

Norwegian University  
of Life Sciences

**Master's Thesis 2018 15 ECTS**  
ISARA Lyon and NMBU

# **High Quality Coffee Value Chains for Smallholder Livelihoods in the Yungas of La Paz Bolivia**

Isabeau Compigne  
Msc Agroecology

## **Acknowledgments**

I would like to thank first Johanna Jacobi, my external tutor from the Center of Development and Environment of the Bern University, who supported me all along my thesis work providing me the motivation I needed to carry on as well as most appreciated methodological advice and useful comments on my work. I also thank my supervisors Claire Heinisch, Aurélie Ferrer from ISARA and Anna Marie Nicolaysen from NMBU who supported me with methodological and administrative matters and who consistently allowed this thesis to be my own work. Sabine Stauffacher should also be thanked for her insight regarding the coffee sector and her comment on my work.

I would also like to thank the expert Sergio Alejandro Urioste a consultant in the overarching project of this thesis who provided me priceless help to acclimate myself during my arrival and all my stay in Bolivia. His work regarding the project was also important as it contributed greatly to my understanding of the subject and to my results.

I would also like to thank Renné Brugger, owner of a local roasting company in Bolivia who hosted me with great generosity on his plantation during one month and a half. His friendship and his knowledge about the coffee sector has been very valuable for me while conducting my research.

A special thanks to the coffee producer's families who hosted me in their homes, who shared their daily lives with me while I conducted my investigation.

I would like to thank my teachers from my home universities ISARA and NMBU for their teaching all along my master, which allowed me to grow as an agroecologist.

Last but not least, I would like to thank my family and friends, especially Christophe, who provided me with their tremendous emotional support without which I certainly could not have gone through my master program and especially this thesis.

## **Abstract**

In Bolivia, the coffee sector is of great importance for many farmers in the country, especially in the Yungas region, where it involves more than 17,000 families. Unfortunately, in the past three years, coffee export has experienced an important decrease attributed to lack of livelihood capitals such as lack of maintenance of older plantations, inadequate access to credits, limited governmental support and administrative problems of producer's cooperatives. Instead of focusing on increasing volumes and/or certifications to intend to improve producers' livelihoods, it has been highlighted that the focus could rather be put on improving quality. In the literature I found very little information about high quality coffee (HQC) value chains and their impact on coffee farming families' livelihoods.

Therefore, this research investigates on the potential of the participation in HQC markets on farming families' livelihoods in the Yungas. The research has been conducted during on-site fieldwork in the Yungas, with observation (participant observation of four coffee producing families and informal conversation with members of families and other professionals in the coffee sector) and semi-structured interviews with one member from each family and two professionals from local high quality coffee roasting companies. Coffee smallholders in the Yungas find improvement in their financial and social capital mostly by selling HQC through direct trade. Moreover, producers will gain more financial benefits by processing themselves their HQC. However, producers who might want to participate in HQC markets, still lack access to this market as well as infrastructures and knowledge to process HQC. Possibility to reimburse credits, capacity to manage finances and work force accessibility are also limits to producers' livelihood alleviation. In addition, coca leaves production still play an important role in coffee producers livelihoods in the Yungas. The producers' natural capital is reduced due to their management of HQC and coca, in which they use inorganic agricultural inputs and by deforestation of primary forests. By involving in HQC coffee producers can improve their livelihood, but there is still a large effort to be done in order to facilitate access to this market and to reduce producers' vulnerability to health and natural shocks.

## Table of Content

|       |  |    |
|-------|--|----|
| 1     | Introduction .....                                   | 1  |
| 1.1   | Global Coffee Market and Livelihood Challenges ..... | 1  |
| 1.2   | High Quality Coffee (HQC) .....                      | 1  |
| 1.3   | The Coffee Sector in Bolivia .....                   | 2  |
| 1.4   | Research Gap.....                                    | 3  |
| 1.5   | Goal of the Research and Research Questions .....    | 3  |
| 2     | Methodology .....                                    | 4  |
| 2.1   | Description of the Study Area .....                  | 4  |
| 2.2   | Theoretical Background .....                         | 5  |
| 2.2.1 | Sustainable Livelihood Framework.....                | 5  |
| 2.2.2 | Analytical Framework .....                           | 6  |
| 2.2.3 | Qualitative Research.....                            | 7  |
| 2.3   | Field Methods.....                                   | 8  |
| 2.3.1 | Overarching project.....                             | 8  |
| 2.3.2 | Semi-structured Interviews.....                      | 9  |
| 2.3.3 | Informal Conversations .....                         | 9  |
| 2.3.4 | Participative Observation .....                      | 9  |
| 2.3.5 | Selection of Families .....                          | 10 |
| 2.4   | Data Analysis .....                                  | 11 |
| 3     | Results and Discussion.....                          | 15 |
| 3.1   | Families' Farm Overview.....                         | 15 |
| 3.2   | Family 1: Deysi and Carmelo Yujra Ticona.....        | 16 |
| 3.2.1 | Livelihood Strategy .....                            | 16 |
| 3.2.2 | Livelihood Capitals .....                            | 16 |
| 3.3   | Family 2: Filomena and Angelino Huaracho .....       | 19 |
| 3.3.1 | Livelihood Strategy .....                            | 19 |
| 3.3.2 | Livelihood Capitals .....                            | 20 |
| 3.4   | Family 3: Rosali and Vicente Paye .....              | 23 |
| 3.4.1 | Livelihood Strategy .....                            | 23 |
| 3.4.2 | Livelihood Capitals .....                            | 23 |
| 3.5   | Family 4: Angelo and Eugenia Mamani.....             | 26 |
| 3.5.1 | Livelihood Strategy .....                            | 26 |
| 3.5.2 | Livelihood Capitals .....                            | 27 |
| 3.6   | Livelihood capitals of HQC smallholders .....        | 30 |
| 3.6.1 | Financial Capital.....                               | 30 |
| 3.6.2 | Physical Capital.....                                | 32 |
| 3.6.3 | Human Capital.....                                   | 33 |

|       |   |    |
|-------|---|----|
| 3.6.4 | Social Capital .....                                      | 34 |
| 3.6.5 | Natural Capital .....                                     | 35 |
| 3.7   | Factors influencing HQC farmer’s livelihood capitals..... | 37 |
| 3.8   | Livelihood Outcomes .....                                 | 38 |
| 3.9   | Challenges .....  | 39 |
| 4     | Conclusion.....   | 42 |
| 5     | References .....  | 43 |
| 6     | Annexes.....  | 46 |
| 6.1   | Annex 1: Coffee Value Chain in Bolivia .....              | 46 |
| 6.1.1 | Coffee Production and Processing.....                     | 46 |
| 6.1.2 | Coffee Commercialization.....                             | 47 |
| 6.1.3 | Role of Coca Leaves Production .....                      | 48 |
| 6.2   | Annex 2: Family 1 .....                                   | 49 |
| 6.2.1 | Description .....   | 49 |
| 6.2.2 | Livelihood Capitals .....                                 | 52 |
| 6.3   | Annex 3: Family 2.....                                    | 57 |
| 6.3.1 | Description .....   | 57 |
| 6.3.2 | Livelihood Capitals .....                                 | 59 |
| 6.4   | Annex 4: Family 3.....                                    | 64 |
| 6.4.1 | Description .....   | 64 |
| 6.4.2 | Livelihood Capitals .....                                 | 66 |
| 6.5   | Annex 5: Family 4.....                                    | 72 |
| 6.5.1 | Description .....   | 72 |
| 6.5.2 | Livelihood Capitals .....                                 | 73 |
| 6.6   | Annex 6 : Semi-structured Interview Questionnaire .....   | 78 |

## **List of Abbreviations**

ACEB : Asociación de Café Especial de Bolivia

FECAFEB : Federación de Caficultores Exportadores de Bolivia

HQC: High Quality Coffee

USAID: United States Agency International Development

## **List of figures and tables**

Table 1: List of the methodological approaches used in the investigation

Table 2: Livelihood capitals and calculation to construct the livelihood's capital spider diagrams

Table 3: Overview of the four families' farm characteristics

Table 4: Direct trade between producers and exporters/importers prices and costs of commercialized coffee

Table 5: Direct trade between producers and coffee shops/roasting industries prices and costs of commercialized coffee

Figure 1: Map situating the study area.

Figure 2: Sustainable Livelihood Framework diagram

Figure 3: Diagram of the analytical framework

Figure 4: Spider diagram of Family 1 's Livelihood Capitals Attributes.

Figure 5: Spider diagram of Family 2 's Livelihood Capitals Attributes.

Figure 6: Spider diagram of Family 3 's Livelihood Capitals Attributes.

Figure 7: Spider diagram of Family 4 's Livelihood Capitals Attributes.

Figure 8: Spider Diagram of the four families' livelihood capitals

## **Vocabulary**

Coffee cherries: The coffee fruits containing the coffee beans.

Humid coffee: Coffee beans after removal of their pulp, fermentation and incomplete drying.

Green Coffee: Coffee beans ready to be toasted after removal of pulp, fermentation, drying and parchment removal.

Parchment coffee: Coffee beans after removal of pulp, fermentation and drying.

Kolos: The unripe grains usually processed as second-quality coffee.

Minka: Traditional term for mutual help between farmers regarding their agricultural production.

Sultana: Pulp of the coffee fruit that can be use as fertilizer or dried in a beverage.

# 1 Introduction

## 1.1 Global Coffee Market and Livelihood Challenges

Coffee is the most important cash crop for developing countries and is believed to be the second most traded agricultural commodity in the world (FAO, 2017). Most of coffee producers in the world are smallholder farmers who are relying on their coffee production for their livelihoods according to the International Coffee Organization (ICO). Bolivia is not an exception with 95% of the national production of coffee held by 17 thousand family producers (MDRyT 2011). However, the production of coffee is also linked to poverty and many farmers can face difficulties regarding social, environmental and economic sustainability (Borella et al 2005).

The instability of the coffee market has been an issue for coffee farmers for many years (Borella et al 2015). Indeed, the greater volatility of coffee prices in the global market with the collapse of the International Coffee Agreement (ICA) and its price regulation in 1989 as well as the coffee crisis from 1998 to 2002, exposed smallholder coffee farmers to great vulnerability (Fridell 2014, Neilson 2007, Niño Peña and Pelupessy 2014, Bacon et al 2008). In addition to uncertainty of prices, the coffee supply chain is buyer driven and importers, roasters and retailers retain the major share of the gains in the value chain with little left for producers (Borella et al 2015, Niño Peña and Pelupessy 2014). Under those conditions, coffee farmers can either sell their bulk coffee at a low price or differentiate their product (Neilson 2007) to access a global market with a demand mostly driven by fair trade, sustainability and quality (Borella et al 2015).

Indeed, certified fair trade and organic coffee has been gaining great importance in the international market (Estevez 2018, Neilson 2007, Bacon et al 2008). Also in Bolivia, producers are interested into the worldwide movement of fair trade and sustainable production (MDRYT 2011). However, the impact of such certifications on farmers' livelihoods is that the economic benefits from coffee production through certification are limited (Estevez 2018).

## 1.2 High Quality Coffee (HQC)

Nowadays in the global coffee market, specialty coffee or HQC is seeing a rapid growth though it is still a niche market. Specialty coffees are coffees which score of 80 points or higher (for Arabica) according to the Specialty Coffee Association's (SCA) score sheet, which scores based on characteristics such as numbers of defects, fragrance, aroma, acidity, body, sweetness and balance (SCA, 2017). Indeed, while the organic and fair trade coffee markets are focusing on the



coffee's symbolic quality (sustainability and social justice), specialty coffee rather focuses on the coffee's material quality (ripeness, aroma, flavor, etc.). Specialty coffee may include single origin, blends and unconventional coffees (Borella et al 2015) but, does not include quality in terms of sustainable agriculture, or social/ecological standards. Nonetheless, how could a coffee truly be special if its quality is at the cost of the producer's dignity or well-being? The executive director of the Specialty Coffee Association Ric Rhinehart said that "this concept more than any other may be the most fundamental to our assessment of what makes a coffee special, but it is perhaps the most challenging to assess empirically" (Rhinehart 2009).

Studies on the impact of specialty coffee in Colombia (Vellema et al 2015) and in Costa Rica (Wollni et Zeller 2007) have shown that farmers can get better prices when they participate into the specialty segment; nevertheless, as seen with organic and fair trade production, getting premium prices with specialty coffee does not necessarily comes along with higher incomes in part because of the high cost of production and the abandonment of other income generating activities (Vellema et al 2015, Estevez 2018). Nonetheless, according to Ponte (2002) the instability of prices is affecting high quality products less than the conventional ones as specialty coffee is a niche market with a lower demand.

### 1.3 The Coffee Sector in Bolivia

Even though Bolivia only contributes with 0,05% of the world's coffee production (ICO, 2017), the coffee sector is of great importance for many families in the country by involving more than 17,000 families in the production process (MDRyT, 2013). Despite the importance of the coffee sector in Bolivia, in Caranavi, the most important coffee producing region, the yields per ha are two to four times lower than in their neighboring countries in South America (Barrientos 2011). In addition, in the past three years, coffee production has experienced an important decrease in terms of production volume, surface and yields due in part to coffee diseases such as the coffee berry borer beetle (*Hypotenemus hampei*), American Leaf Spot Disease (*Micena citricolor*) and coffee Leaf Rust (*Hemileia vastatrix*) (Rojas 2017). This suddenly appearing decrease has been attributed to the lack of livelihood capitals such as lack of inadequate maintenance of older plantations, insufficient access to credits, limited governmental support and administrative problems for producers' cooperatives (Estevez et al 2018). Considering the low volumes and high production costs of coffee, Bolivia can hardly compete in the international commodity market (Urioste Daza 2018). Instead of focusing on increasing volumes, it has been highlighted

that the focus should rather be on improving quality to allow Bolivia to differentiate in the international market (Amaya et al., 2001; Hellin & Higman, 2002).

Specialty coffee was introduced by USAID programs in the Yungas region and led to improvement in the quality of coffee in many cooperatives (Friedman-Rudovsky 2012). In 2004, Bolivia participated for the first time in the International Cup of Excellence<sup>1</sup>, accomplishing high prices in the international markets (MDRyT, 2011). In fact, the emerging market of HQC has benefited Bolivian coffee producers with ultra-premium prices for their high quality beans (Estevez 2018).

#### 1.4 Research Gap

For many years, Bolivian coffee was punished with a reduction in price due to deficiencies in quality. However, due to improvements in production and processing, and the institutional strengthening of the value chain, it has started to be recognized in the high quality market (Equal Exchange 2018). Despite the possibility that a HQC value chain may have a positive impact on farmers' income, no study has yet looked at the influence of such market on producers' livelihoods (Estevez 2018). The evidences of persistence of livelihood vulnerability through certification strategies (Bacon et al 2008) bring my interest to look at producing and selling high-quality coffee as a livelihood strategy and how it influences producers' livelihoods in the Yungas region in Bolivia.

#### 1.5 Goal of the Research and Research Questions

Considering the research gap mentioned above, and the importance of investigating coffee value chains at the farmers' level, at the beginning of any agricultural value chain; with this research I aim at contributing to knowledge building regarding the livelihoods of HQC producers. This investigation also aspires to contribute to the overarching project 'Improving rural livelihoods through promoting high-quality coffee and coffee cherry products in the origin countries Colombia and Bolivia' (see section 'overarching project'), to further adapted and sustainable development of such livelihood strategies and their related supporting policies.

---

<sup>1</sup> The Cup of Excellence is an annual competition organized in several coffee producing countries aiming at identify and sell in auction the highest quality coffee produced in the country. After three editions (2003, 2007 and 2009) the event was not financed anymore in part due to the Bolivian government decision in 2013 to stop USAID intervention in the country.

The objective of this research is to investigate whether participation in HQC markets has a positive impact on farming families' livelihoods in the Yungas region in Bolivia.

Objective 1: Highlight the influence of the production of coffee for high quality market on farmer's livelihood capitals and to critically discuss such a livelihood strategy and its outcomes.

Objective 2: Discuss the possible conditions and limits to participate and benefit from HQC market.

Research Questions:

- What is the influence of participation in HQC value chains on producers' livelihoods capitals?
- What are the conditions and limits for families to participate in such a value chain and benefit from it?
- Does producing HQC contribute to the improvement of the coffee producing families' livelihood?

## **2 Methodology**

### **2.1 Description of the Study Area**

The study was conducted in the Plurinational state of Bolivia, and more specifically in the region of the Yungas which is characterized by a subtropical humid climate - Cfa in the Köppen-Geiger climate classification – (Climate Data 2018). However, the mountainous landscape exerts a hold over the climate therefore there are sub climate regions within the Yungas. (Barrientos 2011). The four families I visited for the research are living in the Province of Caranavi in the North Yungas at altitudes between 1200 and 1700m (*figure 1*). The province of Caranavi can be divided into three agroecological zones (low, medium and high altitude). The families are situated in the high agroecological zone in the south of the province. This zone is characterized by high and medium mountain chains with secondary and primary humid forests; temperatures ranges from 16°C to 20°C, the annual rainfall from 1500mm to 2000mm and relative humidity between 60 and 70%. (Barrientos 2011). The province of Caranavi also known as the Bolivian coffee capital, is responsible for 80,1% of the country's coffee production (MDRyT, 2013).

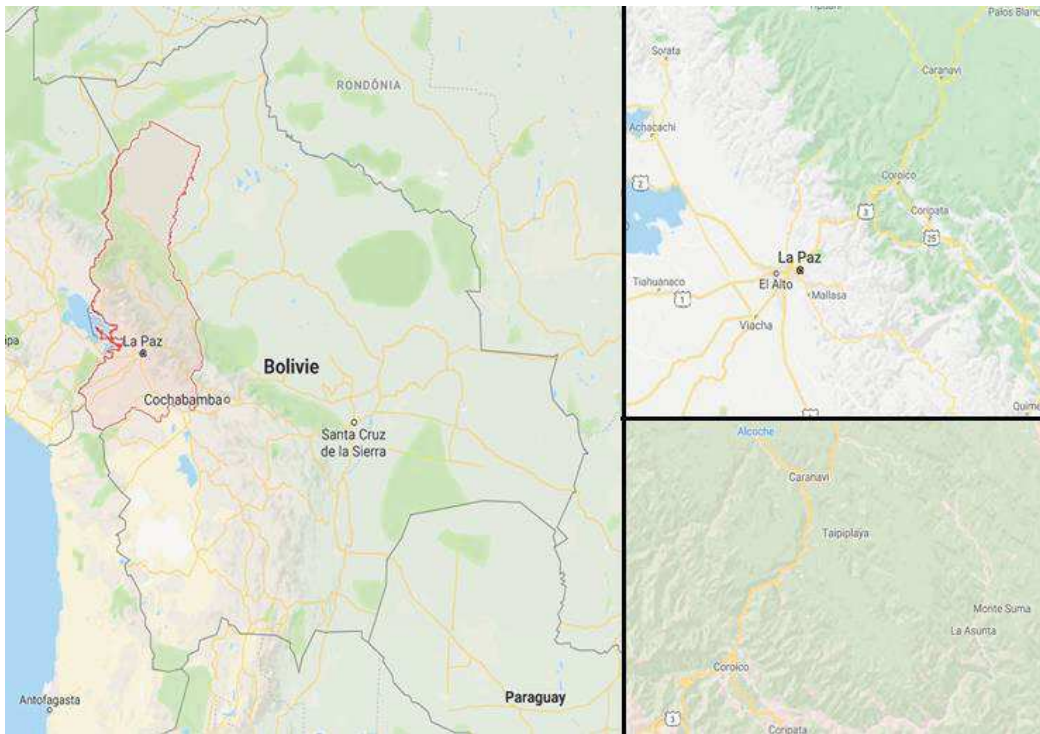


Figure 1: Map situating the study area. On the left the geographical position of Bolivia in South- America. On the upper right corner, the geographical position of La Paz and Caranavi in the Yungas region. On the down right corner, the geographical position of Caranvi and Taipiplaya. Pictures retrieved from [googlemap.com](http://googlemap.com).

## 2.2 Theoretical Background

### 2.2.1 Sustainable Livelihood Framework

A growing consensus suggests that a person’s livelihood cannot be restrained to economic factors (Niño Peña and Pelupessy 2014, Donovan and Poole 2013, Ruben and Fort 2012, Bacon et al. 2008). In that sense the Sustainable Livelihood Approach (SLA) is looking at Livelihood in a more holistic way (*figure 2*) by taking into consideration as outcomes not only income, but also well-being, vulnerability, food security and sustainable use of natural resources as well as all the assets (human, social, financial, physical and natural) needed to achieves those outcomes (DFID 1999, Scoones 1998).

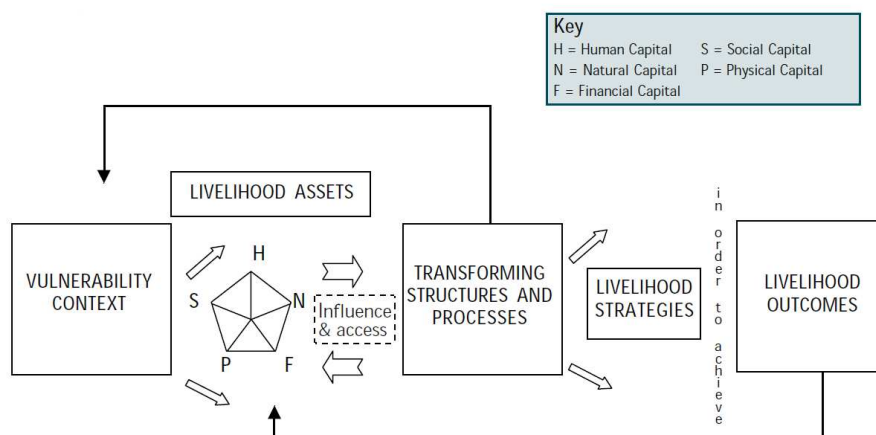


Figure 2 Sustainable Livelihood Framework diagram retrieved from DFID 1999.

In this study, I focus on the livelihood assets/capitals that are built through farmers' participation in HQC value chains. It is important to look at all assets as they are linked and support each other. For example, a human capital as access to health is essential for a person to make use of his or her physical capital. The description of each capital is based on the sustainable livelihood (SLH) guidance sheet (DFID 1999) and personal inputs through the deductive research conducted in the field and - to a lesser extent - from Donovan and Poole (2013).

**Human capital** represents the skills, and knowledge related to coffee production, and sale, the available labor force, access to education, the health condition of members of the families and access to health services. The building of this capital is important for the farmers to be able to make use the four other assets.

**Social capital** is the networks and trust that are built between producers and other actors in the value chain (vertical relationship) as well as between producers (horizontal relationship). Involvement of the producers in local governance and the support they receive from NGO's, government, surroundings and family are also part of the social capital.

**Physical capital** encompasses pre and post-harvest infrastructures (machinery, buildings) as well as fertilizer and other resources (water, energy) needed for production and processing of coffee beans. In this study it also stands for the 'household comfort' and means of transports.

**Financial capital** refers to savings such as cash or bank deposit as well as credits and debts. It refers also to financial support received from the state or private donations. It also encompasses the household's income diversity and the prices received from coffee sales.

**Natural capital** according to the SLH guidance sheets refers to the stocks, flows and services of natural resources from intangible public goods, such as the atmosphere or water to countable assets as trees or lands. In this study natural capital refers to the farm agrobiodiversity and coffee agroforestry system which are important elements for a better recovery from natural shocks and sustainability of the coffee production. In fact, without going into details of specific natural resources (water, nitrogen, biodiversity, etc.) agrobiodiversity and agroforestry allows us to understand the environmental sustainability of the household.

### 2.2.2 Analytical Framework

This research rest upon the sustainable livelihood framework (figure 2), but focuses on producers' livelihood capitals. The analytical framework developed (figure 3) allows me to

illustrate this focus as well as the different factors –in addition to participation in HQC market - that may influence a producer’s livelihood capitals.

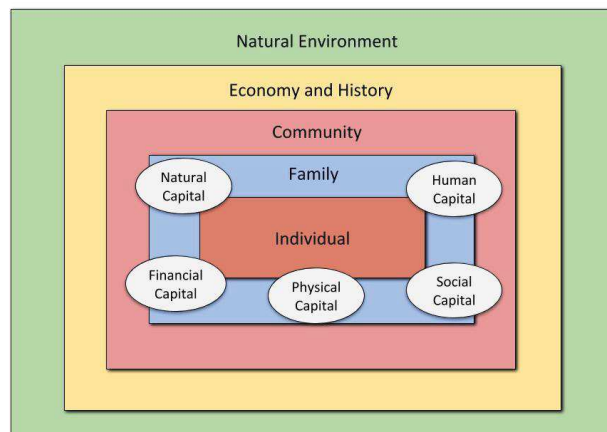


Figure 3: Diagram of the analytical framework.

The natural environment, and the economical and historical contexts are surrounding the diagram as it frames the larger context in which the communities, the family and the individual are living. The individual and the family are placed in the middle as they are at the center of the final decision making for their own livelihood strategy. In this thesis, the family is the analytical unit because the coffee farming is organized at the family level. However, the decision of the family’s livelihood strategy can be influenced by each individual in the family, by the community as well as the natural environment, and by the economical and historical context.

In this study, the livelihood capitals are in the family sphere where the capitals ‘belong’. The individuals, the natural environment, the economical and the historical sphere influence more or less the construction of those capitals. This framework suggests boundaries, however it is important to clarify that there are not strict boundaries but a gradual and multidirectional flow between each sphere of the framework and between the different capitals and livelihood outcomes, which are linked to and influence each other.

### 2.2.3 Qualitative Research

To conduct this research, I applied qualitative methods that are distinguished by theory which is *‘inductively generated from fieldwork, that is theory that emerges from the research’s observations and interviews out in the real world rather than in the laboratory or the academy’* (Patton 2002, p.11). This is particularly a preferable research strategy if we want to understand well the people involved in the subject and the context around those people; in order to lead to the contribution of knowledge that could contribute to adapted and sustainable rural development

projects. In fact, it is not possible to grasp in a quantitative way people experiences and perceptions. “*Not everything that can be counted counts, and not everything that counts can be counted*” (Cameron 1963). Nonetheless, this approach does not exclude the importance of quantitative data to complement the insight and analysis of the qualitative data that was collected.

As this research is qualitative, the data should come from a combination of different sources of information (document analysis, interviews and observations) allowing cross-check findings as each data type has its own strengths and weaknesses (Patton, 2002). Therefore, data have been collected through three different pathways (see table 1). At the heart of this research are the results from the participant observation, informal conversation and semi-structured interviews of the four farming families.

Table 1: List of the methodological approaches used in the investigation.

| Methodological Approach |                            |   |
|-------------------------|----------------------------|---|
| Observation             | Participant observation    | On four coffee farming families’ livelihoods.   |
|                         | Informal Conversations     | With the families and with several people during the four month of field work in Bolivia.   |
| Interviews              | Semi-structured interviews | With one member of each family and with two professional of the coffee sector in Bolivia (Renné Viadez a HQC export service provider and the owner of a coffee shop in La Paz and Mauricio Diez de Medina, the owner of a local HQC roasting industry and a coffee shop in la Paz). |

## 2.3 Field Methods

### 2.3.1 Overarching project

This master thesis contributes to the research project ‘Improving rural livelihoods through promoting high-quality coffee and coffee cherry products in the origin countries Colombia and Bolivia’ lead by ZHAW Wädenswil (School of Life Sciences and Facility Management) in Zurich which is financed by the Swiss Network for International Studies. The project aims at evaluating the potential of high-quality coffee and coffee cherry value chains for smallholders’ livelihoods in Bolivia and Colombia as well as at determining the most important quality traits of

coffee and coffee cherry products in smallholder production, and how they can be achieved. The research also aims at informing concrete implementation projects, and policy reorientations at national and international levels. The aim is to assist smallholder coffee farmers and their organizations to develop value chains and improve access to local markets for high-quality coffee and coffee cherry products.

### 2.3.2 Semi-structured Interviews

Semi-structured interviews have been conducted using a pre-established questionnaire (see annex 6). The questionnaire has been created before starting the field work. The first month of field work allowed me to modify the questionnaire in the view of the new elements discovered on the field. The standardization of questions for all producers interviewed reduced the risks of losing the focus of the research by creating a frame for the investigation. Semi-structured interviews were also conducted with two owners of national coffee companies in order to add to the understanding of the context of the research. Each interview was recorded, and lasted between 45 and 75min. Interviews with farmers were always conducted on their farm, or, in case of the coffee companies, at the place of work of the owners.

### 2.3.3 Informal Conversations

In addition to semi-structured interviews, I conducted informal conversations with the families for one week and also with other coffee producers and other professional in the coffee sector encountered during the time of the research. Informal conversations have been mentioned as an essential tool during the fieldwork as they allow for more flexibility in the collection of information (Patton 2002). Patton (2002) also mentions that this method works particularly well when the researcher can spend time with people of interest, as I was able to do with the participative observation (see next section) in this research.

### 2.3.4 Participative Observation

Participative observations are observations of activities and interactions while engaging oneself personally in those activities. The participant observer also talks with people to grasp their experiences and perceptions. The importance of this method lies on the researcher's capacity to experience what happens aside the main activity investigated – daily activities, memories,



believes - which have also a strong influence on people's decisions and changes. With this method, the participant observer can better understand the emotional and socio-economic context in which people are living. The understanding of such context is primordial if we want to develop a holistic perspective of a situation (Patton, 2002).

In this research, participant observation was conducting staying one week with each producer family, sharing their daily life which included preparing and having meals with them, playing with the children, working together in the coffee plantation, and other work on the farm. It also encompassed the informal conversations along the participation in their daily activities. The participant observation by sharing their hard work and sharing our personal thoughts was also a way of developing an environment of trust with the family, which facilitated the communication and therefore the gathering of information.

During the stay with the families, observations and informal conversations were guided by the sustainable livelihoods approach and the respective livelihoods' capitals to be investigated. Nonetheless, observations and conversations were out of strict boundaries to allow appearance of unexpected relevant subject for the research.

### 2.3.5 Selection of Families

In order to fulfil the objectives of the research, four families have been selected. Each family was chosen according to their participation in distinct high quality value chain in order to have a diversity of market strategies to look at. In order, to avoid dissimilarities within the families, I made sure that in each family the parents were still together and had the approximate same number of children (three to four). The families were found step by step all along the field work thanks to the developing of my network in the coffee sector in the region. Firstly, the HQC buyers in the region was identified. Secondly, farmers working with those buyers were found and contacted.

Investigate on less producers but in a deeper way through participative observation has been evaluate as a more suitable strategy to understand well the story and assess producers' livelihood capitals. The choice of conducting the research with only a small sample of families allowed to gather more information on multiple aspects of the settings and therefore to picture in a more comprehensive and complete manner the dynamics of each family. Even though the focus is on a small sample of families, it leads nevertheless to an understanding of the influence of participation in coffee high-quality value chain for smallholder's livelihood in a larger scale.

Indeed, Patton (2002) explains that each “case, event, or setting under study though treated as unique entity with its own particular meaning and its own constellation of relationship emerging from and related to the context within which it occurs, is also thought as a window into the whole”.

## 2.4 Data Analysis

Informal conversations and observations were written each day in a notebook and then transcribed on the computer. Interviews were recorded and then transcribed as well. According to data from the field work, themes was highlighted and then Livelihood Capital Attributes (LCA) and Indicators (LCI) were created (see table 2) as well as the following relevant themes: the family’s history, coffee management, new generation of coffee producers, daily routine and motivation to grow coffee (see annex 2, 3, 4 and 5). The voluminous raw information was insert in the qualitative data analyzing software NVivo version 10 and classified into the different livelihoods’ attributes and additional themes.

Gathering from each source all data that belongs to each category allowed to construct a coherent description of each family and their livelihood capitals (see annexes 2, 3, 4 and 5 for detailed descriptions). Later the data from and external to the families also permitted to paint a larger pattern through the view of the four families’ experiences.

In addition to the descriptions, the following work has been for each LCI of each family to give a value between 1 and 5: 1= Very Low 2= Low 3= Medium 4= High 5= Very High

The values have been attributed based on the understanding of the context of the study after four month living in the region in contact with the coffee sector. The values have also been attributed in comparison to the situation of the other families studied and situation observed in general in the Yungas (see table 2).

The values of each attributes have been entered in an excel document to construct a spider diagram of livelihood capitals attributes for each family. Then a more general spider diagram of livelihood capitals (figure 8) is made with the average of the attributes correspondent. This data process is an additional tool to analyze the strength and weakness of each family regarding their livelihood capitals in regard to the other elements gathered about the family and the context surrounding them.

Table 2: Livelihood capitals and calculation to construct the livelihood's capital spider diagrams

| Livelihood Capitals | Attributes                      | Indicators  |
|---------------------|---------------------------------|---|
| SOCIAL CAPITAL      | Support                         | The household receive significant technical support from buyers, have or had support from NGO's and/or government, help from family's relatives and children in the household = 5, the household receive few technical support from buyers, and neighbors but help from family's relatives = 3, only family support = 1 |
|                     | Social network                  | Strong network outside the family and the community regarding coffee and strong community network = 5, medium community network and building of network outside the community = 3, important social isolation = 1   |
|                     | Relationship with buyers        | Trusty and long term relationship with buyers = 5, long term but non trusty relationship with buyers =3, no regular buyers = 1  |
|                     | Involvement in local governance | Heads of the household are in the board of the community ( and benefit from it) and strong influence of the family on neighbors in term of coffee management = 5, One household's member is in the board of the community and some influence on community's members = 3, No involvement in the community = 1            |
| HUMAN CAPITAL       | Work force                      | Permanent employees (food and bed) outside harvest period, workers during harvest, help from family members and trust in workers = 5, financial difficulty to employ enough workers for coffee plot maintenance but enough workers for harvest = 3, only help from the family's members = 1                             |
|                     | Education                       | Parents with high educational background, all children can go up to secondary school and university = 5, financial accessibility but no children to university = 3, schooling until primary only = 1  |
|                     | Health                          | Health insurance and good health of household's members = 5, no insurance but no health issues in the family = 3, no possibility to access health = 1   |
|                     | Knowledge and experience        | Very high knowledge on coffee production, management, HQC processing and finance management = 5, Medium knowledge on coffee production and HQC processing = 3, basic skills on coffee production = 1  |
| PHYSICAL CAPITAL    | Family's home                   | Very good housing infrastructure with electricity, water infrastructure of good quality, shower, toilet, bedroom for parents, children and employees = 5, good housing infrastructure, basic water access and one bedroom only = 3, poor housing  |

|                   |   |   |
|-------------------|---|---|
|                   |   | infrastructure with no electricity nor water access= 1  |
|                   | Transport                                     | More than two cars with one with enough space to transport the quantity of the household' products (coffee, citrus fruits, inputs ect.) = 5, one car and possibility to have access to a bigger car to transport the quantity of the household' products = 3, no transport access= 1  |
|                   | Tools, machines and processing infrastructure | Many tools (manual, brush cutter, sprayers) and processing infrastructure (pulping machine, fermentation tanks, drying tables, humidity measurement machine, storage room, roasting machine etc.) = 5, Enough tools for their land surface but few processing infrastructure = 3, few tools and only a pulping machine for processing = 1 |
|                   | Agricultural inputs                           | Very high access to inorganic and/or organic agricultural inputs = 5, good access to inorganic inputs = 3, no inputs except residues from pruning and/or weeding= 1   |
| NATURAL CAPITAL   | Agrobiodiversity                              | High diversity of crops and coffee varieties = 5, medium diversity of crops and coffee varieties = 3, no diversity of crops and few coffee varieties = 1  |
|                   | Agroforestry (mixed crops and shade cover)    | All plots in agroforestry (mixed crops) with medium shade cover = 5, majority of the plots in monoculture with medium shade cover = 3, all the plots in monoculture without shade cover = 1   |
| FINANCIAL CAPITAL | Incomes diversity                             | more than two income generating activities (including coca) and two coffee markets = 5, coffee and other irregular activities = 3, only coffee activity = 1   |
|                   | HQC price received                            | Very high price and no delay of payment = 5, medium price with no payment delay= 3, low price and delay = 1 - based on average prices - ( see table 4 and 5 in annex 1.2).  |
|                   | Financial support                             | Very good access to credit and capacity to reimburse = 5, no credits but financial help from buyers = 3, no credits and no financial help from buyers = 1   |

### 3 Results and Discussion

#### 3.1 Families' Farm Overview

Table 3: Overview of the four families' farm characteristics. DT= Direct Trade, HOC= High Quality Coffee, INT= Intermediaries, LRC= Local Roasting Company

| # of household | # Household's members | Place of production (Department, Province, Colonia) | Total size of the land (ha) | Total size of coffee production (ha) | Coffee Varieties  | Management   | Level of processing and market  | Years in the HQC market | Other products  |
|----------------|-----------------------|---|-----------------------------|--------------------------------------|---|--|---|-------------------------|---|
| 1              | 6                     | La Paz, Caranavi, Loa                               | 31                          | 4                                    | Caturra, Typica, Red Catuai, Javanica, Geisha, Castilla, Pacamara | 4 ha monoculture (1 ha with low shade cover and 3 ha without shade cover)    | HQC: Green coffee (DT for export), Roasted and brewed (own coffee shop) | 9                       | None  |
| 2              | 6                     | La Paz, Caranavi, Broncesal and Ingavi Segundo      | 13 and 13                   | 4 and 1                              | Red Caturra Typica  | 4 ha Agroforestry 1ha monoculture with low shade cover                       | HQC: cherries (DT with LRC)<br>2de Quality: Humid coffee (INT)          | 6 months                | For sale: Coca (¼ ha), Avocado (½ ha), citrus fruits chili.<br>Own consumption : Peanuts, chili, plantain |
| 3              | 5                     | La Paz, Caranavi, Copacabana                        | 11                          | 2                                    | Red and Yellow Caturra, Mondonogo, Catuai and Typica              | 2ha monoculture ( 1ha with low shade cover and 1ha without shade cover)      | HQC: cherries (DT with LRC)<br>2de Quality: Humid coffee (INT)          | 5                       | Own consumption and for sale : Citrus fruits (1ha)  |
| 4              | 6                     | La Paz, Caranavi, Kanthutani                        | 48                          | 12                                   | Catuai Typica   | 4ha monoculture with high shade cover<br>8ha monoculture without shade cover | HQC Green Coffee (DT with LRC)<br>2de Quality: Humid coffee (INT)       | 5                       | For sale: Coca (¾ ha)<br>Own consumption : mandarins plantain, walusa                                     |

### 3.2 Family 1: Deysi and Carmelo Yujra Ticona

#### 3.2.1 Livelihood Strategy

Coffee was the only economic activity of the family. The family has their own coffee plantation, produce and process the coffee cherries until green coffee or roasted coffee. The biggest part of their green coffee is sold to three buyers for exportation (see annex 1.2 for more detail on coffee commercialization). Another part of the coffee is roasted to be sold in their coffee shop and the national market. They sell their roasted coffee under their own brand, Senda Salvaje.

Each year they cup their own coffee, but also have it cupped by Café y Calidad in La Paz to compare the quality. Last year their best coffee reached 87 points. In 2009, in the last cup of excellence in the country, they reached 90. Nowadays, they do not participate in the Torneo del Presidente because they consider that cuppers did not have enough training, that they are not real professional in tasting.

#### 3.2.2 Livelihood Capitals

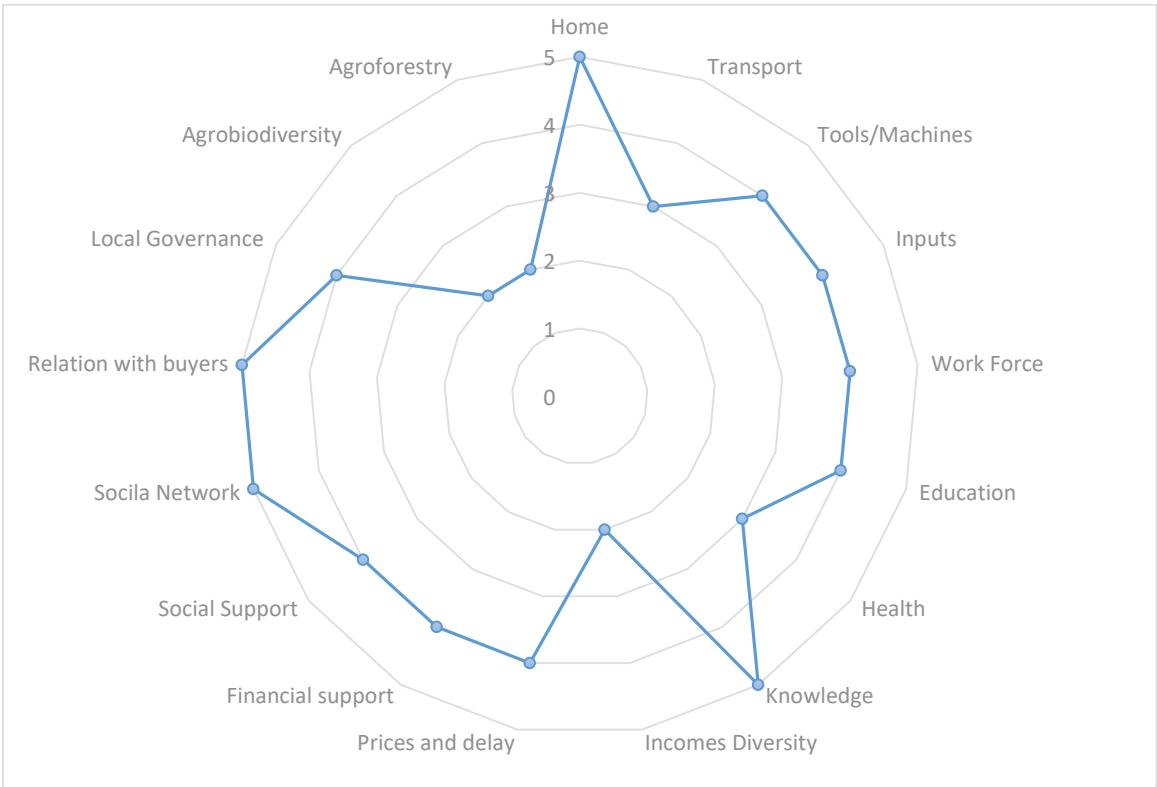


Figure 4: Spider diagram of Family 1 's Livelihood Capitals Attributes. . All the values have been attributed according the results on the family's livelihood capital (see below and in annex 2 for more detail) and to the data analysis methodology presented in table 2.

## PHYSICAL CAPITAL

The household have a ‘very high’ (= 5) comfort of **home** on their plantation by having a brick house with a sink, a shower, a toilet, access to electricity and enough rooms to allow children and parents to have their own room as well as rooms for their employees. The family also cook exclusively with gas.

The family has one car allowing them to go to town to buy food and attend to their coffee shop. The family is considered with a medium (= 3) access to **transport** as they also needed – and could afford- to rent a car to transport their coffee.

Regarding **tools/machines**, the family owned a high amount of tools for coffee production (three brush cutters, several pickaxes and shovels, and two electrical sprayers) and processing (manual pulping machine, drying tables, a storage room, a roasting machine, a high quality espresso coffee machine and coffee grinder). Nonetheless, only a value of four (= ‘high’) was attributed to the family as they lack of some HQC processing infrastructure such as a closed drying room (protecting coffee from the rain and wind while drying) and humidity measurement machine.

With the use inorganic inputs (mineral granule fertilizer, fungicide and a mixt of copper sulfate and calcium hydroxide), organic inputs (chicken manure mixed with rice shells) and the wish to use more organic inputs; the household is considered with a ‘high’ (= 4) access to **agricultural inputs**. However, the family considered they would need more inputs due to their high density coffee management.

## HUMAN CAPITAL

The household has three contracted employees living on the farm paid with food and bed included. One of them was Carmelo’s brother. During the harvest period, they contracted between 10 to 15 workers. For their coffee shop, they have two employees and their daughter helped them as well. The family is given a value of four (= ‘high’) instead of five regarding work force as their accessibility to **work force** was reduced by their wish to hire friends and relatives rather than people they did not know.

Deysi and Carmélo has a ‘very high’ (= 5) level of **knowledge and skills** on coffee market, coffee production, HQC processing and finance management. This was mainly due to their former profession as technical advisors and cuppers in different coffee institutions. Regarding

coffee production, they also learned from their parents and from their international buyers of HQC coffee. Their strong motivation to always improve the quality of their coffee by learning from their experiences was also playing a great role in their knowledge building.

The household has a 'high' (= 4) access to **education** with all children attending to school and enough financial resources to send the eldest children to university next year.

The family is considered with a 'medium' (= 3) access to **health** care as the family does not have health insurance and paying for important operations would be difficult for them. However, they can afford basic treatments and all family members are in good health condition.

#### FINANCIAL CAPITAL

The family had a 'low' (= 2) **diversity of incomes** with approximately 85% of their incomes coming from the export of their coffee and the rest from their coffee shop. They did not have other agricultural activities, neither for sale nor self-consumption. They did not produce any coca neither.

**Prices** received from their coffee for export was 'very high' (4,60USD/lb) but the family has been attributed only a high value (= 4) regarding prices because the payment sometimes came several months after they delivered their coffee.

The only **financial support** the family has is from credits but with a good access. In addition, their knowledge on accounting and the good prices they receive for their coffee allow them to have a good capacity to reimburse those credits. Therefore, the family's financial support is considered 'high' (= 4).

#### SOCIAL CAPITAL

The family has a 'very high' (= 5) **social network**. The family is indeed well connected with people involved in coffee at all levels. Thanks to their former employment as technical advisors in institutions and their participation in the Cup of Excellence, they extended their national and international network. They also often welcome students from other countries such as me in the context of this study.

Deysi and Carmelo had a good, long term and trustworthy **relationship with their buyers** (= 5). They did business with the same buyers for eight years since the beginning.



The **social support** received by the household is estimated as ‘high’ (= 4) considering the appreciated advices and feedbacks they received from their buyers each year and the support with their neighbors regarding coffee production. In addition, their eldest daughter helps them in their coffee shop.

Both Carmelo and Deysi played a significant role in the **local governance** (= 4) of their community. Deysi as the person in charge of the coffee production and Carmelo as the syndical director the past two years. In addition, the family influence and support a lot their neighbors regarding coffee management.

## NATURAL CAPITAL

By growing seven different coffee varieties (see table 3) but only coffee trees and no other crops in their land, the household was considered to have a ‘low’ (= 2) **agrobiodiversity**.

The presence of **agroforestry** was considered ‘low’ (= 2) too in their land since they decided few years ago to invest and renew their old shaded coffee plantation little by little, this by cutting and burning all coffee trees and other trees to then plant new coffee trees in hedgerows, with no shade cover and with a high density of 4000 plants/ha. However, they are planning to implement in the future a low shade cover by planting Ceibo trees (*Erythrina crista-galli*) in their coffee plots.

## 3.3 Family 2: Filomena and Angelino Huaracho

### 3.3.1 Livelihood Strategy

The family’s livelihood strategy relied mainly on coca and coffee production. Regarding coffee, until recently, they had been harvesting coffee cherries which they brought to a producers’ association (with organic certification), where their coffee was processed and sold to buyers for export. When the coffee was eventually sold, the producers’ association gave the money from the sale to the family. However, in the last years, according to Angelino and Filomena, the association did not give them their money and so they decided to end their partnership with them.

At the moment of the research, they had a new partnership with a small local HQC roasting company (Café Munaipata) which bought their ripe coffee fruits. This buyer required a very high

quality coffee meaning that the coffee had to be at the very right level of ripeness and preferably from Tipica variety. This selection implied more intensive and careful work during harvesting the fruits but the family was paid a better price compared to the cooperative (see annex 1.2 for more detail on coffee commercialization)

In the past and still today they were selling their sultana and their low quality beans to intermediaries.

### 3.3.2 Livelihood Capitals

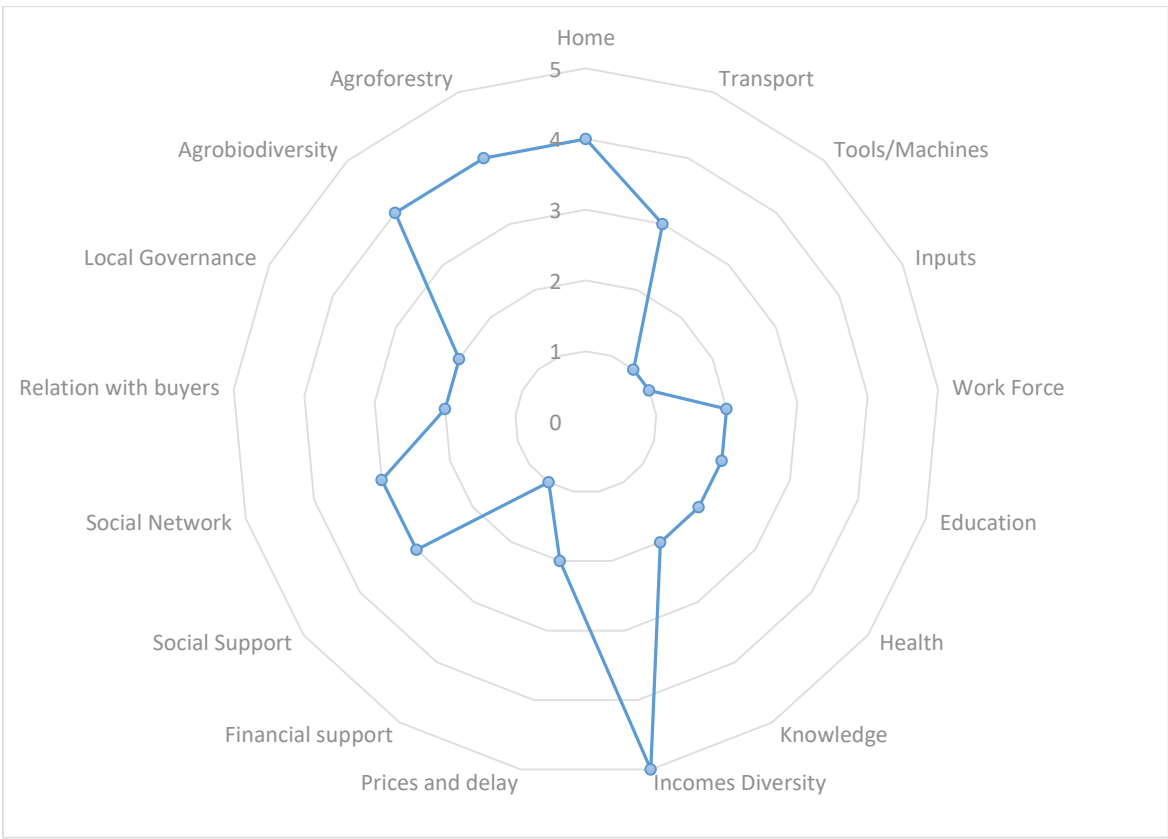


Figure 5: Spider diagram of Family 2's Livelihood Capitals Attributes. All the values have been attributed according the results on the family's livelihood capital (see below and in annex 3 for more details) and to the data analysis methodology presented in table 2.

#### PHYSICAL CAPITAL

In their plantation home, the family has few comfort with only two wooden rooms (one bedroom and a kitchen with only an open wood fire to cook). However, the household' **home comfort** is considered 'high' (= 4) as the family has (in the town close to their plantation) also a brick house –inherited from Filomena's father - with several bedrooms, gas to cook, access to electricity, a

shower and a toilet.

The household had a 'medium' (= 3) access to **transport** as they have one car with sufficient space to transport their products (coffee, citrus fruits ect.).

The family has been attributed a value of one (= 'very low') concerning **tools/machines** with only few manual **tools** for their coffee production and only one manual pulping machine for processing.

The family did not use any pesticides, herbicides nor fungicides. The family did not fertilize their coffee at all, neither with organic nor non-organic fertilizers because it would have meant an extra investment. They only left the organic material from weeding and pruning on the ground. Therefore, the family is considered to have a 'very low' (= 1) access to agricultural **inputs**.

## HUMAN CAPITAL

The household's access to **work force** is low (= 2) as Filomena and Angelino did not have any workers helping them in the management of their coffee plantation but hired some workers during the harvest. They only had their children helping them because having employees was a too expensive investment for them.

Both Angelino and Filomena had learnt to produce coffee from their parents, and Angelino had also worked on another coffee farm when he was younger. Besides this, they never had attended other trainings regarding coffee management nor processing. The family is considered to have medium **knowledge and experience** regarding coffee production and low skills regarding coffee processing. Therefore, the family is considered to have a 'low' (= 2) knowledge livelihood capital attribute.

The family have a 'low' access (= 2) to **education** because all the household's children are or went to primary and secondary school but the family does not have enough financial resources for the children to go to university.

**Health** access is considered 'low' (= 2) for the household with no health insurance, one member with health issues and difficulty to pay for treatments.

## FINANCIAL CAPITAL

The household **diversity of income** is ‘very high’ (= 5) with producing and selling coffee (to HQC buyer and intermediaries), coca, avocado, citrus fruits and chili.

With their new HQC buyer the family received good **prices** for their coffee (0,53 USD/lb of ripe coffee cherries). However, it has been only one year since the family work with this HQC buyer, therefore the value of the attribute ‘price’ is given according to the price they use to receive from their former buyer (producers’ association). The family is therefore attributed a ‘low’ value (= 2) regarding coffee prices as they received medium price for their coffee (0,24 to 0,34 USD/lb for ripe coffee fruits) and had issues of payment delay.

The household is considered with a ‘very low’ (=1) **financial support** with no bank account, no credits and no financial support from their buyers.

## SOCIAL CAPITAL

The family did not seem to have a well-developed **social network** outside the community but this was changing with the recent meeting of people involved in the HQC market. Therefore, the family is considered with a ‘medium’ (= 3) social network.

The **social support** of the family is ‘medium’ (= 3) with few former and present technical support from their coffee buyers, no support from NGO’s and few support from neighbors regarding coffee production. However, Filomena’s and Angelino’s children were a significant help regarding land maintenance and housework.

The family’s **relationship with their coffee buyers** is considered ‘low’ (= 2). According to Angelino and Filomena, the family did not have a good nor trusty relationship with their former producers’ association. That is why the family found a new buyer with which it is hard to tell about their relationship because they had only started to work together recently

The family’s **involvement in local governance** is ‘low’ (= 2). Neither Filomena nor Angelino ever had a position in the board of their community. They did not seem to have any particular influence on the decisions in their community but they participate in the community’s activities.

## NATURAL CAPITAL

The family had a ‘high level’ (= 4) of **agrobiodiversity**. The family not only produce coffee but also coca, avocado and citrus fruits, peanuts, chili, beans, tomatoes and corn. However, the family has only two coffee varieties (see table 3).

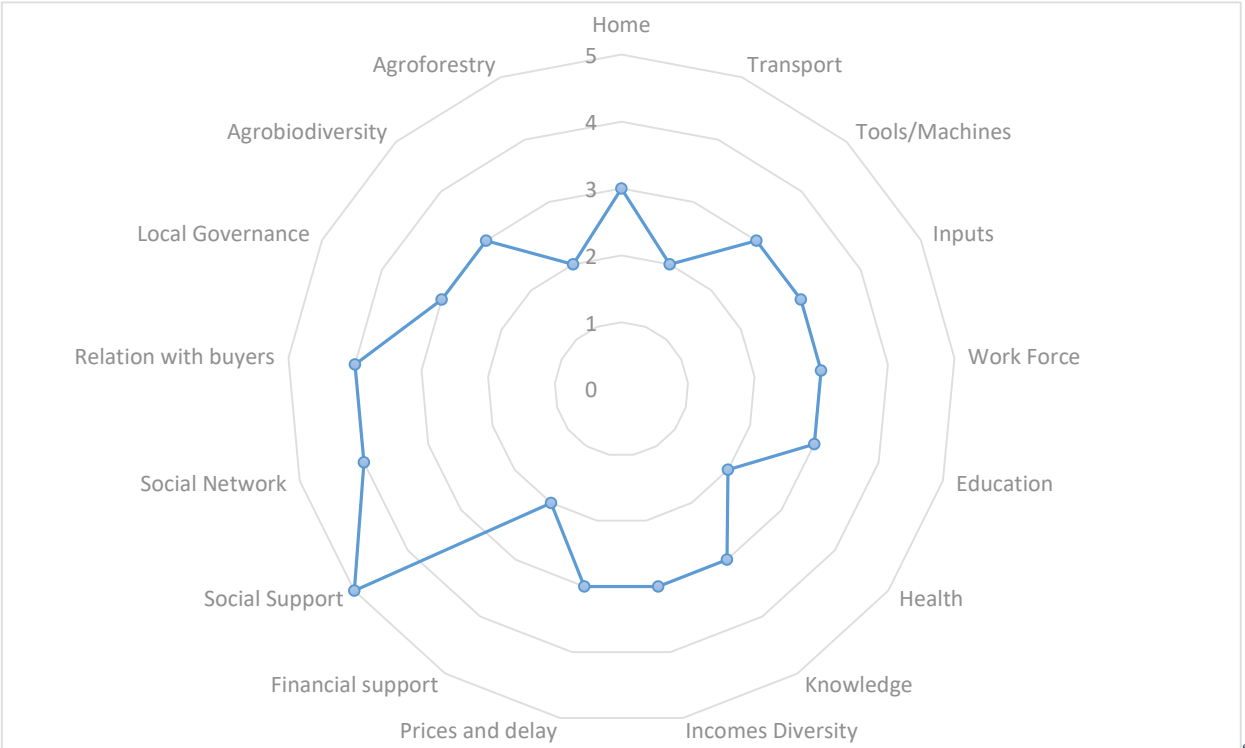
The family has a ‘high level’ (= 4) of **agroforestry** on their land with the large majority of their coffee plots being with medium shade cover and mixed with other crops (citrus fruits and avocados). Moreover, tomatoes, chili, beans, avocado, mandarins and corn were produced in the same plots as coffee – diversified system- during the first years of implementation

### 3.4 Family 3: Rosali and Vicente Paye

#### 3.4.1 Livelihood Strategy

The family livelihood strategy remains mostly on coffee production. Their main coffee buyer is a local HQC roasting company (AgriCafé) to whom they sold unprocessed rip coffee fruits for five years. They deliver a mixture of varieties and usually achieve a score of 88 in average. In addition, they sell low quality humid coffee to intermediaries. Vicente and Rosali also process a small part of their coffee until the parchment coffee stage, and sell it to coffee shops. For those buyer they select only ripen coffee fruits (see annex 1.2 for more detail on coffee commercialization).

#### 3.4.2 Livelihood Capitals



on the family's livelihood capitals (see below and annex 4 for more details) and to the data analysis methodology presented in table 2.

## PHYSICAL CAPITAL

In their plantation the family's home comfort is low with only two wooden rooms (one bedroom and a kitchen with only an open wood fire to cook), no access to electricity, no toilet, no shower but still with basic access to water. Nonetheless, the family is considered with a 'medium' (= 3) **home** comfort as the family is also renting a small place in the town – not far from their plantation - where Rosalie and the children spent most of their time. The place has running water, one bedroom, a kitchen and a toilet.

The family has a 'low' (= 2) access to **transport** as they do not own a car and could find financial difficulties to rent a car or difficulties to have neighbors taking them when they need to transport their coffee or go to town.

The attribute **tool/machine** is considered 'medium' (= 3) for the family since Vicente and Rosalie do not have many tools but sufficiently for their two ha of coffee. Moreover, they own few processing infrastructure (a manual pulping machine and a drying table).

Vicente and Rosali has a 'medium' (= 3) access to **agricultural input** because of their good access to inorganic inputs (granule and liquid fertilizer, fungicides and insecticides) but no use of any organic inputs.

## HUMAN CAPITAL

Vicente and Rosalie has a 'medium' (= 3) access to **work force** by hiring enough people for coffee harvest but with difficulties to find people to harvest only ripe fruits and no enough work force for their coffee plots maintenance.

Vicente learnt about coffee production with his parents and with the technical support and training from his HQC buyers but the family is considered to have a 'medium' (=3) level of **knowledge** and skills as they have medium knowledge on HQC processing and seem to not have enough accounting skills to manage their finance.

The family access to **education** is 'medium' (= 3). All Vicente's and Rosali's children were going to, or had finished primary and secondary school. Their eldest daughter is studying in a forestall technical institute in town (close to the plantation and where the family rent a place to live). However, the family want and cannot afford to send their daughter at university which is further away from home.

The household is considered to have a 'low' (= 2) **health** access as the family does not have health insurance. Moreover, Vicente and Rosalie has health issues and paying for treatments put them in economic difficulties.

#### FINANCIAL CAPITAL

With only coffee as main source of income (in three different markets) and other irregular activities (sale of citrus fruits, bananas and coffee seeds) the family has a medium **diversity of incomes** (= 3).

A value of three (= 'medium') is attributed to the family's coffee **price** received. They sold to the local HQC roasting company with no delay of payment their ripe cherries to a medium price (0,26 USD/lb) with a supplement of 0,04 to 0,06 USD/ lb if they delivered a high quantity.

The family has a 'low' (= 2) **financial support** with difficulties to reimburse their credits and a little and very occasional financial support from their buyer.

#### SOCIAL CAPITAL

The **social support** received by the family is considered 'very high' (= 5). The family received a lot of technical support and training from their buyer, financial and technical help in the past from a Norwegian NGO's (Misión Alianza) and finally a strong support from friends, family and in lesser extent from his HQC buyer when Vicente had severe health issues.

The family is considered to have develop a 'high' (= 4) **social network**. Vicente has a lot of acquaintance in the municipality of the closest town, he is in relation with other coffee farmers in the Yungas region and host one day on their land once a year the foreign coffee buyer of the local roasting company to which the family sale its coffee.

The household is considered to have a 'high' (= 4) **relationship with their main buyer**. It is a long term and trusty relationship but recently the trust between them was a little reduced due to false rumors spread by neighbor against the family.

Vicente was and still is in the board of the community. The family also seemed to influence a little other coffee producers regarding coffee management. Therefore, the family is considered to have a 'medium' (= 3) **local governance**.

## NATURAL CAPITAL

The household has a ‘medium’ (= 3) **agrobiodiversity** in their land with growing coffee but also few citrus fruits and bananas. In addition, they grew five different coffee varieties (table 3).

The family’s land is considered to be in a ‘low’ (= 2) **agroforestry** system since they decided few years ago to invest and renew one of their old shaded coffee plantation, this by cutting and burning all coffee trees and other trees to then plant new coffee trees in hedgerows, with no shade cover. However, they are planning to implement in the future a low shade cover by planting Siquilli (*Inga spp.*) trees with a low density in their coffee plots.

### 3.5 Family 4: Angelo and Eugenia Mamani

#### 3.5.1 Livelihood Strategy

The family mostly relied on coffee and coca as a livelihood. For a long time, Angelo and Eugenia sold their coffee fruits to a producers’ association. However, Angelo said that it did not work well with them in term of money. In 2007, they participated in the Cup of Excellence and met the director (Mauricio Diez Medina) of a local HQC roasting company who is now their buyer and associate in their new plantation. Angelo and Eugenia were selecting only the riper coffee cherries for Mauricio, achieving a score of 88 last years. The green coffee which Angelo and Eugenia to Mauricio was meant to be sold ok the national market. However, in a few years’ time the family’s green coffee will be sold for exportation, and Angelo expects to earn more money.

Besides this market, their second quality coffee to intermediaries in form of humid coffee. During sunny weather, they dried their sultana and sold it to intermediaries as well (see annex 1.2 for more detail on coffee commercialization).



### 3.5.2 Livelihood Capitals

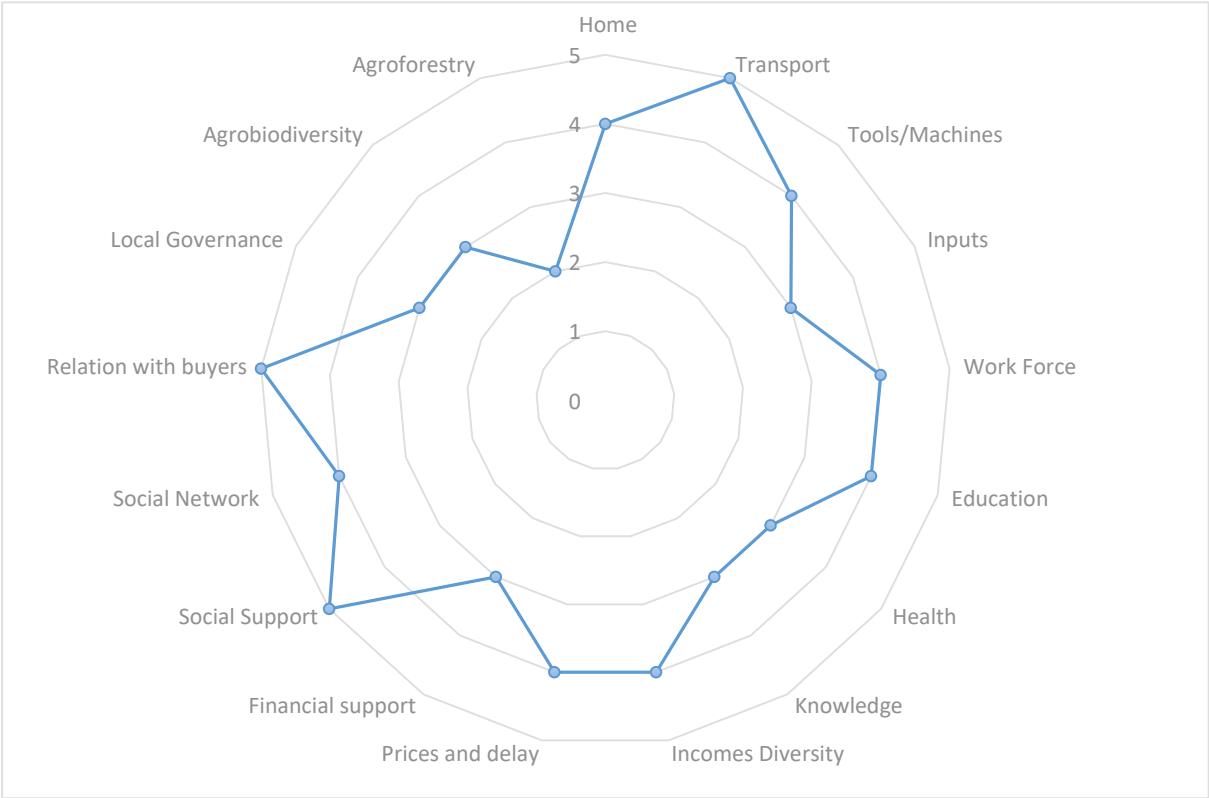


Figure 7: Spider diagram of Family 4 's Livelihood Capitals Attributes. All the values have been attributed according the results on the family's livelihood capital and to the data analysis methodology presented in table 2.

#### PHYSICAL CAPITAL

The family has a 'high' (= 4) **home** comfort. In their plantation – their main residence– is a bricks house with several rooms including rooms for their employee. The family has basic water access and electricity. They cook either with gas or in an open wood fire. The family also own a house in la Paz in which Angelo and Eugenia will live when older.

The household has a 'very high' (= 5) access to **transport** since they three cars, a moto cross and a mini-van with enough space to transport the quantity of the household' products (coffee, citrus fruits etc.).

The household has a 'high' (= 4) amount of manual and electrical **tools** (chainsaws, s brush cutters, manual and motorized sprayers) to manage their high surface (12 ha) of coffee plantation. They also own a motorized pulping machine, drying tables and a storage room.

The family's access to agricultural **inputs** is considered 'medium' (= 3) since they have a good access to inorganic inputs (granule and liquid fertilizer, fungicides and herbicide) but do not use of any organic inputs.

#### HUMAN CAPITAL

The family has a 'high' (= 4) access to **work force**. During the time of the research, Eugenia and Angelo had three full-time employees and hired 10 to 15 workers during the harvest period. Their teenage neighbor studying agronomy come to work for them during some weekends. Angelo's and Eugenia's niece and eldest daughter are also helping them from time to time. However, according to Angelo the family does not have enough work force.

As children of coffee producers, Eugenia and Angelo already had **knowledge** on how to produce coffee. They learnt about how to process coffee with the cooperative they were selling their coffee to in the past. Later, and especially since they work with their new HQC buyer, Mauricio, they increased their knowledge on coffee management and HQC processing. Regarding accounting, Angelo estimate that he lacks of knowledge on finance management. In over all the heads of the household are considered to have 'medium' (= 3) knowledge regarding their livelihood activities.

The access to **education** is 'high' (= 4) for the family as all children had or are attending to primary and secondary school. The household has enough economical resources to have their children going to university however, their eldest daughter and son do not go.

Family's **health** access is considered 'medium' (= 3) as the family does not have health insurance. Moreover, the family does not always have sufficient economical resources to go to the hospital if a family member has important health issues. Fortunately, they now have their new HQC buyer who can occasionally help them by giving them advance of coffee sale when the family need healthcare. At the time of research none of the family's members had important health issues.

#### FINANCIAL CAPITAL

The household's **diversity of income** is 'high' (= 4) since the family has two main activities (coffee and coca production) and do occasional weeding or harvesting work on other farms.

The **prices** received (3,4 – 3,8 USD/lb of green coffee) by the family from their HQC is 'high' (=4) but the family would – and want- gain more if they could export their coffee.

The family is considered to have ‘medium’ (=3) **financial support** since the family had a bank account, and financial help from their buyer but no not credits because they would have difficulties to reimburse them.

#### SOCIAL CAPITAL

The household has a ‘very high’ (= 5) **social support** since the family had access to electricity (solar panels) and water (water tank) thanks to governmental projects, the aforementioned technical advice and financial helped by their HQC buyer and also an occasional help from their neighbors regarding coffee maintenance.

Angelo’s and Eugenia’s **social network** was ‘high’ (= 4) mostly due to their participation to the Cup of Excellence which allowed them to extend their network in the coffee sector and specially to meet their actual HQC buyer. Angelo is also traveling the country to meet other coffee producers.

The family worked with their HQC buyer for five years. Angelo and Eugenia appreciates their buyer, the support and the coffee price they receive from him. Therefore, the family’s **relationship** with their buyer is regarded as ‘very high’ (=5) contrary to their former business relation with their producers’ association. Angelo and Eugenia said that the cooperative was not paying them enough, and was not supporting sufficiently.

The family’s **local governance** is regarded as ‘medium’ (=3). Angelo had always been on the board of the colony, especially as the family was the one owning most lands. In addition, according to Angelo, since they worked with their HQC buyer and change their coffee management methods, the neighbors were watching a lot what they were doing and buying, and that sometimes they even tried to do it the same way as they did.

#### NATURAL CAPITAL

The family has a ‘medium’ (= 3) **agrobiodiversity**. On their land the family grows coffee and coca to sale. The family also grows mandarins, oranges, achiote (*Bixa Orellana*), *walussa* (*Xanthosoma* sp), manioc and plantains in small quantity for their own consumption. However, the household grows only two coffee varieties (see table 3).

The family’s land is considered to be in a ‘low’ (= 2) **agroforestry** system since they decided few years ago to invest and renew some of their old shaded coffee plantation and to create new ones as well. The family renewed and created new plots by cutting and burning all coffee trees

and other trees to then plant new coffee trees in hedgerows, with no shade cover. Two third of their coffee plots are now in unshaded monoculture management.

### 3.6 Livelihood capitals of HQC smallholders

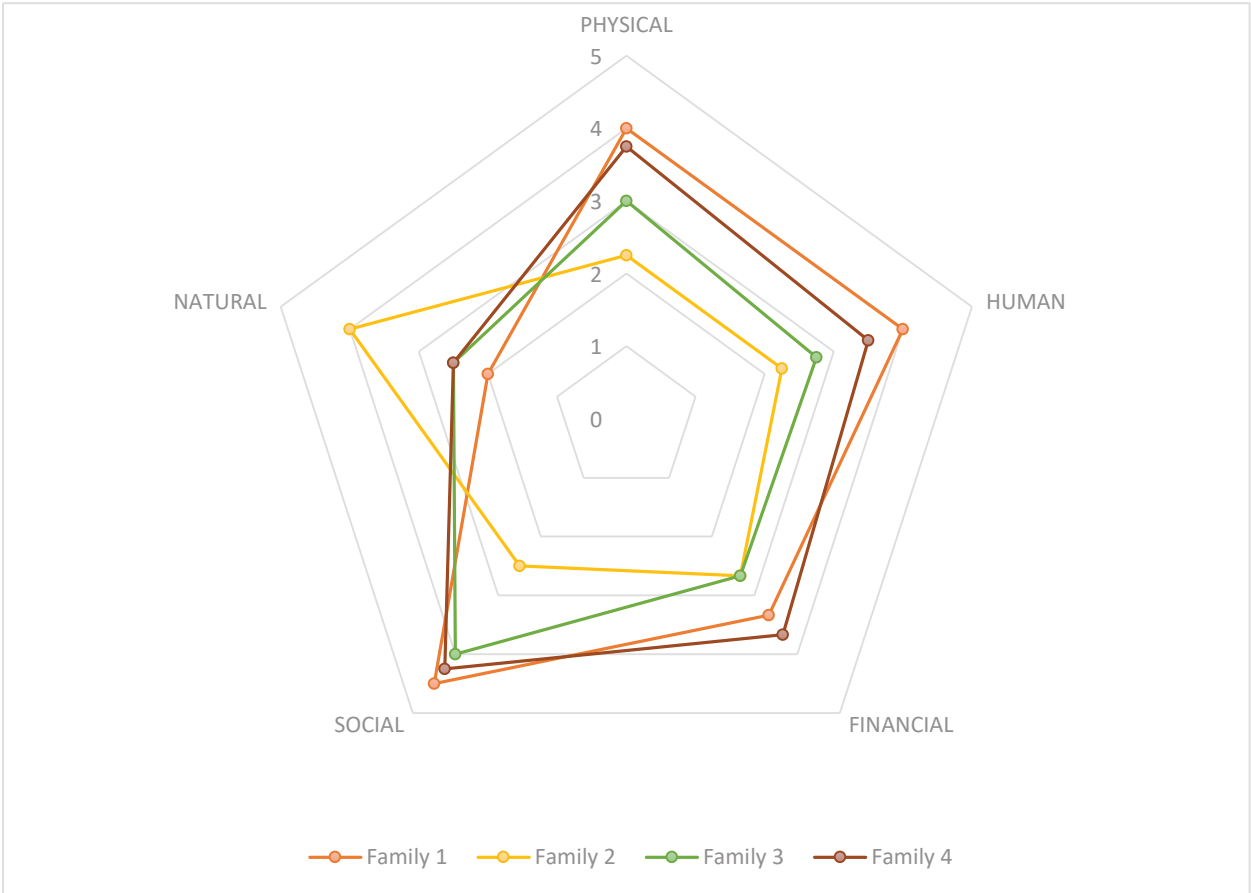


Figure 8: Spider Diagram of the four families' livelihood capitals

#### 3.6.1 Financial Capital

As seen with the fam 1 and 4, the more the producer is processing his/her coffee the highest financial capital they have (figure 8) especially in terms of profit. This is confirmed by the CBA of the coffee value chain in Bolvia (Urioste Daza 2018) which reveal that the more profitable for farmers is to sale roasted coffee to direct trade. Then the most benefit is gain by selling green coffee through direct trade to local or foreign roasting companies. Selling coffee as cherry is the less profitable even with HQC (Urioste Daza 2018) as seen with the family 2 and 3.

However, producers selling HQC and more specifically through direct trade were receiving better **price** for their coffee compared to what they would perceived with low quality coffee and through producers' association or intermediaries. Nonetheless, there is still a persistence of delay of payment when selling HQC to export trough producer's association or roasting companies (e.g. family 2 and family 1). Due to delay of payment and/or to the non-acceptance of low

quality beans in the HQC market, producers usually sell as an additional source of incomes part of their low quality beans to intermediaries which pay them directly at delivery.

This brings us to the role of **diversity of income** for producer families to fill the possible financial gap of one of their income activities. The family 2 who only sold their HQC as cherries needed to rely a lot on their other products (citrus fruits, avocados and coca) as a livelihood. The family 1 by opposition had only coffee as a source of income but their coffee incomes was higher as they were processing their coffee from harvest to the cup (see annex 1.1 for more details on coffee production and processing).

Coffee producer's income diversity can be related to the benefits from agrobiodiversity by reducing vulnerability toward economic shock in one of producer's activity. Therefore, farmers' participation in HQC should either be design along with other generating income agricultural activities or with producer's involvement in the value chain up to green or roasted coffee. This last option is more difficult to develop considering the infrastructures, knowledge, skills and investment needed for such strategy.

As part of other income generating activities for producers, **coca** has been shown to play a great role in coffee producer's livelihood as coca is a mean for producers to have more regular incomes – directly at delivery - along the year and is considered as a safety net for families (e.g. family 2 and 4). In addition, coca is an integral part of the Yungas culture and economy (see annex 1.3). Therefore, putting aside the drug and environmental issues link to coca production, trying to make producers stopping their coca activity would mean cutting their traditional roots and considerable source of incomes. This should be considerate for the development of HQC production in the region.

Being able to carry on HQC production as livelihood requires investment which is facilitate with access to **credits**. The family 1 seems to have good access to credits and did not had issue for reimbursement considering their coffee incomes and their caution on the amount they would borrow from the bank. Other families on the contrary generally did not took credits as they saw the interest too high and find difficulties to reimburse those credits. Nonetheless, the family 3 stress that being in business with a local roasting company was helping them to get credits as it was a guaranty from the bank that the family will gain enough money to reimburse. Having credits appeared to be essential if a family want to invest and develop their HQC activity, however access and reimbursement of those credits still seems difficult for producers. Many producers seem to leave cooperative due to payments slips and delays on payment. Likewise, by

having few single payments through the year, it is difficult for families to access credits, save or invest in technology.

Even though coffee production in the Yungas is recent and beside the difficulties of the international competitiveness for producers, it seems that farming families are motivated to go toward coffee production as they think it will allow them to earn a good income. However, producers sometimes do not always think about the high- production costs (Urioste Daza 2018) it implies. In addition, professional of local roasting companies stress that producers generally do not manage well or keep track of their money. To allow coffee producers to have coffee as a sustainable livelihood it would require advising on how to manage better their costs administration. Investigations on how producers manage their finance and how this really influence their livelihood would be necessary.

### 3.6.2 Physical Capital

Firstly, it is important to mention that this research does not include a reference points (families involve in an average coffee production). However, although the conditions of living of the four families might seem precarious from a European point of view, the **living conditions** of those four families are better than the ones other farmers face, mainly due to higher incomes they receive when commercializing coffee.

As said above, processing coffee up to green coffee or roasted coffee is how a household will develop best its coffee incomes and consequently how the household can improve its physical and human capital. Results show that the family 1 and 4 who process coffee have a high physical capital (better comfort of home, more access to agricultural inputs, tools and infrastructures) (figure 8). However, the two families still lack of machines and infrastructure to process HQC. For instance, the families did not have a humidity measurement machine which allow them to determine when to stop the drying process to reach a perfect rate, action that plays an important role in coffee quality.

If we consider the mountainous landscape of the Yungas where coffee producers have their plantations, meccanization is not developed as it can be seen in other flatter coffee countries as Brazil. Therefore, having mechanical **tools** to weed appeared to be important for coffee producer's physical capital as it can facilitate greatly their daily work (see annex 2, 3, 4 and 5). The family 1 and 4 had a good access to brush cutters, which allowed them to weed faster their coffee plantation reducing the difficulty of their work and also allowed them to extend their coffee plantation.

The families involved in HQC market with local or foreign roasting companies has a good access to agricultural **inputs** thanks to their higher financial capital but also thanks to the support of their buyers to buy inputs at a lower price. However, the use of organic inputs was low and regarded as dependent on the family desire and possibility to go in that direction.

As coffee producer's in the Yungas live in remoted areas, having at least one **car** is essential to be able to participate in HQC value chains. Indeed, it is important to deliver cherries right after harvest and to transport parchment coffee in La Paz for the last stage of processing (annex 1.1). A family like the family 3, which did not have a car, was very vulnerable regarding their coffee activity. Having a car is also essential for the families to be able to get from their remoted colony to the closer city to buy food every week.

Families' physical capital is important for coffee farmer's livelihood and even more with large surface of coffee production and the desire to produce and process HQC. Nonetheless, it is important to stress that producer's physical capital is not sufficient if it does not come with knowledge and skills (human capital) on how to produce and process coffee or HQC and prices (financial capital) that could compensate the costs of processing.

### 3.6.3 Human Capital

**Knowledge** on how to produce and process coffee is essential to sustain a coffee plantation and even more with a HQC activity as a livelihood. The family number one was the one with the highest human capital (figure 8) mostly because of their labor availability but also because of their highest knowledge on how to produce and process HQC, thanks to their former career as cuppers and technical advisors for coffee in different institutions. Even though all the families received appreciated technical advices from their HQC buyers, the results reveal that the families receive more advice regarding the management of their coffee plots (pests and diseases control, fertilization, type of shade management, etc.) than on how to harvest and process HQC. More advice and training in that matter should be offered to producers involved in the HQC market as knowledge and skills on processing and recognition of HQC would permit farmer to better maintain their coffee quality, to go further in the process and to identify the quality of their coffee and so have a better bargaining power.

Families which process their HQC up to green coffee and/or roasted coffee (families 1 and 4) had more economical resources and infrastructure to hire employees and provide them a room and food. Having those workers allowed those families to manage more coffee plots. All the families agreed that producing and processing high quality was a precise and time consuming

work requiring work force with knowledge on how managing HQC (see annex 1.1 for more details on coffee production and processing). However, it has been highlighted that families could find difficulties to find **workers** that they would trust to work well especially regarding harvesting only ripe fruits. Moreover, because coca harvest is not as selective as the coffee one; harvesters started to prefer harvesting coca or ask for higher prices to well harvest coffee. Therefore, the availability of harvesters for coffee has reduced.

**Health** is essential for an individual's and household's livelihood especially for coffee producers in the Yungas who have to spend lot of energy working. Even though more hospitals have been built in the Yungas since the presidency of Evo Morales, health care remains hardly accessible to coffee producers due to elevated costs. No matter their livelihood strategies, none of the families had health insurance and all the families said that they could not afford to go to the hospital for important health issues without being in economic difficulties afterwards. In fact, regarding health access, most of Bolivians, and particularly those living in rural areas, do not have a health insurance because they are really expensive, particularly when people are not being covered by their employee. Even middle class urban households suffer from economic instability when a big health issue happens at the family. In order to make HQC improving producer's health care, a system where buyers can provide an insurance to farmers should be designed.

**Education** is free in Bolivia therefore education was accessible for all the children of the families. It did not depend at all on their livelihood strategy and other livelihood capital. However, the investigation revealed that they were two hindering forces for the coffee producers' children to go to university. Firstly, the universities are in the big cities of the country which are several hours away from the Yungas region and only accessible by road. Therefore, when children want to go to university they have to live there, and this comes with a cost that not all families can afford as seen with the family 2 and 3. However, the family 1 which had better financial security could afford costs to send their children to university.

It has been noticed that there was a tendency for producers' children to opt for other careers than coffee production and to migrate to urban cities. This might play a great role in the abandonment of coffee production in the region. This point is discussed further in the in the section challenges.

#### 3.6.4 Social Capital

One of the main positive influences of participating in HQC value chain regarding social capital highlighted in the results is the development of closer, trusty and long term **relationship** between producers and buyers.



All the families learnt to produce coffee first with their parents who were the first generation of coffee producers in their families. Even though the families stressed that they do not really need advices, they seemed to appreciate **technical advices** offered by their HQC buyers and in the case of family 3 and 4 also a financial support in time of need. The families also seem to trust and to have or want long business relationship with their HQC buyers. The family 2 has been considered to have a medium social support from their buyers (see figure 5) due to their lack of technical and financial support from their former producers' association and their very recent relation with their HQC coffee buyer which does not permit to give conclusion regarding his support on the family.

It appeared also that the four families where more satisfied by their relationship with their HQC buyers rather than with their former producer's association regarding support, prices and delay of payment. However, this results only imply a good relation that seem to exist between producers and HQC buyers but do not imply that all relationship between producers and cooperative are less good. It is all the truer considering that there are 16 distinct producer's associations in the Yungas with their own functioning (Urioste Daza 2018).

The building of a **social network** in the coffee sector has been revealed as an important condition for families 1, 3 and 4 to be able to enter into the HQC market, more specifically to the international market. As seen with the family 1 and 4, the participation of events as the Cup of Excellence was an opportunity for faming families to meet national and international HQC buyers and start to build a business relationship.

A role of a family member in the **local governance** of their community can improve the decision power of the individual over its community and possibly its self-esteem but, having a seat in the community's local governance did not appeared to be favor by the participation in a HQC market. However, the families (e.g. families 1, 3 and 4) participating in HQC market and adopting new type of coffee management seem to inspire their neighbors who want to adopt the same strategy.

### 3.6.5 Natural Capital

**Agrobiodiversity** (diversity of crops and coffee varieties) helps to distribute the risks of production and diseases. This redundancy of coffee varieties and crop diversity helps to overcome a crisis when one coffee variety or one crop can fill the functional gap another variety/crop creates. The results suggest that HQC producers in the Yungas are testing new and diverse coffee varieties. However, studies demonstrate that all coffee varieties are not equivalent

regarding quality (Lambot et al 2017). Therefore, more participative research with farmers should be done on how include a diverse range of coffee varieties that are both with intrinsic quality and adapted to the local environment.

Despite the tendency to try new coffee varieties in the HQC market, the results suggest that families do not have important diversity of other crops close to or within their coffee plantation (e.g. family 1, 3 and 4). This low presence of crop diversity might be due to the hard and time demanding work required with coffee production and especially with HQ production, which reduce the families' opportunity to focus some time and energy to other crops.

The families 1, 3 and 4 had most of their coffee plots grown in monoculture without a **shade cover**. Those three families are considered to have a reduced natural capital (figure 8) because having a coffee plantation with shade cover is an advantage for soil fertility, weed control, coffee plant defense to biotic stress and is a protection against heavy rains in subtropical climate which is present in the Yungas. In addition, shade cover can create a micro-climate, in which coffee cherries can ripe slowly affecting the bean quality (Lambot et al. 2017). On the contrary, the family 2 who was participating in HQC market for less than a year, has a high value of agroforestry by growing coffee mostly with a medium to high shade cover and mixed with other crops (avocados and citrus fruits).

As mentioned above, producing coffee with shade would be more sustainable compared to “full-sun”. However, it is important to mention that shade cover manage improperly can reduce coffee production, worsen pests and diseases and lead to nutrient competition between trees and coffee trees (Lambot et al. 2017). Managing shade is a difficult work requiring skills and time that is why producers can find incentive to abandoned their traditional agroforest management and go towards an unshaded monoculture coffee management. Nonetheless, this type of management requires a high amount of **inputs** that are not affordable for every farmer.

The family 1 and 3 were using a fungicide with Azoxystrobin as active compound. The family 3 was also applying Lambda Cyhalotrine. The herbicide paraquat was used by the family 4. According to the Pesticides Action Network (Kegley et al., 2016), Azoxystrobin should be use with caution (level 3) and Lambda Cyhalotrine and paraquat are considered dangerous (level 1). A deeper study should be done on the effect of those compound on the environment and on producer's health as they do not use any body protection nor masks to spray those inputs. Investigation on the relation between coffee quality and plant nutrition would be important as well knowing that prices received in the HQC market is quality dependent.

The Yungas still have large areas of forests which is a pride for their people. Nonetheless, its abundance is decreasing with **deforestation** linked in part to coca and coffee production. The four families and especially the family 1 and 4 were extending their number of coffee plots by cutting and burning the forest, reducing therefore their natural capital. Several producers mentioned that they noticed a decrease of wild animals as jaguars and pumas along the years and an increase of birds in their coffee plantation – some damaging the coffee fruits- which could be in part explained by the loss of their forest habitat.

### 3.7 Factors influencing HQC farmer's livelihood capitals

The **natural environment** of the Yungas which is composed of large forest areas is an advantage for producer's natural capital. In addition, the mountainous landscape is also an advantage as altitude is considered as an important element to produce HQC. The bean quality is essential for HQC farmers and their climatic environment can strongly influence the bean quality (Lambot 2017). However, the mountainous landscape is also a disadvantage for farmers as it makes the work more difficult physically for producers as the use of machinery is limited by the slopes.

As mentioned before, the **historical, economic and cultural context** of the Yungas region regarding coca leaves, influence greatly all coffee farmers' financial capital. Producer's financial capital is also influence by the national and international administrative context. Indeed, the delay of payment when selling coffee for export is in part due to the long administrative procedures to send products from Bolivia to other countries and the buyer who pay producer only when they receive their coffee.

At the **community** level, the community governance plays a non-negligible role in people's physical livelihood capital as the use of governmental financial support is decided by the community. For instance, the money can be used to buy seedlings for coffee producers. However, roads maintenance, electricity access and health access are important livelihood elements which are neither influence by the community nor the family's livelihood strategy but rather influence by **governmental/** municipal decisions.

Producer's natural capital is influenced by the recommendation they receive from their **buyers**. One result of this investigation is that unshaded monoculture coffee management is promoted by HQC roasting industries and international buyers. Regarding this type of management, the investigation revealed also that HQC producers and buyers are taking the example on what is

being done other south American coffee producing countries as Brazil, Costa Rica and Colombia which have high coffee yields.

However, the families 1 and 3 plan to plant some trees to have a low shade cover as they consider that it would be beneficial for their coffee plantation fertility and quality. One of the trees is Inga spp. which is a leguminous that fixes nitrogen from the air and has small leaves that lets the light enter the system. It has long been used in coffee production in the Yungas and provides a habitat for many birds and other animals and plants<sup>2</sup>. This reveals that the producer's **individual** opinion and traditional knowledge still has a role to play and that the family's decision on their coffee management is not completely influenced by their buyers.

Family's motivation to invest time and money in their coffee activities (work force, infrastructures, tools, renew plantation, pruning, fertilize etc....) is essential if they want to go further in processing HQC and their coffee plantation to be sustainable in terms of production. Decision making at the individual and family level has been revealed very important in families' livelihood capital building as it is their decision to choose what they are going to prioritize. Some prefer to invest in cars, other in housing, other in their coffee plantation and so on.

### 3.8 Livelihood Outcomes

Livelihood capitals can participate in the achievement of positive livelihood outcomes which are according to the sustainable livelihood framework (DIFD 1991) more incomes, more sustainable use of natural resources, increased well-being, reduces vulnerability and increased food security.

Participation in HQC value chain increase household's **incomes** with premium prices. Participation in HQC markets appears to improve producer's **well-being** (non-material goods) by extending their skills regarding coffee production, by being closer to their buyers and by being an example for other producers which seems to higher up their self-esteem. However, neither producer's health status nor maintenance of their cultural heritage - which are both considered as playing a role in people well-being - are influenced by participation to HQC value chains.

The low or unshaded monoculture management of HQC producers and the increase of deforestation (coca and coffee production) by practicing slash and burn are reducing the **sustainable use of natural resources** and consequently increase producers' vulnerability towards natural shocks as heavy rains (increasing risks of production shocks). Vulnerability

---

<sup>2</sup> This information comes from Johanna Jacobi, researcher at Centre for Development and Environment (CDE) at the University of Bern. She is also the external tutor of this master thesis.

toward natural shocks as diseases and pests could possibly be reduced with the use of more coffee varieties and also with the use of pesticides and fungicides, however this last option could create health issues -reducing families' well-being- and damage the natural environment.

Regarding **food security**, no conclusion can be made specifically regarding HQC as a livelihood strategy. However, the results suggest that not having a car to go to buy food or not having a fridge to conserve food - because of lack of electricity access or economical resources- can hinder family's food security as there are usually living in remoted areas. In addition, when the roads are impracticable during the rainy season families' food access is reduced. Moreover, the families 2 and 3 had stop to produce their own vegetable because they lacked of time to produce them and knowledge to control diseases. I believe that further investigations on the factors influencing producer's food security should be conducted.

### 3.9 Challenges

One of the mains difficulties encountered by coffee producers in the Yungas are the control of **pests and diseases**, soil fertility and the renovation of their coffee plantations, without which the production can drop greatly and therefore lead to the abandonment of producers' coffee activity. Indeed, the appearance of more issues related to pests and diseases has been mentioned by many producers during the field work. The coffee berry borer beetle who enter the coffee bean is a problem especially for HQC producers as the infected beans are low quality beans which can ot be sold in the HQC market. Moreover, appearance of pests and diseases are believed to increase in altitude - where HQC producers' have their plantation - due to increasing of temperature link to climate change (Lambot 2017). A participative design of an integrated pests' management that would ensure at the same time coffee quality and enough production is both necessary and a challenge. The change of direction toward a management in the HQC sector that would preserve producer's natural capital rather than an inputs dependent unshaded monoculture **coffee management** is also a great challenge that should be in the heart of any future development projects in the sector.

Producers who manage to continue their coffee activity have high production costs (Urioste Daza 2018) and do not gain enough value out of their coffee because they either sell their coffee as cherries or low quality humid coffee to intermediaries. As mentioned earlier, engaging in a HQC market can be a solution for producers to increase their profit. However, the research highlights that processing and selling HQC entail some conditions and limits that restrain producers from engaging themselves in that direction. For example, producers as the family 2 and 3 do not have

**the necessary equipment and infrastructure** to conduct these processes adequately and families with smaller volumes of production do not always see the reason to invest time and resources to process coffee. Some NGO's projects have intended to support producers with processing infrastructure, but these were not enough without providing them the knowledge on how process the coffee.

Coffee quality is dependent environmental factors (altitude, soil, climate etc.), that cannot be ganged by the producers, by opposition to other factors as pruning, shade management, harvest strategy and post-harvest management that can be control by the producer and which play an important role in coffee quality and consequently in premium price received. Unfortunately, producers who would choose to go towards production and processing of HQC to gain more value may also lack of **knowledge** on those matters and may lack of access to a HQC market.

**Access to a HQC market** is indeed a challenge for producers especially because this is still an international and national niche market. The access to HQC market was before favors by the organization of the Cup of Excellence in the country. Unfortunately, the Cup of Excellence no longer exists in the country. Since 2016, Bolivia organize its own competition, the presidential cup (Torneo de Café Taza Presidencial Evo Morales Ayma), but according to professional of the coffee sector, this event does not attract as much international buyers as the Cup of Excellence and the cuppers do not have as much training. The building of social network is highly dependent on the individual and household's motivation to open themselves towards that direction but is also dependent on the development of events as the former Cup of Excellence to create possible networking environment for producers and other professionals of the HQC sector. Therefore, efforts on the development of such events for producers interested in participate in HQC market have to be made.

Regarding the remaining challenge of **delay of payment** for HQC export, foreign buyers should develop a system that would allow them to deliver to producer's advance of payment. Nonetheless, this would necessitate the building of strong trust of the buyers toward producers regarding the expected quality of the coffee that will be send to them.

As mentioned in the section social capital, producer' children do not seem to want to keep up with their parent's coffee production. **Youth migration** is indeed a challenge in the region for the coffee sector in general but also for other agricultural production. Indeed, many youths migrate out of the production region to main urban cities (e.g. children of the family 1 and 4, see annex 2 and 5) because the country side lack of higher education, employment opportunities and good wages. Even though children play a great role in supporting their parents' production

activities, children are eventually leaving the production responsibility to aging producers (Urioste Daza 2018). However, with the aforementioned positive impacts of participation in HQC market for some producer's livelihood capitals (incomes, home comfort, relationship with buyer ect.) and with future effort to improve other livelihood aspects (natural capital, knowledge building, health and food security), HQC value chain could possibly be an incentive for young generation to wish to continue with their parent's production activity and consequently to reduce youth migration.

## 4 Conclusion

Despite national and international effort to improve Bolivian coffee farmers' livelihood in the Yungas region, smallholders are still facing strong livelihood vulnerability. Results suggest that production of HQC can benefit farmers with improvement in their livelihood financial and physical capital as well as improving their access to work force (human capital). Producer's livelihood social capital is also positively influence by selling HQC with the building of trusty relationship with their buyers. HQC producers are also building their knowledge through technical support and eventually training they receive from their buyers (human capital).

The research highlight that the high income of HQC motivates farmers to expand their coffee production but this development requires investment of time, energy and money as well as knowledge on accounting. The research also revealed that farmers apply inorganic chemicals and cut ad burn large forest areas questioning the environmental sustainability of the HQC production. This is important because can we really talk of HQC if it only relies on the inherent quality of the coffee and not in the quality and sustainability of the natural environment? In order to better empower farmers in the HQC value chain, more training and support regarding HQC processing should be developed as well as support regarding shade and pests' management respectful of people and the environment.

An important recommendation for further development in the HQC sector in the Yungas, would be participative, action oriented and case specific research and development. The results allow to have a general - but not complete picture - of the influences and limits of the participation in HQC value chain for farmers' livelihood in the Yungas, which can contribute to further development in the HQC sector at the local and national level. However, my filed research with four families revealed that each family have a distinct history, desires, difficulties and priorities which have to be taken into consideration for further recommendations regarding their livelihood strategy and coffee management.



## 5 References

Amaya, G., Peterson, P., & Moreno, M., 2001. Master Plan: Specialty Coffee Development In The Yungas. Washington D.C: Market Access and Poverty Alleviation (MAPA) Project.

[http://pdf.usaid.gov/pdf\\_docs/Pnacu372.pdf](http://pdf.usaid.gov/pdf_docs/Pnacu372.pdf)

Bacon, C.M., Méndez, V.E., Flores Gómez, M.E., Stuart, D., Díaz Flores, S.R., 2008. Are Sustainable Coffee Certifications Enough to Secure Farmer Livelihoods? The Millenium Development Goals and Nicaragua's Fair Trade. *Cooperatives, Globalizations* 5 (2), 259-274.

Barrientos Z, R., 2011. Diagnóstico de la Situation Cafetalera del Municipio de Caranavi. Vice Ministerio de Coca y Desarrollo Integral 80.

Borella, I., Mataix, C., Carrasco-Gallego, R., 2015. Smallholder Farmers in the Specialty Coffee Industry: Opportunities, Constraints and Businesses that are Making It Possible. *Institute of Development Studies Bulletin* 46 (3), 29-44.

Cameron, W.B., 1963. *Informal sociology: A casual introduction to sociological thinking* (Vol. 21). Random House., 1964.

Climate Data, 2018. Climate: Bolivie. Retrieved from <https://fr.climate-data.org/country/113/>.

DFID, 1999. Sustainable Livelihoods Guidance Sheets. Accessed January 2017. <https://www.enonline.net/dfidsustainableliving>

Donovan, J., Poole, N., 2013. Changing asset endowment and smallholder participation in higher value markets: Evidence from certified coffee production in Nicaragua. *Food Policy Journal* 44, 1-13.

Equal Exchange, 2018. History of coffee in Bolivia. <http://equalexchange.coop/history-of-coffee-in-bolivia>. Retrieved January 2018.

Estevez, C. L., Bhat, M. G., & Bray, D. B., 2018. Commodity chains, institutions, and domestic policies of organic and fair trade coffee in Bolivia. *Agroecology and Sustainable Food Systems*, 42(3), 299–327. <https://doi.org/10.1080/21683565.2017.1359737>

FAO, 2017. FAO Stat: Bolivia Country Indicators. Rome: FAO. Retrieved from <http://www.fao.org/faostat/en/#country/19>

Fridell, G., 2014. Coffee Statecraft: Rethinking the Global Coffee Crisis, 1998-2002. *New Political Economy* 19(3), 407-426.

Hellin, J., & Higman, S., 2002. Smallholders and niche markets: lessons from the Andes. *Agricultural Research & Extension Network*, 118, 16.

- ICO. (2017). Total coffee production by all exporting countries. <http://www.ico.org/prices/production.pdf>
- Kegley, S.E., Hill, B.R., Orme S., Choi A.H., 2016. Pesticides Action Network (PAN) Pesticide Database. <http://www.pesticideinfo.org>.
- Klein, H. S., 2011. A concise history of Bolivia. Cambridge University Press.
- Lambot, C., Herrera, J.C., Bertrand, B., Sadeghian, S., Benavides, P., Gaitán, A., 2017. Britta Folmer (Eds.), Cultivating coffee quality – Terroir and agro-ecosystem. In: The craft and science of coffee. Academic press, London? United Kingdom, pp. 28-48.
- MDRyT, 2011. Política Nacional del Café. La Paz: Ministerio de Desarrollo Rural y Tierras de Bolivia.
- MDRyT, 2013. Resultados del Censo Nacional del café 2011-2012. Ministerio de Desarrollo Rural y Tierras de Bolivia.
- Neilson, J., 2007. Institutions, the governance of quality and on-farm retention for Indonesian specialty coffee. *Singapore Journal of Tropical Geography* 28, 188-204.
- Niño Peña, M.P., Pelupessy, W., 2014. Colombian Coffee Strategies and the Livelihoods of Smallholders. Discussion paper of the Institute of Development Policy and Management, University of Antwerp.
- Painter, J., 1994. Bolivia and Coca: A study in dependency (vol.1). United Nations University Press.
- Patton, Q.P., 2002. *Qualitative Research and Evaluation Methods*, ed. Sage, London, 356.
- Rhinehart, R., 2009. What is Specialty Coffee? <http://www.scanews.coffee/2017/03/17/what-is-specialty-coffee/>. Retrieved March 2018.
- Rojas, M., Condori, V., Santa Maria, S., & Espinoza, J. G., 2017. Determinación del incremento del volumen de producción y la estructura de ingresos, costos a nivel de la finca familiar para los rubros productivos priorizado en la ENDIC y el PAPS II en el Trópico de Cochabamba y Yungas de La Paz (p. 95). La Paz: Fundación DECMA - NIRAS.
- Ruben, R., Fort, R., 2012. The impact of Fair Trade Certification for Coffee Farmers in Peru. *World Development* 40 (3), 570-582.
- Soux, M. L., 2016. Apuntes para una historia del café en los Yungas paceños. *Historia - Revista de La Carrera de Historia UMSA*, 37, 43–74
- Scoons, I., 1998. Sustainable Rural Livelihood. A Framework for Analysis. IDS working paper 72. Institute of Development Studies, Brighton.

Specialty Coffee Association (SCA), 2017. Cupping Protocols. <https://sca.coffee/research/protocols-best-practices/> (Retrieved in February 2018).

Urioste Daza S.A., 2018. Quantitative market study of the Bolivian coffee value chain. Work in progress. La Paz, Bolivia.

Velasco, R., & Valda, G., 1965. Estudio de los sistemas de beneficiado del café en las provincias de Nor y Sud Yungas. La Paz: Servicio Agrícola Interamericano; Ministerio de Agricultura, Ganadería y Colonización.

Vellema, W., Buritica Casanova, A., Gonzalez, C., D'Haese, M., 2015. The effect of specialty coffee certification on household livelihood strategies and specialization. *Food Policy* 57, 13-25.

Wollni, M., Zeller, M., 2007. Do farmers benefit from participating in specialty markets and cooperatives? The case of coffee marketing in Costa Rica. *Agricultural Economics* 37, 243-248.

## 6 Annexes

### 6.1 Annex 1: Coffee Value Chain in Bolivia

#### 6.1.1 Coffee Production and Processing

The production of coffee starts with the producer selecting coffee cherries from its coffee trees to extract the beans which will be planted to produce seedlings. From there, the seedling will develop during approximately 100 days before being transplanted in the plot. When in the plot, the plant will take from 2 to 3 years to have its first flowering. During that time frame, the plant is vulnerable and need a proper weeding, fertilization and disease control. Then comes the time of harvest which takes place in the Yungas between May and November depending on the altitude with a peak harvest between June and July. The mature and immature fruits are then selected (picture 11 and 12) by hand or in a water tanks with the immature fruits floating (second quality grains locally called “kolos”). The skin and the mucilage of the coffee cherries are then removed during the wet process which suit better to the humid climate of the Yungas. In that process, the skin is removed with a despulping machine (wooden or metal and manual or motorized). Right after the skin removal, the coffee bean goes through the fermentation process, which lasts 20 to 36 hours in order to eliminate the mucilage from the beans. The beans are then being washed and ready to be sun dried, to finally obtain parchment coffee. Coffee beans will be then send to la Paz for hulling (removal of the parchment) to obtain green coffee. Green coffee will be then sorted by size and density, to be then sorted by color manually. Coffee beans are then ready to be exported and/or roasted locally.

Either through producers’ associations or direct trade, producers can either sell low or HQC. Coffee’s quality relies on every stage of the process from the pedo-climatic condition of the coffee plot to the way the coffee will be brewed in the coffee shop. According to professionals in the coffee sector, the quality depends mainly on the altitude the coffee is being grown – between 1200 and 2000 m above the sea level being ideal- but also the coffee varieties and the way the coffee will be processed. Regarding processing, selecting only ripe fruits without any pest infestation during the harvest and processing them the same day of the harvest is essential. The right time of fermentation, the turnover of the coffee while drying to avoid contamination and the right percentage of humidity after drying, are also important components which will contribute to obtain a HQC.



*Picture 1: Harvest of unripe and rotten coffee cherries sold to intermediaries in the local market. Picture taken in Copacabana in May 2018.*



*Picture 2: Harvest of ripe coffee cherries sold for a HQC market. Picture taken in Copacabana in May 2018.*

## 6.1.2 Coffee Commercialization

The producers can either choose to sell their coffee as cherries, parchment or green coffee. Very occasionally producers are doing the process up to roasting. Regarding commercialization, producers can sell their cherries or parchment coffee to a producer's associations if they belong to one. The association will continue the processing to then sell the product either to the international or the national market. Another option for the producer is to sell their cherries, parchment or green coffee to intermediaries. This is generally the option for producers to allocate their discarded or low quality beans. Intermediaries distinguish themselves from local industries as they do not process or add value to the product but only move the product from an actor of the value chain to the other. Producers can also choose to sell through direct trade meaning that they will be selling without any intermediaries but directly to the next actor in the value chain. Direct trade can be done at any stage of the value chain. It does not mean going directly from producer to the consumer or exporter. Producer doing direct trade can either sell their coffee to national roasting industries or to local industries that will then export coffee in micro-lots.

National private industries or producers' associations will rather buy coffee as cherries to producers to allow them to control the quality of the different stages of the processing, particularly those aiming to produce HQC. When commercializing HQC, especially for export, sellers or buyers may opt for cupping their coffees to determine its quality and set a price accordingly. In La Paz, the laboratory "Café de Calidad" offers this service. Producer's association sometimes also provide such services. In this document, a high-quality coffee refers to a coffee cupped of more than 83 and a low quality coffee equal or less than 83.

According to the CBA conducted by the overarching project of this research (Urioste Daza 2018), producers' will earn higher benefit when selling roasted coffee in direct trade. Then the higher benefit

will be made when selling high quality green and parchment coffee in direct trade with local or exporting companies. In any case, the selling of coffee in cherry form will always generate losses for the producer considering the production costs which are high in Bolivia. However, the losses will be lesser when selling high quality cherries through direct trade rather than selling low quality through producer's association or intermediaries.

*Table 4: Direct trade between producers and exporters/importers prices and costs of commercialized coffee. Retrieved from (Urioste Daza 2018).*

| Quality                   | Concept             | Price paid per pound of green coffee | Costs   | Profit    | Cost-benefit ratio |
|---------------------------|---------------------|--------------------------------------|---------|-----------|--------------------|
| High quality coffee (>83) | Export green coffee | \$ 3.00                              | \$ 1.25 | \$ 1.75   | 1.41               |
|                           | Parchment coffee    | \$ 0.93                              | \$ 1.00 | \$ (0.07) | -0.07              |
|                           | Cherry              | \$ 0.32                              | \$ 0.85 | \$ (0.53) | -0.63              |
|                           | Roasted coffee      | \$ 11.84                             | \$ 5.38 | \$ 6.46   | 1.20               |

*Table 5: Direct trade between producers and coffee shops/roasting industries prices and costs of commercialized coffee. Retrieved from (Urioste Daza 2018).*

| Quality                   | Concept                      | Price paid per pound of green coffee | Costs   | Profit    | Cost-benefit ratio |
|---------------------------|------------------------------|--------------------------------------|---------|-----------|--------------------|
| High quality coffee (>83) | Green coffee national market | \$ 4.00                              | \$ 1.12 | \$ 2.88   | 2.57               |
|                           | Parchment coffee             | \$ 2.99                              | \$ 1.00 | \$ 1.98   | 2.33               |
|                           | Cherry                       | \$ 0.34                              | \$ 0.85 | \$ (0.51) | -0.09              |
|                           | Roasted coffee               | \$ 11.73                             | \$ 5.38 | \$ 6.35   | 1.18               |
| Low quality coffee        | Green coffee national market | \$ 2.80                              | \$ 1.12 | \$ 1.68   | 1.68               |
|                           | Parchment coffee             | \$ 2.30                              | \$ 1.00 | \$ 1.30   | 1.53               |
|                           | Cherry                       | \$ 0.29                              | \$ 0.85 | \$ (0.56) | -0.66              |
|                           | Roasted coffee               | \$ 8.14                              | \$ 5.38 | \$ 2.75   | 0.51               |

### 6.1.3 Role of Coca Leaves Production

Talking about coffee production and even more talking about the Yungas cannot be done without mentioning coca leaf. Coca have a long and strong presence in the history of the country and especially of the Yungas region (Painter, 1994). Coca leaves were consumed since the pre-Columbian period and later by the Quechua and Aymara indigenous miners and workers of the highlands during the colonial period. The coca leaf or “hoja sagrada”, was used as a stimulant and to protect the body from hunger, cold and altitude sickness (Klein, 2011 and Painter 1994). Still today, coca is cultivated and consumed in the Yungas region and in all the country - for at least one million Bolivians-, local tradition known as acullico, where the coca leaves are chewed and held in the cheek.

In addition to coca production for local consumption of raw coca leaves, these latter are also produced to be processed into cocaine. During the end of the 80s and in the 90s a growing interest of foreign countries to fight against drug production led to the development of new rural development approaches in the coca's producing areas as Bolivia. Many projects were financed by USAID and the United Nations office in Bolivia with coffee as a prioritized alternative crop to coca (Soux, 2016). However, coca remains not only an integral part of the Bolivian culture but also an integral part of its economy. Indeed, 28% of coffee producers' incomes in the Yungas, especially in the municipality of Caranavi and La Asunta, is coming from coca production (Rojas 2017). In his study from 1994, Painter stressed the fact that other crops could hardly compete economically with coca, the 'green gold of the Andes'. Farmers can choose to produce coca in addition to or instead of coffee production firstly because the coca from Yungas is demanded at the national market for traditional consumption, which comes to be an important market paying attractive prices. Moreover, coca allows the producers to have a first harvest only 12 months after planting while coffee may need from two to three years. Coca can be harvested three or four times a year assuring guaranteed liquidity along the year and often paid at delivery; which in some occasions does not happen with coffee.

## 6.2 Annex 2: Family 1

### 6.2.1 Description



*Picture 3: From left to right: Allan, Carmelo and Deysi in a restaurant in Caranavi. Picture taken in March 2017*

#### **History**

Carmelo and Deysi were both born in the Altiplano. Their family immigrated in the Yungas when they were children to produce coffee. Therefore, Carmelo and Deysi are the second generation of coffee producers in their families.

After high school, Carmelo studied agronomy in la Paz. His wife, Deysi studied only until middle school. She started then to work in restaurants or helping her family with coffee production. Later, at 25 years old, when she met Carmelo who was 30 years old, she started a training as a technician in coffee cupping in la Paz. Today, the couple has four children. The oldest girl, Arezli (17 years old), Allan (14 years old), Dany (eight years old) and Carli (seven months).

They have been living and working many years in La Paz as technical advisors for the laboratory Café y Calidad and then with the coffee producers association FECAFEB. They received from USAID an ongoing training to become coffee cuppers. With FECAFEB they also worked as cupping judge during the Cup of Excellence in Bolivia which does not exist anymore.

They enjoyed their work and learned a lot, nevertheless, in 2009 Carmelo and Deysi bought a land in the colony of Loa in the Yungas, starting with their own coffee farm. The same year, they won a price at the Cup of Excellence. At the beginning, they were not often working on the land. They had employees who were taking care of it. However, Carmelo realized that the work was not well done and that they were losing money. He thought that to have quality coffee, a significant production and economic benefit from selling they should invest. With the new investment, they lived permanently on the farm. Deysi and Carmelo were very motivated to produce HQC (see annex 1).

### **Daily routine**

Deysi and Carmelo share their time between working in the coffee plantation and the coffee shop. During the period I was working with them, what we did most was weeding in the renewed plots, as well as weeding in the coffee trees nursery. We also spent a day spraying an older plantation with lime powder and copper sulfate against fungal infestation.

Beside the work in the field, Deysi was mostly spending her day in the house, cooking lunch and dinner for the family and the workers while taking care of her baby. In the morning it was Carmelo who was waking up early to prepare the breakfast to let Deysi rest. According to him this was important that Deysi and the baby did not get cold in the morning. In fact, the kitchen was open air. However, when I visited them in Caranavi later in my field work, Deysi was staying most of the time in Caranavi to attend their coffee shop and to take care of her children who were going to school. While she was in Caranavi, it was generally Carmelo's sister in law who was preparing food for everyone in the coffee plantation.

### **Motivation to produce coffee**

When working in coffee cupping, Deysi and Carmelo realized that many Bolivian coffees can easily compete with other countries regarding quality. Therefore, they discover “the hidden treasure of Bolivia” and this was one of the reason why they wanted to start producing their own coffee. They also mentioned that at the beginning people from Caranavi were used to drink soluble coffee and were pleasantly



surprised when served an espresso. Open a coffee shop was then a good idea as it was a new market in the region.

Moreover, for them producing their own coffee instead of working as a technical advisor is a way of earning a better salary each month. He mentions that even if producing coffee requires a lot of effort and work force, it is profitable if you have quantity. There are not hesitating to invest in their plantation. A big part of the money they earn with the sale of coffee is reinvested in the production. For instance, for renovation of a coffee plot even if this one will give fruits only in two or three years.

Regarding quality, they think that specialty coffee is a market which is expanding. They were motivated to produce a specialty coffee because they believe that it is more profitable, and that with a high quality, they know what they are selling and they also know the price they should receive.

For Deysi and Carmelo, growing coffee is important for their family not only economically, but also at a personal level. As Carmelo said “A nosotros, mi familia, nos gusta, nos encanta dedicarnos a este actividad” – “*Us, my family, we like, we love dedicate ourselves in this activity*”. ‘When there was a coffee crisis in their farm due to diseases, they tried to invest and dedicate to timber. But Carmelo said that nothing can replace coffee for him. Moreover, Carmelo thinks that coffee is a way a creating jobs because it requires a lot of working force. When mentioning the extra work needed to produce quality coffee, Deysi stresses the fact that producing high-quality coffee requires one to like coffee, and to be willing to produce a good coffee. Indeed, it seems that for them coffee is really something they enjoy to do and something they are willing to improve. They often ask their customers what they like, or what they do not like and what could be improved. Moreover, they believe that in the market of specialty coffee, consumers have become more demanding, and so they want to increase their knowledge in coffee quality to improve themselves in this matter. Each year, they try to make adjustment in their way of producing coffee. For them this is not inconvenient; on the contrary, they enjoy it.

Another important motivation for them to become coffee producers was to lead a life in the countryside which they enjoy more and to spend more time with their children. When working in an institution they were often traveling and were not seeing their children grow.

### **New generation of coffee producers**

Deysi’s 17 years old daughter, Arezli, is at her last year of high school and was planning to start to study gastronomy next year in La Paz. Deysi ‘s and Carmelo’s 14 years old boy, Allan, seemed to be interested in coffee. In fact, Carmelo said that his son would probably like to work in the coffee sector.

## 6.2.2 Livelihood Capitals

### Physical Capital

#### Family's home



*Picture 4: Carmelo's and Deysi's home in Loa.  
Picture taken in March 2017*

The household have high comfort of home by having a brick house, a sink, a shower, a toilet, access to electricity and enough rooms to allow children and parents to have their own room as well as rooms for their employees. Indeed, having all this is not common for farmers' household in the Yungas. They built their brick house, toilet and shower with the income from their coffee shop and coffee production. In their plantation, they had access to electricity since one year as the rest of the colony. All the inhabitants of the community decided what to do with the money they received each year from the municipality of Caranavi. Moreover, when Carmelo and Deysi stay in Caranavi where they have their coffee shop and their children going to school, they live in a rented single room where they all sleep together except for their oldest daughter Arezli. She has a small rented room for herself.

#### Transport

The family owned one car which they had bought four years ago. They used it to move between Caranavi and Loa, which were at one hour and a half driving distance. It was important for them to be able to spend time at their coffee shop and with their children in Caranavi while also spending time in the plantation. The car also allows them to purchase food, kitchen gas and other necessities for the house at the plantation. However, they have to contract a car when they want to transport their coffee to el Alto for hulling and selecting.

#### Tools, Machines and Processing Infrastructure

The family owned three brush cutters, several pickaxes and shovels They still weed manually around the coffee trees in the plots in renovation to avoid damaging the young plants. To spread herbicides and fungicides they owned the two electrical sprayer. For the first processing step of pulping they use their

manual pulping machine. Then for the drying they have outdoors nets tables. To store their coffee, they have a small storage room in Loa. They roast their coffee themselves for the coffee shop with their own roasting machine. In the coffee shop they also have a high quality expresso coffee machine and coffee grinder.

### **Agricultural Inputs**

In my stay in their production, the family has mineral granule fertilizer and chicken manure mixed with rice shells, which they bought to fertilize their coffee seedlings. Although the household seems to have good access to fertilizer, they consider they do not have enough. The former owner of their coffee plantation only had 200 to 500 coffee plants per ha while now they have a planting density of 4000 plants per ha and this intensified system need more fertilization. For fungal disease, they sprayed a product that consist of Azoxystrobin and also sprayed one's a year a mixt of copper sulfate and calcium hydroxide directly on the coffee plants.

### **Human Capital**

#### **Work Force**

Carmelo and Deysi agree that producing and processing coffee is a labor demanding activity, but necessary to produce high-quality coffee. When working with the family, they had three contracted employees living on the farm who were payed 174 USD/ha for weeding with food and bed included. One of them was Carmelo's brother who was also there with his wife and children, his wife participating in the coffee nursery. During the harvest period, they needed more working force so they contracted between 10 to 15 workers depending on the quantity of coffee of the respective year. They pay the workers between 0,07-0,09 USD/lb of ripe coffee fruits. Generally, they preferred to hire friends and relatives rather than people they did not know. They want to know their workers to be sure that they know how to manage high-quality coffee. For their coffee shop in Caranavi, they employed two teenage girls of 17 and 18 years old and their daughter helped them as well.

#### **Education**

As mentioned above, all their children were attending to school. Dany was in primary, Allan in secondary and the oldest, Arezli, graduating from secondary this year. It appears sure to her and her parents that Arezli will be able to study gastronomy in la Paz. She seems studious and had a computer to help her study. It seemed important to Carmelo and Deysi that their children study to be able to have a good job in the future.

#### **Health**

The family could not really go to the hospital because it was expensive. As many people in the Yungas, they did not have health insurance. However, it seemed that the family had enough economic resources to go at the doctor. When their new born child had health issues, they did not have to pay for anything as in Bolivia healthcare is free for babies and people who are over 60 years old.

### **Knowledge and Experience**

As mentioned above, in the section 'history'; before becoming coffee producers Carmelo and Deysi worked in institutions as FECAFEB, USAID, and Cafe y Calidad as technical advisors and coffee cuppers. In this regards, they seem to have high level of knowledge in management of HQC production, processing, *barista* and the coffee market.

Both Carmelo and Deysi also learnt about coffee production with their parents in their childhood. Until today, they seemed to be always motivated for learning, and experimenting with new things.

When asked whether or not selling HQC allows them to increase their knowledge concerning coffee management, Carmelo responded that it did increase his knowledge. This was especially true regarding quality, because according to Carmelo, it needed a constant coffee tasting to improve the skills each year, and this required a constant learning by experiencing. Moreover, when their buyers of specialty coffee visited their farm, Carmelo and Deysi were also glad to have the opportunity to learn new things from them regarding the management of their plantation.

### **Financial Capital**

#### **Income diversity**

The principal source of Carmelo's and Deysi's incomes was from the export of their coffee (about 85%). The rest of their incomes came from the coffee shop. To a lesser extent, their sale of young plants and occasional institutional contracted jobs as consultants also provided other incomes. However, during the past two years they did not have any consultancy contracts. They did not have other agricultural activities, neither for sale nor self-consumption. They did not produce any coca neither.

#### **Price received**

For export of green coffee beans, their main economic activity, they sold green coffee at 4,60USD/lb. They believe to have bargaining power over the price when negotiating with buyer according to the quality of the coffee each year.

They did not receive the payment at the same time they provide their coffee. Buyers collected the coffee and payed the family when the coffee arrived in the country of destination. The payment sometimes came several months after the end of selection of green coffee beans. In this case they managed to buy food with the revenues from their coffee shop and adapting their food consumption.

#### **Financial Support**

The family had credits at the moment of research with a 11% rate of annual interests. For them, credits were important especially when they wanted to invest in their coffee. For instance, when they wanted to construct their coffee storage room. Another type of credits also allowed them to pay their employees and food. Carmelo stress that him and Deysi were always calculating how much they could borrow from the bank to avoid financial difficulties with debt they could not reimburse easily.

## **Social Capital**

### **Support**

The family never had technical assistance for their production of coffee except the appreciated advices and feedback they received from their buyers each year. In the past, they had support from the Mission Alianza (Nowegian NGO's) to buy their manual pulping machine and mineral fertilizer. The Mission paid 50% of the pulping machine and 70% of the fertilizers.

The support between the members of their family seemed important for them as well. Carmelo and Deysi's daughter, Arezli, was helping with the coffee shop. This support from their children means a lot for Carmelo.

Within the members of colony, they also support each other especially regarding coffee production. Among other they practiced *minka*. Moreover, when one producer had coffee disease issues the others tried to help to avoid infestation of the other coffee plantations.

### **Social Network**

The family appears well connected with people involved in coffee at all levels. Thanks to their former employment as technical advisors in institutions and their participation in the Cup of Excellence, they extended their national and international network. They often welcome students from other countries such as me in the context of this study.

### **Relationship with buyers**

Deysi and Carmelo had a good, long term and trustworthy relationship with their buyers. They did business with the same buyers for eight years since the beginning although they stopped to work with two of them temporally last year because they did not have sufficient coffee quantity. However, as their production was increasing, they planned to work with them again this year. The family trusted their buyers and the buyers trusted them. Carmelo described the HQC business as a business you can trust. *'El negocio del café es de caballeros. Es de palabra'*.

### **Involvement in local governance**

Both Carmelo and Deysi played a significant role in the colony. Deysi as the person in charge of the coffee production and Carmelo as the syndical director the past two years. Deysi visited producers, took photos to show the others anonymously during the colony's meetings to discuss on what could be improved. Being on the board of the colony, Carmelo was in charge of coordinating projects.

## **Natural Capital**

### **Agrobiodiversity**

The household did not have a high agrobiodiversity. They only grow coffee and no other crops. However, they grew seven different coffee varieties some of which were hybrids.

### **Agroforestry**

When they first bought the land there was already an old plantation of Caturra variety in an agroforestry system. Recently they decided to invest and renovate their plantation little by little and also to cut part of the forest to create new coffee plots. For the renovation of the old plantation they slashed and burnt almost all the trees. In the renewed coffee plots and the new ones, they decided to plant coffee trees – from seedlings (picture 4) - in hedgerows, with no shade cover and with a high density of 4000 plants/ha.

However, they are planning to implement in the futur a low shade cover by planting Ceibo trees (*Erythrina crista-galli*) with coffee trees. They believe the Ceibo to be suitable for this purpose as it grows fast, is easy to manage, is a nitrogen fixer and have leaves nourishing well the soil with their fast decomposing speed. Indeed, they thought that it is better to have coffee with 60% of shade because when coffee is grown without shade it is more demanding in nutrients and you need to fertilize. Carmelo said that without shade there is a good production but only with strong fertilization otherwise the fruits dry or do not ripe well.



*Picture 6: One of Deysi's and Carmelo's coffee renewed plot in Loa. Picture taken in March 2017*



*Picture 5: Carmelo in front of the coffee tree nursery in Loa. Picture taken in March 2017*

## 6.3 Annex 3: Family 2

### 6.3.1 Description

#### History

Filomena and her family emigrated from the Altiplano to Taypiplaya in the Yungas, when she was 16 years old. From there they started to grow coffee and other products. Angelino went alone to the Yungas when he was 13 years old to work as a permanent employee in a coffee plantation. Later when he had managed to save some money he bought his own land of 13 ha to grow coffee. Later when Angelino and Filomena married they bought another piece of land in the colony of Broncesal and started to grow coffee. By the time of research, they had 5 children, 3 girls (Alivia – 30 years old, Agela – 13 years old and Anali – four years old) and 2 boys (Willi -28 years old and Wilmer-18 years old).

During the research, the family seemed to have a very close relationship to nature and enjoyed staying in their house in the plantation. The family also had noteworthy traditional beliefs and practices. Angelino and Filomena chewed and shared coca and a cigarette as a ritual two times a day –morning and afternoon– before working. They also believed in spirits and the transformation of humans into animals. Their belief in the Pachamama (Mother Earth) made them very respectful toward their natural environment.



*Picture 7: From left to right – Angelino, Angela and Filomena in their land in the colony of Broncesal near Taypiplaya. In the left background their agroforestral coffee production with plantains on the ground in the front. On the right background their kitchen. P*

#### Daily routine

During my stay with the family, Angelino, Filomena, Allivia and their youngest daughter Anali, we were driving from their home in Taypiplaya to the plantation in Broncesal every day, and would return at the end of the day. Nonetheless, when I was not with them for the research, they usually spent the night in their house in the plantation several days. When arriving at the plantation at 9 o'clock in the morning, they sat down to chew coca and smoked a cigarette before changing clothes and be ready to start working. The daily work varied from weeding and harvesting the coffee plantation to taking care of, and harvest

other products they grew. At noon, Filomena or Allivia would prepare lunch before chewing coca again, and get back to work until 6 o'clock in the afternoon. When coming back home to Taipiplaya, their daughter in law had the dinner ready, or sometimes only tea and bread. They usually stayed up late, talking in the kitchen, playing with the children or listening to the radio in their room.

When working with them during the research, I noticed that Filomena, Angelino y Allivia were very hard workers and were often really tired. Once Filomena was even falling asleep while selecting the coffee beans. In fact, she did not sleep a lot. She did not complain about it except one day when she said that she could not take a nap otherwise Angelino would say that he worked more than her.

### **Motivation to produce coffee**

Producing coffee for the family was obviously a source of revenue, but it was also something they enjoyed to do. Angelino and Filomena enjoyed more being in their plantation than in Taipiplaya, because they felt closer to nature and always had something to do. Filomena said that the river nearby was her music. It seems that they were highly motivated for producing high-quality coffee. Even though they knew that the Red Caturra variety gave them a higher production quantity, they also grew the Typica variety, which gave them less yield, but with a higher quality. They were thinking to plant more Typica in the future, a motivation that had become stronger since they had recently started working with a local HQC roasting company, Café Munaipata. When they had delay of payment problems with their former coffee buyers, a producer's association called ASOCAFE in Taipiplaya, they did not lose their willingness to grow coffee. They kept looking for another market.

Angelino and Filomena embraced the idea of being entrepreneurs and to process high quality coffee in the future themselves. For them, this would be an opportunity to demonstrate their abilities, to be an example for their children to continue in the future and the gain more value on their coffee. However, by the time of research, they only sold ripe coffee fruits, because it required less work. They said that processing coffee was time consuming and demanding work that required a lot of precision. Moreover, they did not have the proper processing infrastructure yet (drying tables with plastic roof, a tank for honey water from fermentation and a storage room).

### **New generation of coffee producers**

Angelino and Filomena wished that their children could continue with the coffee family business. Indeed, Filomena said that *“por ahora seguiremos majorando nuestra calidad hasta tener una planta de beneficiado para nuestro café y que por lo menos uno de nuestros hijos sigue”* – *“Right now we are going to continue to improve our coffee quality until we have a processing infrastructure for our coffee and with the goal that at least one of our children continue”*. Their daughter, Angela, would like to be an agronomist and to continue with her parents' coffee production. In fact, she seemed to like very much working with her parents in the plantation during weekends when she did not have school. Their eldest



daughter, Allivia, was helping them a lot as well every day, but she was rather wishing for her own place in the future where she would work in tourism rather than coffee. However, Allivia did not have sufficient economic resources to achieve her project yet. Their eldest son, Willi, was not at all involved in the coffee sector. He had his own car on own money doing taxi and sailing petrol.

### 6.3.2 Livelihood Capitals

#### **Physical Capital**

##### **Family's Home**

Filomena's and Angelino's main home in Taypiplaya was a brick house in with one bedroom for them, their oldest daughter Allivia, their youngest son Wilmer and their youngest daughter Anali, one room for their oldest son Willi and his wife and baby, and finally a private room for Angela. Filomena had inherited the house from her father. There in Taipiplaya, they prepared food exclusively with gas, and they had access to electricity. Even though they had running water in the courtyard, they did not have a sink in the kitchen. Nevertheless, they did have a toilet and a shower. Their home in the colony of Broncesal near Taypiplaya, was one wooden room they all shared together when they spent the night there. The kitchen was made of wood as well. They prepared food with gas during the rainy period of the year and with wood the rest of the time. They did not have access to electricity there, neither a shower nor a toilet.



*Picture 8: Kitchen of the family in their land in the colony of Broncesal near Taypiplaya. Picture taken in May 2018.*

#### **Transport**

Agelino and Filomena had been owning a car since 6 years which they used to transport their coffee and other products out of their farm and sell them. They also needed the car to go from the town they were living to their coffee plantation.

### **Tools, Machines and Processing Infrastructure**

Regarding tools such as shovels or machete, the household did have many of them to weed all their coffee and coca crops by hand and machete. They had recently bought a second hand brush cutter, but it still needed some reparation to work. Angelino and Filomena did not own any coffee drying infrastructure. For selling in the local market, they dried their coffee on a tarp directly on the ground with the chickens walking around and on top of the coffee.

### **Agricultural Inputs**

The family did not use any pesticides, herbicides nor fungicides because they believed that it was dangerous for their health and the environment. Probably also because they were certified organic in the past with ASOCAFE. To control pests such as the coffee berry borer, in the coffee plantation, they spread fire smoke. The family did not fertilize their coffee at all, neither with organic nor non-organic fertilizers because it would have meant an extra investment. They only left the organic material from weeding and pruning on the ground.

### **Human Capital**

#### **Work Force**

Filomena and Angelino did not have any workers helping them in the management of their coffee plantation but hired some workers during the harvest. They only had their children helping them because having employees was a too expensive investment for them. Angelino said that they did not practice *minka* because their neighbors would not necessarily know how to harvest well. He did not trust them for that. Not having any workers made their daily work exhausting.

#### **Education**

At the moment of the research, Filomena's and Angelino's daughter Angela was still attending secondary school, and their youngest daughter, Anali, was four years old and was not going to school yet. Their three older children (Willi, Wilmer and Allivia) had finished secondary school, but none of them was going to the university. Willi, the oldest, said that he never wanted to go to University. He preferred to work as a taxi driver. Angelino's and Deysi oldest daughter, Allivia, used to study agronomy at the university in the past, but she had to quit because of economic reasons. Indeed, when her father Angelino fell ill, the family had to spend a lot of money for his operation, and Allivia preferred to stop university to allow her parents to spend this money for her father's health.

#### **Health**

Angelino said that he had two important operations which costs them a high amount of money. The family said that health is what cost them most money and that when important health problem occurred they usually had economic issues. In fact, they did not have any health insurance. Regarding the health of the family in general, they worked intensively, did not sleep much and always seemed tired.

#### **Knowledge and Experience**

Both Angelino and Filomena had learnt to produce coffee from their parents, and Angelino had also worked on another coffee farm when he was younger. Besides this, they never had attended other

trainings regarding coffee. Nonetheless, Angelino and Filomena knew how to select coffee seeds for replanting and how to recognize the high-quality coffee beans during harvesting and selection. It did not seem that they felt like they needed any training or advice in producing coffee. However, they appeared that they were in favor of advice regarding improving the quality of their coffee, to sell it to their new high-quality coffee buyer.

## **Financial Capital**

### **Incomes Diversity**

Angelino and Filomena did not have other incomes source than from their land. Their main income came from coca, which can be harvested three to four times per year. Their second most significant income was from coffee production. Regarding coffee products, they also dry and sell Sultana in Taypiplaya. Their third source of income was their avocado production because the avocados were generally sold at a good price. The fourth source of income in importance for the household were citrus fruits (mandarins and oranges). Angelino said that selling the citrus fruits and avocados was a regularly helping them economically.

### **Coffee Prices**

When Angelino and Filomena were selling their coffee to ASOCAFE until recently, they received between 0,24 to 0,34 USD/lb of ripe coffee fruits. They stopped working with them because the last three years they did not receive their money quickly and sometime not entirely according to Angelino and Filomena. This year, the company Café Munaipata payed them 0,53 USD/lb of ripe coffee fruits in average depending on the coffee variety. When they sold their humid coffee to the local market, they would receive directly on delivery approximately 0,81 USD/lb.

### **Financial Support**

Filomena and Angelino do not have any bank account nor ever took any credits. However, they were thinking of taking a credit in the future to renovate and enlarge their home in Taypiplaya. Angelino said that they did not have credits because « *Tenemos ahorros en nuestros cultivos plantados. Nuestras necesidades básicas son cubiertas con la venta de los cultivos estacionales.* » - « *We have savings in our crops. Our basic necessities are covered with the sale of out seasonal crops.* »

The colony where the family lived received money from the municipality and the colony's board and other members of the colony discuss and decide what they will do with this money. This year the colony decided to use it to buy new coffee plants of variety Caturra for all to renovate their coffee plantations.

## **Social Capital**

### **Support**

When Filomena and Angelino were selling their coffee as certified organic through the cooperative

ASOCAFE, they received technical support for organic production. However, Angelino said that with the time, the technical staff from ASOCAFE came less and less because the other producers of the colony had stopped with the certification and so ASOACFE lost its interest to come. Angelino said: “*a lostécnicos no les convenías subir a la Colonia sólo por un productor entonces me abandonaron*” – “*It was not convenient for the technicians to come to the colony only for one producer so they abandon me*”.

It seems that Filomena’s and Angelino’s children were a significant support for them. As said before, their daughter Allivia was helping them every day in the plantation, Angela during the weekends and their daughter in law in Taypiplaya.

### **Social Network**

The family did not seem to have a developed social network except for Angelino brother and their neighbors in Ingavi Segundo. In fact, it is one of their neighbors in this colony who told them about Café Munaipata who was paying at a good price for high-quality coffee cherries. It is through those neighbors that Angelino had the opportunity to get in contact with the company and start working with them.

### **Relationship with buyers**

According to the discourse of Angelino and Filomena, the family did not seem to have a good nor trusty relationship with ASOCAFE. Regarding their new business with Café Munaipata it was hard to tell about their relationship because they had only started to work with them recently

### **Involvement in local governance**

Neither Filomena nor Angelino ever had a position in the board of their colonies. They did not seem to have any particular influence on the decisions in the colony nor in Taypiplaya.

## **Natural Capital**

### **Agrobiodiversity**

The family had a high level of agrobiodiversity as they were not only producing coffee but also coca, avocado and citrus fruits for commercialization and also lemon, peanuts, chili, beans, tomatoes and corn for their own consumption. Moreover, tomatoes, chili, beans, avocado, mandarins and corn were produced in the same plots as coffee – diversified system- during the first years of implementation. They also planted Siquilli (*Inga spp*), avocado and clementine seeds that will give trees to shade the future coffee plantation. Regarding coffee varieties, the family had only two which was Caturra and Typica variety.



*Picture 10: Chili sprouting inside one of the family's coffee plot in renovation. Picture taken in May 2018.*



*Picture 9: Beans plant in coffee plot in renovation. Picture taken in Broncesal in May 2018.*

## **Agroforestry**

All their coffee plots were grown under shade cover and mixed with siquilli, avocados and citrus fruits. According to Angelino and Filomena, their production has decreased greatly the past few years due to coffee diseases such as Coffee Leaf Rust (*Hemileiavastatrix*) and American Leaf Spot Disease (*Mycenacitricolor*). To control the diseases, they decided to renovate their plantations by cutting and burning all the trees and vegetation in the plots or by only pruning the trees over a number of years in order to not lose all their production at the same time. They usually pruned one catu each year.



*Picture 11: Corn field on the first year of renovation of a new coffee plot in the colony of Broncesal. Picture taken in May 2018.*

## 6.4 Annex 4: Family 3

### 6.4.1 Description

#### History

Vicente was born in a village near the Titicaca Lake. He lived there until he was six years old. Then his family migrated and started a coffee plantation in Copacabana, a colony of the region of Caranavi. Vicente stayed there until he was 18 years old and finished secondary school to then start a career as a mechanical in the army. After few years, he leaved the army and went back near Caranavi in Copacabana to work in his uncle's coffee plantation. Then he did many different types of work, including activities in the coffee sector in Santa Cruz, Copacabana and La Paz, where he met Rosali. Rosali was born in La Paz. She studied until the end of primary school to then work in restaurent. She stayed in La Paz all her life until she met Vicente.

Together, Rosali and Vicente had three children. The oldest, Patricia, 18 years old, Vicent, 13 years old and the youngest, Helen, 11 years old. They were all iving in La Paz unti Vicente's uncle died and, no one of the family members wanted the coffee plot except for Vicente who was willing to buy the land. During the time of research, it had been five years they produced coffee as a family.



*Picture 12: From left to right, Rosali and Vicente selecting coffee cherries to delivered them to Agricafé. Picturetake in the colony of Copacabana in May 2018.*



*Picture 13: Family farm viewed from above. In the middle of the land is the living room and the kitchen. The building in the front is the storage room. In the fore ground and on the right side, we can see the coffee plantation without shade cover and burnt trunks.*

### **Daily routine**

Rosalí and Vicente rent a room in Caranavi for all the family. During the week, their children generally stayed alone there while their parents were working on the coffee plantation in the colony of Cochabamba at 30 minutes driving distance. Rosalí's and Vicente's children were sometimes coming to the plantation during the week ends and were helping their parents in their work. During the research period with the family, Vicente stood up at 6 o'clock in the morning to turn on the fire for Rosalí to prepare the breakfast. Rosalí was praying each time before eating any meals. Rosalí and Vicente started working at around 8 or 9 in the morning, which consisted of harvesting or weeding. At around 12, Rosalí prepared the lunch while Vicente was still working. After lunch, Rosalí and Vicente were having a nap, Rosalí longer than Vicente. Vicente went back to work at 1.30pm whereas Rosalí restarted working at 2 or 2.30 pm. They worked then until 7 or 8 pm sometimes later when they had to select the coffee cherries after harvest. Rosalí was the one who was always preparing dinner. Occasionally Vicente was preparing the meals but only when he was alone in the plantation when Rosalí was staying in Caranavi. It seemed that Rosalí worked much less than Vicente and that she was much less motivated.

### **Motivation to produce coffee**

During my conversations with Vicente, I perceived that he was enjoying the countryside life more than the city life. Indeed, Vicente said that when they were living in La Paz *"no estábamos tan libre. Tienes que estar puntual, 7 de la mañana. No podías disfrutar. Eso es. Me siento aquí más libre. De día quieres dormir nadie te dice nada. No hay un jefe. Donde hay un jefe no te dejan dormir. No te van a entender si te duele. Eso es la diferencia."* – *"We were not that free. You have to be punctual, seven o'clock in the morning. You could not enjoy. I feel freer here. If you want to sleep during the day, no one will say anything."* There is not a boss. When there is a boss he does not let you sleep. He will not understand if your body suffers. This is the difference." Beside coffee being their main livelihood, it also appeared that Vicente was enjoying producing coffee. In the future, Vicente would like to export his coffee directly but he did not have enough quantity for that. He would need to fill up a container of 400 bags of one quintal each therefore he would need a least 12 ha.

The motivation of Vicente and Rosalí to continue coffee production in the future was really confusing. On the one hand they appeared to be interested in producing new coffee varieties and to extend their coffee plantation. They also mentioned plans to process the coffee themselves, and to sell it for direct exportation. On the other hand, they mentioned several times moving to Cochabamba for their children to study at a university and to leave the coffee plantation to an employee. However, Vicente also said that he would not want to stop living in the colony because their children are used to be there.

When discussing alone with Vicente or Rosalí, I felt that they both did not necessarily have the same desires for the future. It seemed that Vicente was more motivated to continue with coffee production and

to live in the country side whereas Rosali was more willing to move back to a city. In fact, Rosali did not work very hard in the plantation and was always regretting her time in La Paz. She said several times that she should never had left la Paz in the first place.

### **The New Generation of coffee producers**

Vicente's and Rosali's oldest daughter, Patricia, was studying in her first year of forestry in a technical institute in Caranavi. She was not sure that she would like to continue with her parent's coffee plantation. Her parents wanted her to study a different career such as trade. Concerning the two other children, Vicent and Helena, they did not seem really interested in their parent's work. Vicente revealed more artistic aspirations rather than wanting to be a farmer.

## **6.4.2 Livelihood Capitals**

### **Physical Capital**

#### **Family's Home**

In the colony, they only had one wooden room where they all slept together when the children were coming during the week ends. The kitchen was also made of wood. They did not have refrigerator. They did not have a shower neither a toilet. They had access to a water tap but not directly in the kitchen. At the moment of the research, they had bought adobe bricks to build a new, more comfortable house. Vicente said that *"No pueden vivir todo el tiempo asi con una casa asi. Tenemos que mejorar. – "We cannot live all the time in a home like this. We have to improve it."* In Caranavi, where their children spent most of their time and Rosali some of her time, they were renting a single room for the whole family where they had a refrigerator. They had a kitchen and a toilet separated from the room.

#### **Transport**

The family did not have any means of transport such as car or motorcycle. Vicente and Rosali said that it was a huge problem for them as they could not move between their plantation and Caranavi whenever they needed to. It was an issue particularly regarding their coffee production activity. Indeed, when they had just harvested coffee cherries meant to be sold to Agricafé, it was important that the coffee cherries were delivered the same day to avoid them to rote. Unfortunately, when they did not have a neighbors that could give them a lift to Caranavi they either had to contract a taxi which was very expensive, or to keep the coffee to sell it to intermediaries in the local market which made them loose money as the price was lower with the intermediaries than Agricafé. When they were living in La Paz, they had a car but it was very old and they had to sell it. They could have bought a new one with the money of the sale but they received the money little by little and spent it in other things. Vicente and Rosali were saving money and were planning to plant two more ha of coffee to buy a new car, but since Vicente fell ill the previous year, they spent all their savings.



### **Tools, Machines and Processing Infrastructure**

To manage their land, Vicente and Rosali did not have many tools. They had one brush cutter, one motorized and one manual sprayer, two machetes and two shovels. To process their coffee, they had a manual pulping machine and a table with a plastic roof to dry the beans. They did not have any coffee storage room. The small amount of tools did not seem to be a problem as they did not have a large coffee production area.

### **Agricultural Inputs**

Vicente and Rosali did not use any herbicides. They were weeding everything by hand or with a brush cutter. Regarding fertilization, they used granule (19-9-19) and liquid (11-8-6) inorganic fertilizers especially during flowering time and before harvest time. They also left the trunks of the old coffee and shade trees which were cut down during plantation's renewal in the ground to fertilize the soil by decomposition. Regarding disease control, they sprayed fungicides - composed of azoxystrobin and difenoconazole- both on adult coffee trees and seedlings. They sprayed each month during the rainy season. Against the coffee berry borer, they implemented a "cleaning harvest" at the beginning of harvest period to eliminate every infected coffee cherry by harvesting and burning them. To control other insect invasion, they fumigated an insecticide Karate once or twice a year.

Vicente said that they were buying all their agricultural inputs from the company Agricafé with lower prices. Agricafé also offered them agricultural inputs when their coffee was sold with a good price. "*A veces por los quintales que entregamos nos dan como premio, algunos abono, insumos.*" - « *Sometimes for the quintal we deliver they give us like prices, some fertilizer, agricultural inputs.*» During conversations with the members of the family, I perceived that they had sufficient agricultural inputs except to control the coffee leaf rust.

### **Human Capital**

#### **Work Force**

Vicente and Rosali hired approximately ten workers, especially during the most intense harvesting period – during three weeks - when they had a high production. They paid them 0,10 USD/lb. Last year, the coffee trees did not produce much, and so they hired only three workers for the harvest. They also hired four workers for the renovation, spraying and weeding of their plots. For that type of work, they paid them 14,48 USD per day. Vicente and Rosali never employed permanent workers. Apparently they did not have enough work force mainly because it was difficult to find people they enough to harvest well without damaging the coffee plants and to select only ripe coffee cherries.

#### **Education**

All Vicente's and Rosali's children were going to, or had finished school. Their eldest daughter Patricia, finished secondary school last year and was now studying in a forestal technical institute in Caranavi.

Vicent, their only son, was attending secondary school. Helen, their youngest daughter, was in Primary school. Vicente would like to move to Cochabamaba to allow their children to go at university because there was none in Caranavi.

### **Heath**

As mentioned above, Vicente has had a serious health issue the previous year. He had water in his lungs and had to stay a significant time in a hospital in La Paz, which cost the family a high amount of money. Rosali was unable to manage the coffee plantation alone, and so they lost one ha of coffee harvest. Regarding Rosali's health, she was at the moment of the research in a depression resulting in stomach and digestive issues.

### **Knowledge and Experience**

As a child of coffee producers, Vicente learnt a lot about coffee production while he was working with his parents and uncle. Rosali on the contrary, did not know anything about coffee before starting coffee production with Vicente. Vicente said that at the beginning of their coffee activity it was difficult to start a new coffee plantation management, because they did not have any workshop or technical advices, which they had now with a counsellor from Agricafé. Vicente stated : *« habia talleres, seminarios y nosotros sasistimos y aprendimo scada vez del tecnico. Y nosotros estamos alli avensando y esta tranquila. No pasa nada. Ya sabemos controlar las enfermedades y plagas. Ya estamos dia a dia, año tras año estamos aprendiendo. »* - *« There were workshops, seminars and we were attending and learning each time from the technician. And we were going forward and were serene. Nothing happened. Now we know how to control diseases and pests. And now, day by day, moth, year after year we are learning. »*

Vicente appeared to be very motivated to always learn new ways to manage and improve his coffee production. As said before, Vicente embraced the idea of being an entrepreneur one day and to sell his coffee for export. However, he said that to achieve this, he lacked advice and knowledge on that matter.

### **Financial Capital**

#### **Income diversity**

The family's main activity and income source was coffee production. Coffee incomes included sales of ripe coffee fruits to Agricafé, parchment coffee to coffee shops, humid coffee to the local market and the sale of coffee seed for seedling production occasionally. This last income and sales to coffee shops were not participating much in their total income, as it was only an occasional business. Sometimes, Rosali said that she was looking for daily job in Caranavi such as working in a restaurant to earn a little bit more money. Occasionally, when the price was high, they sold a small amount of citrus fruits and bananas they had on their land. The family was not producing coca at the time of the research but was planning to do so in the near future.

### **Coffee Prices**

To Agricafé, the family sold their selected ripe coffee fruits at 0,26 USD/lb. To the local market they sold humid coffee at 0,71 USD/lb. Vicente said that it was more interesting for them to sell to Agricafé because they received a better price as they were doing a selection. Vicente add that he preferred to sell his coffee to Agricafé also because when he was delivering an important quantity of coffee the company gave him a supplement of 0,04 to 0,06 USD/ lb. Some of Vicente's and Rosali's neighbors were complaining about the low price given by Agricafé. On that matter, Vicente said that “ *los apoyos que nos dan es como ganancia. Porque nosotros no podemos pagar a un tecnico.* ” – “ *the support they give us is like a profit. Because we can not afford a technician.* ” When they sold to coffee shops, they received up to 2,14 USD/lb, but it was much more work because they have to pulp, ferment, wash and dry the coffee first.

### **Financial Support**

The family took credits from the bank mostly for their coffee activity, to pay their workers and the costs of production. To be able to get those credits, the bank would come to see and evaluate their coffee plantation. Vicente said that working with Agricafé was an advantage for them to get access to credits as it was increasing trust from the bank. However, last year with Vicente's illness, the family could not pay the credits back, and so the bank banned them from taking new credits for three years. Hopefully, they a little financial help from their buyer from Agricafé.

### **Social Capital**

#### **Support**

The Misión Alianza helped the family financially by paying half of their pulping machine. The family benefited from the support of the Norwegian NGO one year and half before they left the country in 2007. The bolivian government also supported the family with their coffee renovation. It payed 70% of the new plants. The next year, if Vicente goes ahead with his 40 beehives project, the government will finance half of it.

Beside technical support, Agricafé also offered the family to participate in workshops on coffee production. Moreover, each Wednesday, they could come to the office of the company in Caranavi if they had any questions. The couple seemed very satisfied with all this support they had access to.

Reagarding *minka*, Vicente and Rosali said that it was a disappearing custom. However, they were still from time to time helping their neighbors and their neighbors helped them as well. However, Vicente and Rosali stressed the fact that they did not have a very good relationship with their neighbors. However, Vicente also mentioned also that many acquaintances from Santa Cruz and Cochabamaba, helped him financially and morally when he was ill. People also came to help him with the coffee plantation at this period. Vicente said “ *Si no fuera la gente yo quizas, pienso que no seria por aqua otra vez.* » - « *If people was not there I think that maybe I would no be here today* ».

On the family side, the only support that could be mentioned was their eldest daughter, Patricia who helped them financially working in restaurant when the family went through economic difficulties.

### **Social Network**

Vicente showed a strong motivation to extend his social network. For instance, it was him who made the contact with the Misión Alianza. After one year and a half working with them, one person of the project became their friend and came to visit them from time to time. Vicente tried to make as many people as possible to come visit his farm to be more known at the national level. Those people could be coffee producers, coffee shop workers, tourists or people from the government. When asked how he could have such a network compared to his neighbors Vicente said: *“Yo tengo interes de la producción. Si no toco una puerta nadie va venir a avisar me. Ellos [los vecinos] viven cerrados. No buscan. Yo mientras tengo amistades en todo lados, municipio, gobierno todo lado. Invito. Vienen. Me conocen. Me llaman. Yo no pierdo talleres, un seminario de cualquiera, de café, de mandarina ; de citricos, de coca, voy. Entonces tengo más amistad.”* – *“I have interes in the production. If I do not knock on doors nobody is going to come to inform me. They [ their neighbors] live isolated. They do not search. Personally I have connections everywhere, in the municipality, government. I invit them. They come. They know me. They call me. I do not miss any workshop, semniars of any kind, about coffee, mandarins, citrus fruits, coca. I attend. And so I have friends.”* Indeed, Vicente went every Wednesday to Caranavi to meet people as well. The family also hosted other foreigners doing their research work as I did. They liked to have this kind of exchange because they thought it opened their minds.

### **Relationship with buyers**

The relationship between the family and Agricafé or more specifically with Pedro Rodriguez appeared to be good. Indeed, Rosali said she thought that Pedro was a good person. Vicente and Rosali also mentioned that Pedro appreciated them a lot. However, it seems that their relation changed a little bit these past few months because neighbors had spread bad rumors to Pedro about the family charging foreign visitors as I. Indeed, I experienced this kind of unfunded rumors about them in Caranvavi. The family also had contact with their Australian buyers through Agricafé. They came to their plantation each year and Rosali and Vicente were getting along well with them.

### **Involvement in local governance**

As said above, Vicente was spending every Wednesday in Caranavi to meet and discuss with people which allowed him to have more connections in the municipal institutions. Vicente was and still was in the board of the colony. The family also seemed to have an influence on other coffee producers. Rosali and Vicente said that when they started to manage their coffee in lines all the other coffee producers of the colony were laughing, but know they were all doing the same management.

## Natural Capital

### Agrobiodiversity

The family had a medium agrobiodiversity in their land with coffee, citrus fruits and bananas. However, coffee and other crops were not mixed. Regarding coffee, they grew five different varieties (table 3).

### Agroforestry

Aside coffee, the family grow only bananas and citrus fruits but away from the coffee plots. The family used to produce coffee under shade cover. However, they saw that the production was decreasing and that the harvest was difficult with the height of the coffee trees. Therefore, they renewed one coffee plot by reducing the shade cover and another plot by cutting everything to then plant new coffee trees – which they grew from scratch themselves – in hedgerows without any shade cover.

They decided to plant coffee trees in hedgerows because it was easier to manage and give better yield. Vicente said that it was Agricafé who advised them this type of management. However, Vicente was thinking about planting Siquilli (*Inga spp.*) trees with a low density because he thought it would be better for the soil with keeping a good production at the same time.



Picture 14: Coffee plot manage in lines and without shade cover after renovation. Picture taken in Copacabana in May 2018.

## 6.5 Annex 5: Family 4

### 6.5.1 Description



*Figure 9: Eugenia in her colony's church.  
Picture taken in Kanthutani in June 2018.*

#### **History**

Eugenia (42 years old) and Angelo (47 years old) are both born in the Altiplano. Later their parents went to the Yungas to produce coffee. Eugenia left the Altiplano when she was 13 years old because her parents witness an important decrease of potatoes production. Angelo and Eugenia went both to school but did not continue after primary school. Together, they have two daughters (Jimena, 22 years old, and Niki, nine years old) and two sons (Wilmer, 20 years old, and Vicente, 13 years old).

Angelo said that he produces coffee since a long time as he was helping his father who was a colonist doing coffee in the Yungas. Then he married Eugenia and they bought land in the colony of Kanthutani near Caranavi. Now, it has been 15 years that they were producing coffee on their land and it had been five years that they were working with a high quality Bolivian roasting company (Roaster Boutique). Recently, Eugenia and Angelo bought and invested in a new land in collaboration with this entrepreneur, and two Canadians to implement a new coffee plantation.

#### **Daily routine**

At the moment of the research, we spent all day spreading lime stone on their eight hectares of two years old plantation. Eugenia and her daughter Jimena would wake up at 6 in the morning to prepare breakfast that everyone would eat together before going to work around 9 until 6 in the afternoon. Before working, in the morning and after lunch, they would chew coca leaves. Eugenia used to stay at home in the morning to prepare lunch. In the afternoon, Eugenia used to stay at home as well to prepare diner. At the

time of the research, Jimena was at the colony to help her parents. During my stay there, Angelo was usually away from the farm, meeting with his associate or doing procedures. Angelo would go soon to Santa Cruz to work and learn how to produce avocado. Eugenia was going every Sunday to the small church of the colony. To Eugenia, religion was very important.

### **Motivation to produce coffee**

It appeared that the main motive of Angelo and Eugenia for producing coffee was economic reasons. Angelo stated “*El unico es que mas da platita. Tener profesiones es por plata para todos. Ser agricultor, agronomo, todo es por dinero.* » - « *The only thing is that it gives you money. For everyone having a profession is for money. Being farmer, agronomist, everything is for money.*” Indeed, for Angelo and Eugenia coffee was seen as a saving account. Since they worked with a buyer interested in buying HQC they said that they could afford more food, and invest in construction work among other things. In the future, they hoped that their income from coffee would allow them to save money for when they will be old and unable to work. From that perspective, increase their coffee area, manage coffee well and invest in their coffee plantation was important for them. Even though, their main motivation was their income, they were also interested in improving their coffee quality. Angelo said that he could dedicate himself to other things such as mandarins or avocados, but that he preferred to produce coffee because his parents were doing it, and because he enjoyed it more.

### **New generation of coffee producers**

Angelo and Eugenia youngest children, Niki and Vicente, did not seem really interested in their parent’s coffee production. They were not very talkative as well and so it was difficult to really know what were their aspirations. Their oldest boy Wilmer, was at military service and so I could not know as well what he wanted to do in the future. Angelo’s and Eugenia’s oldest daughter, Jimena seemed implicated and interested a lot in her parent’s production. She was helping them at the plantation when she was not in La Paz working in Mauricio’s coffee shop in la Paz preparing pastries. She usually knew a lot about her parent’s coffee plantation management and history. Nevertheless, she said that she was not willing to produce coffee even though she did not know yet what she would like to do in the future. In any case, it did not seem that Angelo nor Eugenia really wanted their children to continue with their coffee plantation.

## **6.5.2 Livelihood Capitals**

### **Physical Capital**

#### **Home**

In the colony of Kanthuani, the family owned a bricks house with four bedrooms. One for Wilmer, one for Jimena, one for employees and the last one for Angelo, Eugenia, Niki and Vicente. They had access to water but did not had a bathroom. The colony did not have access to electricity, but the household had

electricity thanks to a solar panel they received from a governmental project. Even though they had gas bottles, they mostly prepared food with fire to heat the room and also to save money. The family also owned a house in la Paz in which they will live when older.

### **Transport**

The first car the family owned a van, which they used to transport agricultural supplies to their coffee plots which two kilometers from their home or to transport coffee to Caranavi or la Paz for processing. The family also had two cars. They used them either to go to Caranavi once a week to buy food and other necessities, to sell some of their products (second quality coffee and sultana) to intermediaries or to go to their coffee plots. When asked to Angelo why they decided to invest so much in transportation, he said that it was necessary because without it you could not move easily and it is very important as they do not have a storage room for their coffee. It was also very important to be able to go buy food in Caranavi.

### **Tools, Machines and Processing Infrastructure**

The household had a large amount of tools and machines to manage their land. They had four chainsaws, seven brush cutters and three manual sprayers and two motorized sprayers. To peel the coffee cherries, they owned a motorized pulping machine they acquired five years ago. To dry the coffee beans, they had a table with nets but without a roof which they purchase three years ago. They do not own any humidity measurement machine. To store their tools and agricultural inputs, they had a small brick storage room.

### **Agricultural Inputs**

Angelo said that before they did not need to fertilize nor protect their plots at all. Today, they applied lime around each coffee plant since this year, granule inorganic fertilizer and decomposed sultana. Nowadays, they also fumigate the coffee leaves once a year with pesticides to protect the plants from diseases as American Leaf Spot and coffee Leaf Rust. For weed control they use brush cutters and a non-selective herbicide (paraquat).

### **Human Capital**

#### **Work Force**

During the time of the research, Eugenia and Angelo had three full-time employees. Their niece, Magarita, was also at the plantation to help them during two weeks. They also had their teenage neighbor studying agronomy who came to work for them during the weekends. During the harvest period they usually hired 10 to 15 workers but as they did not have a high production this year, they did not hire as



many people as the normal year. According to Angelo the family did not have enough work force for due to the lack of money. Eugenia said that it was not something easy to have permanent workers because you had to pay them and also give them food and a place to sleep. However, they were necessary in order to keep coffee plots clean and not abandoned. It seemed that Angelo and Eugenia did not trust their employees. In fact, they always wanted a person of the family working with them to ensure that they were working well.

### **Education**

Eugenia's and Angelo's children all were attending to school. Their oldest son, Willi, had finished high school and was now doing his military service. Their daughter, Jimena, had also finished high school few years ago but did not go to university. According to her, it was because she was not motivated. Their two youngest children were going to primary and secondary school.

### **Health**

According to Angelo they did not always have sufficient economical resources to go to the hospital if they had health issues, because the income from coffee was available only once a year. He said that when a health issue was occurring, and when they had to go to the hospital they almost did not have money anymore after that. Fortunately, they now have their new buyer and associate who help them by giving them advance when they needed healthcare.

### **Knowledge and Experience**

As children of coffee producers, Eugenia and Angelo already had knowledge on how to produce coffee. They learnt more about how to process coffee with the cooperative they were selling their coffee to in the past. Later, and especially since they work with their new buyer, Mauricio, they increased their knowledge on how to produce HQC. Angelo said that his knowledge and way to manage coffee changed *“En el tema de despulpar el café. En el tema de cosecha por ejemplo pura guinda. Ya no como antes. Antes para mandar pintones recogimos. Hemos cambiado como cosechar, manejar, armar tarimas. Todo eso. » - « in the way of pulping coffee and harvesting only ripe coffee cherries. It is not like before. Before we were harvesting to sell underripe coffee cherries. We changed how to harvest, to manage, we installed a drying table and so on”*. In fact, it was Mauricio who taught them among other things, how to manage coffee in lines and without shade and to apply lime. It seemed also that Angelo was travelling to other places in Bolivia with Mauricio and his other partners to visit farms and learn about their coffee management. Even though the family seemed to have learnt a lot with Mauricio, Angelo said that they were born as natives and therefore they did not need a lot of advice except maybe which type of fertilizer to use. Angelo said: *“Somos más que técnicos. » - « We are more than technician.”*

## **Financial Capital**

### **Income diversity**

The household had two main activities which were coffee and coca production. In the years of low coffee production, they kept up economically thank to their coca production, and also to occasional weeding work on other farms. Sometimes, Eugenia was working on potato farms in the Altiplano during the harvesting period.

### **Price received**

With Mauricio, they sold their green coffee at an 3,4 – 3,8 USD/lb depending on the market prices and the coffee quality. This coffee was sold at the national level by Mauricio. However, in the future, Mauricio wanted to sell their coffee for exportation and pay the family a better price. As the family worked with Mauricio only since five years, Angelo and Eugenia said they could not say if their economic situation was better or not. Nevertheless, according to Angelo, they earn better with Mauricio and other partners compared to the cooperative to which they were selling before. Angelo explained that the cooperative had more expenses and therefore it payed less to producers.

### **Financial Support**

The family had a bank account from which they would withdraw money every week for their expenses. In the past, they used credits however, they did not want to take any credits anymore, because of high interests which put them in a difficult economic situation from time to time. Angelo said that they had to manage their money in a better way, and invest it in coffee production which was like their bank savings.

## **Social Capital**

### **Support**

The family had some of help from the government through the municipality of Caranavi. In fact, the colony obtained funds, which were used to acquire coffee seedlings. Governmental projects also gave them three brusher cutters, a water tank and a solar panel.

The family's most important support was the aforementioned technical advice and financial helped by their new associate and buyer, Mauricio. Mauricio was visiting them on their farm almost six time per year. When they were selling to the cooperative, Angelo said that they almost did not have any technical advice nor money advances. Mauricio also provide Angelo's and Eugenia's daughter, Jimena, a job in his coffee shop in La Paz.

When talking about their neighbors, Eugenia stated that they had good relationship with them. They helped each other by visiting when one of them was ill. Their neighbors would also come to their farm to help and learn about coffee production. However, they would not support each other economically nor with tools.

### **Social Network**

Their participation to the Cup of Excellence allowed them to extend their social network. In fact, it was there where they met Mauricio. Except from that, no other obvious well develop social network regarding coffee production could had been identified.

### **Relationships with Buyers**

Angelo and Eugenia were not satisfied with their former business relation with the cooperative Coasis. They said that the cooperative was not paying them enough, and was not supporting sufficiently. The family seemed to trust and get along well with Mauricio and their other associates.

### **Involvement in local governance**

Angelo had always been on the board of the colony, especially as the family was the one owning most lands. Angelo said that they did not have any benefits of having a sit in the board. According to Angelo, since they worked with Mauricio with new coffee management methods, the neighbors were watching a lot what they were doing and buying. Angelo said that sometimes they even tried to do it the same way as they did.

## **Natural Capital**

### **Agrobiodiversity**

As stated above, the family grew on their land coffee and coca as their main activity. They also grew mandarins, oranges, achiote (*Bixa Orellana*), *walussa* (*Xanthosoma* sp), manioc and plantains for their own consumption. Before they were also producing vegetables along the road for their own consumption. They stopped this activity because a tractor damage everything one day and Eugenia said that she did not had the time anymore to do it anyway with all the cooking she had to do every day for all the employees.

### **Agroforestry**

When the family started to grow coffee 15 years ago they were producing coffee under shade cover but they are not doing it anymore. In their new coffee plots they cut and burnt all the trees and replanted coffee trees in unshaded hedgerows. They listened to the advice of Mauricio and so thought that this type of management was better to have a high coffee production and quality coffee. However, according to what Angelo said now they had to use more agricultural inputs than before. Angelo also said that he realized that they were less animals than before in their lands.



*Picture 16: One year old coffee plot after cutting and burning. Picture taken in Kanthitani in June 2018.*



*Picture 15: Unshaded three years old coffee plot. Picture taken in Kanthutani in June 2018.*

## 6.6 Annex 6 : Semi-structured Interview Questionnaire

### Parte I: Finca caracterisacion

Desde cuando produce café yCuál fue su motivación para trabajar en café?

|   |                   |              |                    |                  |  |             |
|---|-------------------|--------------|--------------------|------------------|--|-------------|
| Nombre del entrevistado:  |                   |              |                    |                  | Edad:                                      | Género: M H |
| Cual es el nivel mas alto de educacion que ha obtenido ?                                |                   |              |                    |                  |  |             |
| Cuanta tierra tiene?  |                   |              |                    |                  |  |             |
| Cuanto esta en produccion ? Y cuanto es de café?  |                   |              |                    |                  |  |             |
| Que variedades de café produce ?  |                   |              |                    |                  |  |             |
| Tiene otros cultivos o cria animales?   |                   |              |                    |                  |  |             |
| Cultivo/Animal  | Superficie/Cuanto | Desde cuando | Para comercializar | Consumo personal | Cuanto contribuye a los ingresos del hogar |             |
| Realiza otros trabajos fuera de la finca y cuanto contribuyen a los ingresos del hogar? |                   |              |                    |                  |  |             |

### Parte II: Practicas agricolas y de post-cosecha

|   |          |                     |
|---|----------|---------------------|
| Fertilisa el café?  | Con que? | Con que frecuencia? |
| Tienes problemas con insectos ? Que hace ?                          |          |                     |
| Produce café con sombra ?   |          |                     |
| Ha renovado su plantacion ?   |          |                     |
| Como cosecha el café? Cuantas veces al ano ?                        |          |                     |
| Hace algun tipo de seleccion para sus compradores ?                 |          |                     |
| Procesa su café ? Hasta que etapa ? Con que metodos ? Conta me ?    |          |                     |
| Descripción de la producción en los últimos años y situación actual |          |                     |

### Parte III: Estrategias de Mercado

|  |                        |                              |               |
|--|------------------------|------------------------------|---------------|
| Como vende su café?<br>(Guinda, mote, pergamino ?) | A quien vende su café? | Cuanta cantidad a cada uno ? | A que precio? |
|--|------------------------|------------------------------|---------------|

|   |
|---|
| Hace catar su café ? En caso afirmativo, cuantos puntos ha sacado en las ultimas cuatro cosechas ? A quien ha vendido ?   |
| Desde cuando le vende y porque ?  |
| Porque prefiere venderlo asi ? Preferiria venderlo mas procesado ? Y porque ?   |
| Cual son los beneficios para usted de vender a mercados de cafés especiales ? Algun sentido negativo?   |
| Existe interés en trabajar-mejorar la calidad del café?   |
| Pertenece a alguna asociacion o cooperativa de productores de café? Como se beneficia de eso? Algun sentido negativo ?  |
| Cuenta con certificacion? Desde cuando? Esta certificado a traves de la cooperativa ? <ul style="list-style-type: none"> <li>- Organica</li> <li>- Comercio justo</li> <li>- -SPG (Certification ecological national)</li> <li>- Otras</li> </ul> |

#### Parte IV: Recursos de susteno

##### 1- Recurso humano

|   |   |
|---|---|
| Cuantos trabajadores tiene para la produccion y cosecha de cafe ? Son permanentes (1) o estacionales (2) ?  | Tiene suficiente mano de obra para la produccion y cosecha de cafe? |
| Necesitaria mas obra de mano ?  | Es disponible ? Es cara ?   |
| Vender cafe (especiales) ha incrementado sus conicimientos en produccion, cosecha, beneficiado del café? Donde y como aprendiste esto ?   |   |
| Aumentar sus conocimiento sobre producion, procesamiento, control de plagas te interesa ? Como puede hacer lo ? Como ha incrementado estos conocimientos en los ultimos anos ? Donde y como aprendiste esto ? |   |
| Sus hijos van a la escuela ? O han ido ? Si no, porque ? Es importante para used? Porque?   |   |
| Cuano una perona de la familia esta enferma tienen los recursos para ir al hospital ?   |   |

##### 2- Recursos social

|  |
|--|
| Como describiria sus relaciones con sus compradores de café? Como ha cambiado en los ultimos anos ? Porque ? |
| Que actividades se llevan a cabo de forma comunal en temas de café ?<br>Lazo de venciad ?                    |

|  |
|--|
| Si hay, en cuales participa? Porque ?  |
| Esta o estaba en el directorio del sindicato de su comunidad ?Piensa que hay algun efecto de eso sobre su negocio de café?                     |
| Es miembro/a de alguna otra federacion/organizacion sindicato ?  |
| Recibe cualquier tipo de apoyo en la produccion, cosecha, beneficio, comercializacion del café ? Que tipo de apoyo ? De quien ? desde cuando ? |
| Algun sentido negativo del apoyo recibido ?  |

### 3- Recursos naturales

|  |
|--|
| Cuanto monte tiene en su tierra? A que distancia de las plantaciones de café?  |
| Que piensa de los diferentes tipos de insectos, parajos, arboles que habitan en su tierra? Hay muchos? Ha cambiado en el tiempo? Como? |
| Que significa biodiversidad para usted ?   |
| Cual es la importancia de esta diversidad para usted? Para su buen vivir? Para su plantacion de café?                                  |
| Que piensa de la fertilidad de su suelo en las plantaciones de café? Falta algo?   |

### 4- Recursos fisicos

|  |
|--|
| Quien posee la casa donde vive? La tierra donde crece café?  |
| Su superficie de produccion de café ha cambiado en los anos pasados?                                   |
| Que herramientas e infraestructura tiene para la produccion, cosecha, beneficio del café ? Son tuyas ? |
| Tiene auto? Moto ? Cuantos? Desde cuando? Para que los usan ?  |
| Como transporta su café de la finca a donde vende?   |
| Tiene acceso a internet ? Celular ? Tiene electricidad ? Agua potable ? Desde cuando?                  |

Con que cocina (estufa de gas, electrica, carbon, lena?)

#### 5- Recursos financieros

Tiene una cuenta bancaria? Desde cuando?

Tiene ahorros (efectivo, animales, objeto de valor...)?

Tiene otras casas o terrenos que alquilas ?

Tiene creditos ? De quien ? Es importante para usted ? Porque ? Cuanto creditos y cuanto dinero se ha prestado ?

En que los ha utilizado ?

Cual es la tasa de interes de estos creditos?

#### Parte V: Impactos

Como piensa que la venta de café (de especialidad) ha afectado su manera de vivir ? Como ha cambiado en el tiempo ?

Sus necesidades basicas son cubiertas ? Si no, que hace falta ? Cuales son las mas urgentes?

Cree que la forma en que las personas lo ven ha cambiado desde que produce café (especial) ?

Cuanto aporta el café a sus ingresos totales ?

Ha tenido alguna dificultad economica, medio ambiental u otras relacionada al cafe ? Como ha hecho para recuperarse de estas dificultades?