamira press.
- Bernstein, H. 2010. *Class Dynamics of Agrarian Change*. Kumarian Press.
- Biersack, A. and J. B. Greenberg. 2006. *Reimagining Political Ecology*. Duke University Press Books.
- Biodiversity 2007. Mountain Forum Bulletin. Volume VII Issue 1

- Bordi, I. V. 2006. "The 'Authentic' Taco and Peasant Women: Nostalgic Consumption in the Era of Globalization." *Culture & Agriculture* 28 (2): 97-107.
- Buren, M. B. 1996. Rethinking the Vertical Archipelago: Ethnicity, Exchange, and History in the South Central Andes. *American Anthropologist* 98, no. 2 (6): 338-351.
- Camacho, J. 2006 "Good to Eat, Good to Think: Food Culture and Biodiversity in Cotacachi." In *Development with Identity: Community, Culture and Sustainability in the Andes*, by R.E. Rhoades, 156-176. CAB, 2006.
- Cañada, E. 2006. *Food sovereignty: the people's alternative*. CIIR.
- Central Intelligence Agency. The World Factbook: Bolivia.  
<https://www.cia.gov/library/publications/the-world-factbook/geos/bl.html>. Retrieved March 20, 2010.
- Chauvin, Lucien. "Bolivian farmers open market to show coca is not a drug problem." *National Catholic Reporter*, March 26, 1993.
- Conzelman, C. S. 2007a. Coca leaf and sindicato democracy in the Bolivian Yungas: The Andeanization of Western political models and the rise of the New Left.
- Conzelman, C. S. 2007b. "Yungas Coca Growers Seek Industrialization but Split on Legalization." *NACLA*, Feb. 1-6.
- Desmarais, A. A. 2007. *La Via Campesina: Globalization and the Power of Peasants*. Pluto Press.
- Dillehay T, J. Rossen, D. Ugent, A. Karathanasis, V. Vásquez, and P. Netherly. 2010. Early Holocene coca chewing in northern Peru. December 1. <http://antiquity.ac.uk/ant/084/ant0840939.htm>.
- Duke J.A., D. Aulik, and T. Plowman. 1975 *Nutritional value of coca*. Botanical Museum Leaflets Harvard University 24(6): 113-8
- Durham, W. H. 1995. Political ecology and environmental destruction in Latin America. *The social causes of environmental destruction in Latin America*: 249-64.
- Escobar, A. 2008. *Territories of Difference: Place, Movements, Life*, Duke University Press Books.
- — — 2005. Imagining a post-development era. *The anthropology of development and globalization: From classical political economy to contemporary neoliberalism*: 341-351.
- — — 1996. *Encountering Development, The Making and Unmaking of the Third World*. Princeton: Princeton University Press.
- Esteva, G., and M. S. Prakash. 1998. *Grassroots Post-Modernism: Remaking the Soil of Cultures*. Zed Books.

- Farthing, L. and B. Kohl. 2001 "The Price of Success, Bolivia's war against drugs and the poor." *NACLA*, July/Aug. 2001: 35-41.
- Ferguson, J. 1994. *Anti-Politics Machine: Development, Depoliticization, and Bureaucratic Power in Lesotho*. Univ Of Minnesota Press.
- — — . 1999. *Expectations of Modernity: Myths and Meanings of Urban Life on the Zambian Copperbelt*. 1st ed. University of California Press.
- — — . 2002 *The Anti-Politics Machine in Anthropology of Politics A Reader in Ethnography, Theory, and Critique*. Edited Joan Vincent. Malden, Massachusetts, Blackwell Publishers.
- Figueroa, A. 1982. "Production and market exchange in peasant economies: The case of the southern highlands in Peru." *Ecology and Exchange in the Andes*: 123–156.
- Fisher, E. F. and P. Benson. 2006 *Broccoli and Desire*. Stanford: Stanford University Press
- Foucault, M. 1991 'Governmentality', trans. Rosi Braidotti and revised by Colin Gordon, in Graham Burchell, Colin Gordon and Peter Miller (eds) *The Foucault Effect: Studies in Governmentality*, Chicago, IL: University of Chicago Press.
- Frank, A. 1967 *Capitalism and Underdevelopment in Latin America: Historical Studies of Chile and Brazil*. Rev Enl. Monthly Review Press.
- García, W., X. Cadima, F. Terrazas, and A. Gandarillas. 2003. Sustainable agrobiodiversity: in situ and ex situ conservation. *Manejo sostenible de la agrobiodiversidad de tubérculos andinos: síntesis de investigaciones y experiencias en Bolivia*.
- Geertz, C. 1977. *The Interpretation Of Cultures*. Basic Books,
- Goodman, M. K. 2004. Reading fair trade: Political ecological imaginary and the moral economy of fair trade foods. *Political Geography* 23, no. 7: 891–915.
- González, R. J. 2001. *Zapotec science: farming and food in the Northern Sierra of Oaxaca*. University of Texas Press.
- Goody, C.M Rural Guatemalan Women's Description of the Meaning of Food: Eating to Live and Living to Eat in *Nutritional Anthropology* Volume 25. Issue 2. September 2002 33 - 42
- Grootaert, C. and T. Van Bastelaer. 2002. *The role of social capital in development: an empirical assessment*. Cambridge University Press.
- Gupta, A. and J. Ferguson. 1997. *Culture, Power, Place: Explorations in Critical Anthropology*. Duke University Press Books.
- Healy, K. 2001 *Llamas, Weavings, and Organic Chocolate*. Notre Dame, Indiana: University of Notre Dame Press.

- — —. 1991. Political Ascent of Bolivia's Peasant Coca Leaf Producers. *Journal of Interamerican Studies and World Affairs* 33, no. 1 (April 1): 87-121.
- — —. 1988. Coca, the State, and the Peasantry in Bolivia, 1982-1988. *Journal of Interamerican Studies and World Affairs* 30, no. 2/3 (July 1): 105-126.
- Hermann, M., and J. Heller. 1997. *Andean roots and tubers: ahipa, arracacha, maca and yacon*. International Potato Center.
- Hertzler, D. 2007 *Bolivia's Agrarian Revolution: Trying to keep the Promise of Past Governments*. Andean Information Network. accessed August 13<sup>th</sup> 2009
- Holt-Gimenez, E. 2006 *Campesino a Campesino*. Oakland, California: Food First Books.
- Hunn E.S. 1999 *The Value of Subsistence for the Future of the World in Ethnoecology* University of Arizona Press Tucson Arizona USA
- Immink, M. D.C, and J. A Alarcon. 1993. Household income, food availability, and commercial crop production by smallholder farmers in the western highlands of Guatemala. *Economic Development and Cultural Change* 41, no. 2: 319–342.
- Jaffee, D. 2007 *Brewing Justice: Fair Trade Coffee, Sustainability, and Survival*. Berkeley: University of California Press.
- Joralemon, D. 1995. Coca in History and Political Economy. *American Anthropologist* 97, no. 4: 799–800.
- Jorgenson, A. K. 2006. Unequal Ecological Exchange and Environmental Degradation: A Theoretical Proposition and Cross-National Study of Deforestation, 1990–2000\*. *Rural Sociology* 71, no. 4: 685–712.
- Kearney, M. 1996 *Reconceptualizing the Peasantry*. Boulder: Westview Press.
- Klein, H. S. 2003 "Social Change in Bolivia since 1952." In *Proclaiming Revolution*, by Merilee S Grindle & Pilar Domingo, 232-258. Cambridge: Harvard University Press.
- Kloppenburger, J., J. Hendrickson, and G. W. Stevenson. 1996. Coming in to the foodshed. *Agriculture and Human Values* 13, no. 3: 33–42.
- Kolata, A. L. 2003. *Tiwanaku and Its Hinterland*. Smithsonian Books.
- The New World Agriculture and Ecology Group. 2009. "Feeding the world and cooling the planet": La Vía Campesina's Fifth International Conference.
- La Via Campesina. 2009 *Punto de vista de la Via Campesina: Los pequenos productores y agricultura sostenible estan enfriando la planeta*. Jakarta: La Via Campesina.

- Lansing S.J., J. Schoenfelder and V. Scarborough. 2006. Rappaport's Rose: Structure, Agency, and Historical Contingency in Ecological Anthropology In *Reimagining Political Ecology* edited by Aletta Biersack and James Greenberg Durham, North Carolina. Duke University Press.
- Laserna R. 1996. *20 Jucios y prejuicios sobre la coca*, Clave Consultores SRL
- Lehmann, D. 1982. *Ecology and Exchange in the Andes*. Cambridge University Press.
- León, R.; de la Vega, C.; Franqueville, A.; Aguirre, M. 1992. El consumo alimentario en Bolivia. Centro de Estudios de la Realidad Económica y Social, Cochabamba, Bolivia.
- Léons, M. B. 1993 "Risk and Opportunity in the Coca/Cocaine Economy of the Bolivian Yungas." *Journal of Latin American Studies* (Cambridge University Press) 25: 121-157.
- — —. 1979 "The Political Economy of Agrarian Reform in the Bolivian Yungas." In *New directions in political economy*, by Madeline Barbara Leons and Frances Rothstein, 84-107. Westport, CT: Greenwood Presss.
- Los Tiempos - Protestas en el país contra Morales por alzas de alimentos y transporte. [http://www.lostiempos.com/diario/actualidad/nacional/20110215/protestas-en-el-pais-contra-morales-por-alzas-de-alimentos-y\\_113197\\_223736.html](http://www.lostiempos.com/diario/actualidad/nacional/20110215/protestas-en-el-pais-contra-morales-por-alzas-de-alimentos-y_113197_223736.html). Retrieved Feb 15, 2011
- — —. Evo: Fue un error permitir que Emapa venda productos al consumidor. [http://www.lostiempos.com/diario/actualidad/economia/20110211/evo-fue-un-error-permitir-que-emapa-venda-productos-al\\_112646\\_222410.html](http://www.lostiempos.com/diario/actualidad/economia/20110211/evo-fue-un-error-permitir-que-emapa-venda-productos-al_112646_222410.html) Retrieved Feb 15 2011
- Lucero, J. A. 2008 *Struggles of Voice: The Politics of Indegenous Representation in the Andes*. Pittsburgh: University of Pittsburgh Press.
- Marten, G. G., East-West Environment and Policy Institute (Honolulu, and Hawaii). 1986. *Traditional agriculture in Southeast Asia: a human ecology perspective*. Westview Press.
- Mayer, E. 2002 *The Articulated Peasant: Household Economies in the Andes*. Boulder, CO: Westview Press.
- Mendez, V. E. 2008 Farmers Livelihoods and Biodiversity Conservation in a Coffee Landscape of El Salvador in *Confronting the Coffee Crisis: Fair Trade and Sustainable Livelihoods and Ecosystems in Mexico and Central America*. V. E. Mendez, C. M. Bacon, S. R. Gliessman, D. Goodman, and J. A. Fox. Cambridge, Massachusetts, MIT Press.
- Millington, A.C. and D. Hindery. 2011. Deforestation dynamics and policy



- changes in Bolivia's post-neoliberal era. *LAND USE POLICY* 28, no. 1 (January): 227-241.
- Millington, A. C, X. M Velez-Liendo, and A. V Bradley. 2003. Scale dependence in multitemporal mapping of forest fragmentation in Bolivia: implications for explaining temporal trends in landscape ecology and applications to biodiversity conservation\* 1. *ISPRS Journal of Photogrammetry and Remote Sensing* 57, no. 4: 289-299.
- Mintz, S. W. 1986. *Sweetness and Power: The Place of Sugar in Modern History*. Penguin (Non-Classics).
- Momsen, J. H. 2007. Gender and agrobiodiversity: Introduction to the Special Issue. *Singapore Journal of Tropical Geography* 28, no. 1 (3): 1-6.
- Monzo, J. D., D. Duhart, and F. E. Miranda. 2005 *Comunidades campesinas, agencias publicas y clientelismos politicos en Chile*. Santiago de Chile: LOM Ediciones/Grupo de Investigaciones Agrarias.
- Murra, J. V. 1968. An Aymara Kingdom in 1567. *Ethnohistory* 15, no. 2 (April 1): 115-151.
- Naylor, R. 1996 Energy Resource Constraints on Intensive Agricultural Production. *Annual Rev. Energy Environment* 21:99-123
- Norberg-Hodge, Helena, Todd Merrifield, and Steven Gorelick. 2002. *Bringing the Food Economy Home: Local Alternatives to Global Agribusiness*. Kumarian Press, June.
- Oliver-Smith, A. 2010. *Defying Displacement: Grassroots Resistance and the Critique of Development*. University of Texas Press.
- Ormachea, E. S. 2009 *Soberania y Seguridad Alimentaria en Bolivia*. La Paz, La Paz: CEDLA.
- O'Keefe, P. and Middleton N. 2001 *Redefining Sustainable Development*. London: Pluto Press.
- Orlove, B. S. 1997. Meat and strength: the moral economy of a Chilean food riot. *Cultural Anthropology* 12, no. 2: 234-268.
- Pacheco, P. 2006. Agricultural expansion and deforestation in lowland Bolivia: the import substitution versus the structural adjustment model. *LAND USE POLICY* 23, no. 3 (July): 205-225.
- Painter, M. and W. H. Durham. 1995. *The Social Causes of Environmental Destruction in Latin America*. 1st ed. University of Michigan Press.
- Patel, R. and E. Holt-Gimenez. 2009 *Food Rebellions: Crisis and the Hunger for Justice*. Oakland: Pambazuka Press/Food First Books.
- Peet, R. and M. Watts. 1996. *Liberation Ecologies: Environment, Development and Social Movements*. 1st ed. Routledge.
- Perreault, T. 2005. Why chacras (swidden gardens) persist: agrobiodiversity,

- food security, and cultural identity in the Ecuadorian Amazon.  
*Human Organization* 64, no. 4: 327–339.
- Plowman, T., C. J. Allen, J. Murra, H. S. Klein, J. T. Cusack, D. L. Strug, B. Bagley, and K. Healy. 1986. *Coca and cocaine: Effects on people and policy in Latin America*. Cultural Survival.
- Polanyi, K. 1944. *The great transformation: the political and economic origins of our time*. Beacon Press.
- Postero, N. G. 2007 *Now We Are Citizens*. Stanford, CA: Stanford University Press.
- Paulson, S., L. L. Gezon, and M. Watts. 2003 "Locating the Political in Political Ecology: An Introduction." *Human Organization* 62, no. 3: 205-217.
- Quispe L. R., and A.R. Jurado Astete, 2003. *Relación entre el aporte nutricional, parasitosis intestinal y el estado nutricional en niños en edad escolar (de 6 a 12 años) de la sub central de Villa Nilo durante la gestión 2002-2003* Tesis de Grado. La Paz:UAC-Carmen Pampa, Universidad Católica Boliviana. 119 p.
- Rahnema, M. and V. Bawtree. 1997. *The Post-Development Reader*. Zed Books.
- Rist, S. 1994. The Aynokas: Sustaining Agri-Culture'. *ILEIA Newsletter* 10, no. 2: 6–8.
- Robbins, P. 2004. *Political Ecology: A Critical Introduction*. Wiley-Blackwell.
- Romero, S., and S. Shahriari. 2011. Quinoa's Global Success Creates Quandary in Bolivia. *The New York Times*, March 19, sec. World / Americas.[http://www.nytimes.com/2011/03/20/world/americas/20bolivia.html?\\_r=3&src=me&ref=homepage](http://www.nytimes.com/2011/03/20/world/americas/20bolivia.html?_r=3&src=me&ref=homepage).
- Rosset, P. 2008. Food sovereignty and the contemporary food crisis. *Development* 51, no. 4: 460–463.
- Rosset, P., R. Patel, and M. Courville. 2006. *Promised Land: Competing Visions of Agrarian Reform*. First Trade Paper Edition. Food First Books.
- Sachs, W. 2009. *The Development Dictionary: A Guide to Knowledge as Power, Second Edition*. Second Edition, New Edition. Zed Books.
- Sage, C. 1994 "Coca, Development and Environment in Bolivia." In *Strategies for Sustainable Development*, by Michael Redclift and Colin Sage, 173-185. Chichester: John Wiley & Sons.
- — —. 1984. Intensification of Commodity Relations: Agricultural Specialization and Differentiation in the Cochabamba Serranía, Bolivia. *Bulletin of Latin American Research* 3, no. 1 (January 1): 81-97.

- Sanabria, H. 1993. *The Coca Boom and Rural Social Change in Bolivia*. University of Michigan Press, December 15.
- Schanbacher, W. D. 2010 *The Politics of Food: The Global Conflict between Food Security and Food Sovereignty*. Santa Barbara, California: Praeger.
- Scott, J. C. 1977. *The moral economy of the peasant: rebellion and subsistence in Southeast Asia*. Yale University Press.
- Shepard, C. J. 2005. Agricultural Development NGOs, Anthropology, and the Encounter with Cultural Knowledge. *Culture & Agriculture* 27, no. 1: 35–44.
- Shiva, V. 1993 *Monocultures of the Mind Perspectives on Biodiversity and Biotechnology*. New York: Zed Books Ltd/Third World Network.
- — —. 1991 *The Violence of the Green Revolution: Third World Agriculture, Ecology and Politics*. New York: Zed Books/ Third World Network.
- Spedding, A. and D. Llanos. 1999. *No Hay Ley Para La Cosecha: Un estudio comparativo del sistema productivo en Chari y Chulumani, La Paz*. PIEB/SINERGIA.
- Spedding, A. 2004. *Kawsachun coca: Economía campesina cocalera en los Yungas y el Chapare*. PIEB.
- — —. 1994 *Wachu Wachu: Cultivo de coca e identidad en los Yunkas de La Paz*. La Paz: hisbol-cipca-COCAYAPU.
- Sumner, J. 2005. Rural Reckoning: The Impacts of Corporate Globalization on Rural Communities in *Sustainability and the civil commons: rural communities in the age of globalization*. University of Toronto Press.
- Swartley, L. 2002. *Inventing indigenous knowledge: archaeology, rural development, and the raised field rehabilitation project in Bolivia*. Psychology Press.
- Tsing, A. L. 2005 *Friction: An Ethnography of Global Connection*. Princeton University Press.
- Trentmann, F. 2007. Before “fair trade”: empire, free trade, and the moral economies of food in the modern world. *Environment and Planning D* 25, no. 6: 1079.
- USAID webpage: INTEGRATED DEVELOPMENT PROGRAM  
Economic Diversification of Coca Growing and Associated Areas is Increasingly Sustainable <http://bolivia.usaid.gov/US/5Id.htm> accessed April 12th 2009.
- Valdivia, G. 2010. Agrarian Capitalism and Struggles over Hegemony in the Bolivian Lowlands. *LATIN AMERICAN PERSPECTIVES* 37, no. 4

(July): 67-87.

- Vidaurre, P., N. Paniagua, and M. Moraes. 2006. Etnobotánica en los Andes de Bolivia. *Universidad Mayor de San Andrés, La Paz, Bolivia*: 224–238.
- Wallerstein, I. 1976. *The Modern World-System: Capitalist Agriculture and the Origins of the European World-Economy in the Sixteenth Century*. Text ed. Academic Press
- Weismantel, M. J. 1998. *Food, Gender, and Poverty in the Ecuadorian Andes*. Waveland Press.
- Wilk, R. R. 1999. "Real Belizean Food": Building Local Identity in the Transnational Caribbean. *American Anthropologist* 101, no. 2: 244–255.
- Windfuhr, M., J. Jonsén, and Food First Information & Action Network. 2005. *Food sovereignty: towards democracy in localized food systems*. ITDG Pub.
- Wittman, H., A. Desmarais, and N. Wiebe. 2010 "The Origins & Potential of Food Sovereignty."
- Wolf, E. R. 1982. *Europe and the People without History*. Univ of California Press.
- — —. 1972. Ownership and political ecology. *Anthropological Quarterly* 45, no. 3: 201–205.
- — —. 1955. Types of Latin American Peasantry: A Preliminary Discussion. *American Anthropologist* 57, no. 3 (6): 452–471.
- Wolford, W. 2005. Agrarian moral economies and neoliberalism in Brazil: competing worldviews and the state in the struggle for land. *Environment and Planning A* 37, no. 2: 241–261.
- Zimmerman K. S. 2003 Environmental Zonation and Mountain Agriculture in Peru and Bolivia. *Political Ecology: an integrated approach to geography and environment-development studies*. Karl S. Zimmerman and Thomas J. Basset. New York, NY, Guilford Press.

## APPENDICES

### **Appendix 1**

*Su nombre puede ser anónimo. Ud. quiere que su nombre sea anónimo?*

*Si / No*

*Como se llama usted? (opcional)*

*Cuantos años tiene?*

*De donde proviene?*

*Por cuanto tiempo Ud. ha sido parte de esa comunidad?*

*Hay como comunicar con Ud. para una entrevista en otra fecha?*

*Cuando ha llegado usted a la región de las Yungas?*

*Está usted preocupado de las condiciones del medio ambiente?*

*Alguna vez les ha faltado comida en la comunidad o en su familia?*

*Considere usted que tu situación actual está mejor en relación a años pasados?*

*Hay mas diversidad de cultivos de especias ahora o antes?*

## APPENDICES (Continued)

**Appendix 2**

*En qué tipo de proyectos de agricultura ha estado involucrado usted?*

*Cuál es el beneficio de estos proyectos para usted y su comunidad?*

*Qué programas de asistencia son disponibles?*

*Como y porque eligió usted involucrarse en estos proyectos?*

*Considera usted que el proyecto es exitoso?*

*Cuáles son los desafíos que usted encuentra en la agricultura?*

*Cómo ha cambiado la agricultura desde ha llegado a la región de la yungas?*

*Está usted preocupado de las condiciones del medio ambiente?*

*Hay mas diversidad de cultivos de especias ahora o antes?*

*Cómo ha cambiado sus ingresos desde que has ingresado a la región?*

*Cómo están organizados en el trabajo agrícola?*

*Alguna vez les ha faltado comida en la comunidad o en su familia?*

*Cómo resolvían problemas de la falta de comida?*

*Los proyectos de desarrollo han ayudado a asegurar comida para todas las personas en la comunidad?*

*Considere usted que tu situación actual está mejor en relación a años pasados?*