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Quinoa producers and quinoa exports: implications for local consumption in the Southern highlands

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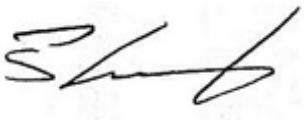

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Abstract

Quinoa, an Andean crop with very high-quality and higher protein contents as compared to cereals and with an important role to eradicate world hunger, malnutrition and poverty, is nowadays a very popular “superfood” whose international commercialisation has raised issues regarding the impacts for local rural populations in terms of diets, nutrition and the environment in quinoa-producing areas (the Andes, in South America). In this sense, this exploratory research, considering an actor-oriented approach, looks into the different elements besides quinoa commodification that influence diets and practices in households of three quinoa-producing districts in Puno, Peru, paying special attention to households’ quinoa consumption. Findings show that households’ life-cycle contingencies and modernity and modernisation initiatives determine food consumption in general and quinoa consumption in particular. Specific globalisation and globalisation from below processes add factors to take into account when studying food consumption. Finally, diets in this context have been re-organised and households are combining traditional food items and ways of cooking with more modern ones.

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Introduction

In the last decade, the Peruvian government's efforts for "development" have been focused on the exports sector, with a specific policy of trade liberalisation. In the early 2000s, the Ministry of International Trade and Tourism established a long-term state policy on the promotion of exports, considering the latter as the "engine" for development. Since then Peru has tried to position itself in the "global market" and to "benefit" from the "advantages" of globalisation in "nowadays' growing market economy" (Peruvian government, 2003).

Such an effort has implied specific actions, like setting an exports plan (for the 2003-2013 period); adapting to global market demand; and the promotion of national products with special features that have, according to the government, significant market potential and comparative advantage. In 2013, quinoa, an Andean crop, with very high-quality and higher protein contents as compared to cereals, and resistant to extreme weather conditions, was added to the list of national products to promote.

With the declaration of 2013 as the International Year of Quinoa by the Food and Agriculture Organisation of the United Nations (FAO), the Peruvian government has even put more interest in fostering the production and exports of this crop, and it is seen by the Ministry of Agriculture as an opportunity to position the country in worldwide markets. Public speeches of government's representatives (such as the first lady or some ministers) emphasise facts like the increase in quinoa exports (100 times more in 10 years, especially to the USA); its potential to fight child malnutrition in the world; its increasing demand in international markets; the willingness to develop a national strategy to increase production, improve productivity, quality and nutritious value; the possibility of improving the quality of life of its producers; and the importance of promoting its consumption in the Peruvian market.

Under this scenario many concerns arise for local populations, especially when looking at the actual relations, as well as practices in quinoa producing areas like Puno, the region responsible for around 70 percent of Peru's total quinoa production in 2012.[1] For example, according to some researchers, 15 years ago quinoa consumption in Puno was 5 kg per year per person and nowadays it is only half a kilo; or also, in 2007 quinoa consumption by its producers fluctuated among 2.5 and 5 kg, while in 2013, the highest consumption level was concentrated between 0 and 3 Kg. per person per year (Laqui, 2013a; Laqui, 2013b). Quinoa's price has constantly been increasing, moreover, the ones earning more money from the

[1] Source: Data series of agricultural production – Statistical Compendium. Ministry of Agriculture and Irrigation of Peru (http://frenteweb.minag.gob.pe/sisca). For a time series on Peru's total quinoa production and Puno's importance, see Annex 1.

business are middle men, who duplicate or triplicate the price they pay producers (Laqui, 2013a). The main problem some experts highlight is that there could be serious nutrition problems for local Andean populations, that have been consuming this crop for centuries (Laqui, 2013b); besides, changes in the quality of soil and a trend for mono-cropping are also discussed (Eguren & Marapi, 2013).

However, all the issues described above might not be a direct or evident consequence of the recent quinoa "boom". It is too simplistic to attribute such a variety of issues only to its commodification; many other factors must be taken into account when looking at consumption patterns of communities in the Andes. According to Gascón (1998), these factors include migration, land tenure patterns, availability of new information, labour diversification, tourism, food programs from the government or NGOs, and dependence on capitalist markets. In the Amantaní Island in Puno, where Gascón conducted his research, peasants were not only consuming what they produced; they were including to a great extent foreign and industrialised foods, in a process that started approximately among the 1960s and 1970s. Another example is found in communities in Bolivian Southern Highlands (Laguna, 2011), where changes in quinoa consumption patterns had already occurred in the 1970s and carbohydrates were widely consumed (rice, noodles, bread, wheat flour and sugar); furthermore, from the beginning of the 20th century, the diet had already changed due to the contact people started having with external and local markets and with different towns through trade and migration.

Considering such a complex context, this study explores (from a qualitative perspective and with an actor-oriented approach) what changes have taken place in the diet in general and in quinoa consumption in particular (by its producers and their families) in six households in three different districts of Puno, the main quinoa-producing region in Peru. Likewise, factors that influence consumption patterns are identified, paying special attention to the recent increase in quinoa commercialisation and exports.

This study is organised as follows. The first chapter provides details on the research methodology, specifying the objectives, the context of the study area, specifications about the fieldwork and limitations. The second chapter is the starting point to discuss consumption patterns in the Andes, concluding that the Andean diet is not static or homogeneous, but a process that has been constantly changing and it depends on the experience and knowledge of people, on the situation, on the context, on interactions and on each community. The following chapter includes the analytical framework that is built on the notions of modernity and modernisation (Arce & Long, 2000), globalisation from below and commodification,

emphasising a factor such as the change in the notion of time. Chapters 4 and 5 describe the main findings; the former includes more general aspects of food consumption while the latter explains quinoa production, commercialisation and consumption in the districts of Acora (in Puno province), Cabana (in San Roman province) and Cabanilla (in Lampa province). Finally, chapters 6 and 7 include the discussion and the conclusions, respectively.

1. Methodology

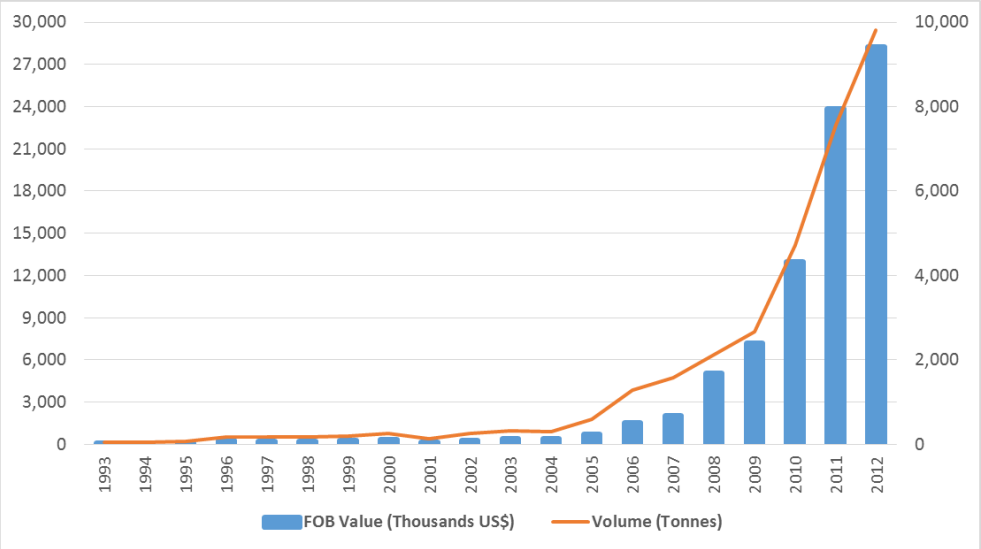
1.1. Problem statement

As explained in the introduction, the Peruvian government has been working to stimulate international trade. For example, it set an exports plan (for the 2003-2013 period) aiming to adapt to global market demand and to promote national products with special features (with significant market potential and comparative advantage). In 2013, quinoa was added to the list of national products to promote.

This effort was strengthened with the declaration of 2013 as the International Year of Quinoa by the FAO, leading to its consideration by the government as an opportunity to position itself in worldwide markets, to fight child malnutrition, to develop a national strategy to increase its production and productivity and to promote its consumption in the Peruvian market.

The trend of the increase in quinoa exports is displayed in the graph below, both in terms of FOB value and volume. Among 1993 and 2004, the quantities were relatively stable, but from 2005 there has been a significant growth. The main destination of quinoa exports is the USA.

Graph 1: Peruvian Quinoa Exports (1993-2012) – FOB Value and Volume



Source: FAO & ALADI (2014)

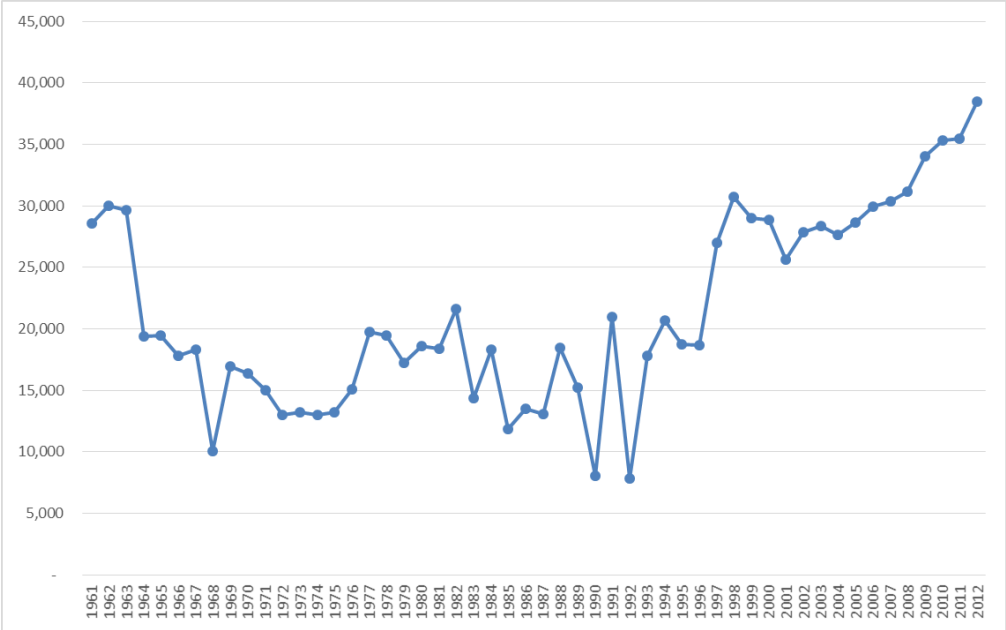
The highest increase in FOB value occurred between 2007 and 2008, while in terms of volume, it was among 2005 and 2006.[2]

Both quinoa harvested area and production have increased during the last decades (see graphs below). In general, as indicated by the people I worked with, quinoa cultivation involves

[2] Many of the persons I worked with in Puno told me that quinoa's price had its highest increase in 2008, including both engineers and quinoa producers.

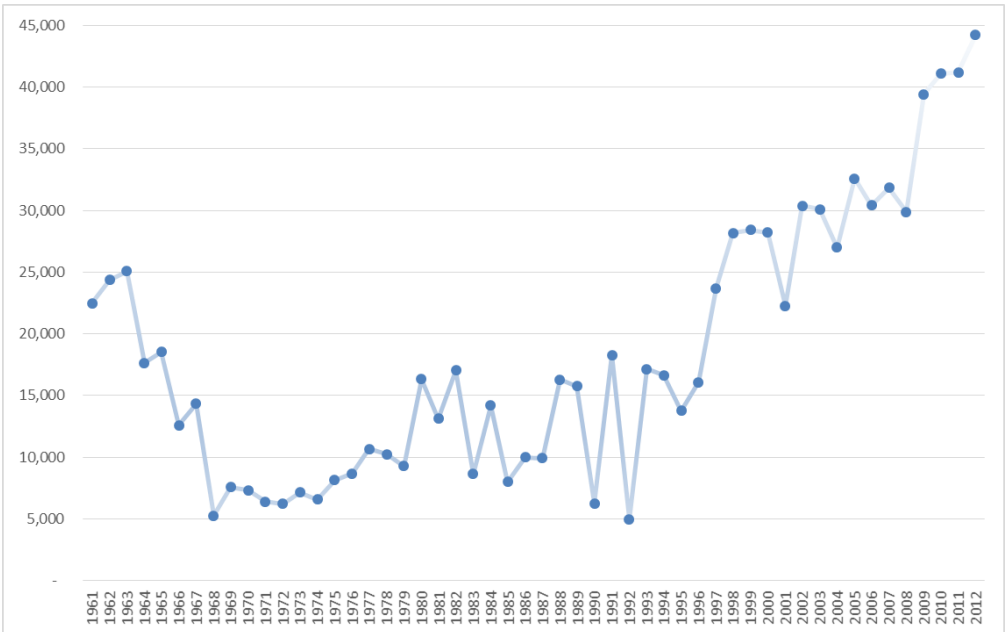
uncertainty and risk due to climatic conditions, leading to high variability in production. This is illustrated by graphs 2 and 3: From 1963 there is a substantial decrease in production until 1968, and high variability until 2008; still, since 1999, production levels are higher than the 1960s level. Regarding harvested area, the levels from the early 1960s are reached only after 2007.

Graph 2: Quinoa harvested area (1961-2012) – Ha



Source: FAOSTATS

Graph 3: Quinoa Production (1961-2012) – Tonnes



Source: FAOSTATS

It is important to note that this increase of quinoa production and exports in Peru has implied some yield improvements. On average in the 1960s quinoa's yield was 720 kg per hectare (ha), 560 kg in the 1970s, 773 kg in the 1980s, and 862 kg and 1058 kg per ha for the 1990s and 2000s respectively.[3]

In such a context, with quinoa's increasing commercialisation, several concerns arise for local populations, especially when looking at the actual relations, as well as practices in quinoa-producing areas like Puno, the region (in the border with Bolivia) responsible for around 70 percent of Peru's total quinoa production in 2012.[4] As explained in the introduction, some researchers highlight problems such as a reduction in quinoa consumption by quinoa-producing households, a constant increase in its price, the advantages taken by middlemen in its commercialisation, nutrition, soil quality and a trend for mono-cropping (Laqui, 2013a; Laqui, 2013b; Eguren & Marapi, 2013).

However, all the issues described above might not be a direct or evident consequence of the recent quinoa "boom". It is too simplistic to attribute such a variety of problems only to its commercialisation; many other factors that must be taken into account when looking at consumption patterns, especially in communities in the Andes. For example, migration, governmental and non-governmental food aid programs, climatic conditions, market prices, cultural aspects, demography, non-farm employment, among others, also influence diets.

After identifying all the factors that play a role in food consumption in the Andes, as well as the concern regarding quinoa commodification and its implications, I became interested in exploring consumption patterns of quinoa-producing households directly on the field, focusing on their own quinoa consumption and on the changes that might have taken place since the quinoa boom started.

1.2. Objective and research questions

Considering that the diet in diverse zones of the Andes region has been constantly changing due to several factors and for many decades, the objective of this exploratory research is to identify what changes have taken place in the general diet and especially in quinoa consumption in quinoa-producing households from Puno, paying special attention to a factor such as the recent increase in quinoa commercialisation (or quinoa commodification). In addition, some other elements influencing the diet are to be found out.

[3] Source: FAOSTATS.
[4] Source: Data series of agricultural production – Statistical Compendium. Ministry of Agriculture and Irrigation of Peru (http://frenteweb.minag.gob.pe/sisca).

With a qualitative and actor-oriented approach, this research takes place in Puno, the main quinoa-producing region in Peru, specifically in communities of three districts: Cabana and Cabanilla, in the Quechua area, and Acora, in the Aymara area.

The following research questions guided the entire process in which the study was carried out.

- Which and how specific factors or situations influence the diet and quinoa consumption of quinoa-producing households in Puno?

This question focuses on factors such as public policies, programs, interventions, time of the year, technology, knowledge, access to land, family size, labour, migration, etc. that may influence quinoa consumption and the general diet, both directly and indirectly.

- How do traditional and modern elements and knowledge diverge or converge in the general diet and in quinoa consumption in quinoa-producing households in Puno?

Traditional and modern elements and knowledge are analysed in food consumption, to be able to see if they co-exist and to know how these dynamics influence diets.

- What is quinoa production, commercialisation and consumption like nowadays and how was it in the past in quinoa-producing households in Puno?

The purpose is to show quinoa production, consumption and commercialisation patterns, trying to quantify these activities as much as possible and comparing them to the past.[5] Preparation processes of quinoa are also shown, its effects on the body and the feelings and aspirations associated to this crop.

1.3. Context of the study area

Puno is a region in South-eastern Peru, in the border with Bolivia. It has two main geographical areas: the highlands and the jungle, but I worked on the former. Additionally, it has two zones: Quechua and Aymara, which are defined by the language the population speaks.

Table 1 shows some indicators summarising general information about Puno. This region has almost 1.4 million inhabitants, and 50 percent lives in rural areas. Additionally, almost one million people are in working age, and 36 percent of the total population are considered poor. One more important detail is that chronic malnutrition of children under five is 20 percent.

[5] The "past" in this context refers to the time before the quinoa boom. In some cases, it also refers to the childhood of the parents of the households I worked with and of the key informants.

Table 1: Main indicators for Puno (region)

Indicator	*Figure/Explanation*
Population	1,377,122
Population living in rural areas~	50.34%
Working-age population	955,000
Poverty*	35.9%
Population with at least one unmet basic need	27.7%
Chronic malnutrition of children under 5	20.0%
Agricultural cultivated surface+	235,905 ha
Location	Southeast, in the border with Bolivia
Main economic activities±	Mining, agriculture and animal husbandry
Languages	Quechua, Aymara and Spanish
Territorial spaces	Highlands ("Altiplano" and "Cordillera") and Jungle
Climatic conditions	Highly variable and unpredictable according to territorial spaces, with frost, hail, frost, drought, floods, etc.

~ From to the latest Census (2007)
* Monetary poverty
+ For the August 2012-June 2013 agricultural season.
± These activities correspond to what the National Statistics Office is able to register, but in reality trade is also a very important economic activity but there are no official records about it due to informality.
Data for 2012.
Source: INEI (National Statistics Office) and Central Bank of Peru.

Agricultural production in Puno highlands includes alfalfa, oats, barley,[6] broad beans, oca,[7] potatoes, quinoa and some other crops, and according to the Regional Government of Puno (Regional Government of Puno, 2006), agricultural production, due to its low productivity, is mainly for self-consumption. Therefore, families first try to satisfy their basic food needs and then sell their products in local markets. With the money they earn they are able to buy other food items and products.

Regarding tubers production, potatoes are the most important crop, followed by oca and olluco. Quinoa, cañihua[8] and barley are the principal cereals that are cultivated in Puno, while broad beans are the main legume that is produced.

As of animal husbandry, farmers in Puno have sheep, alpacas, cows, llamas, poultry and pigs. Meat production is predominantly to sell it in local, regional and national markets but it has low yields. Dairy products are also produced and in the last years many plants have been installed, producing cheeses of different types, butter and yogurt (Regional Government of Puno, 2006).

[6] Alfalfa, oats and barley are mainly for fodder.
[7] Tuber.
[8] Cañihua is a pseudo-cereal, a close relative to quinoa, highly nutritious but smaller.

In terms of consumption of their own production, the main food items that *Puneños* eat are milk, mutton, pork and hen; and concerning crops, they have potatoes, barley, quinoa, oca, broad beans, olluco, izaño[9] and wheat (Regional Government of Puno, 2006). Other products, such as rice, flour, bread, sugar and oil are bought in local markets (k'atos), as well as fresh products such as fruits and vegetables: carrots, onions, tomatoes, oranges, bananas and apples (idem: 45).

Puno imports food items both from other Peruvian regions and from foreign countries. From the former, Puno consumes rice, sugar, chicken, evaporated milk and oil. From abroad, Puno imports wheat in its different varieties; its consumption is very high in products such as bread, noodles and cookies. From Bolivia, Puno imports rice, sugar, oil and eggs because of lower prices (Regional Government of Puno, 2006).

Finally, it is worth mentioning that people in Puno have many traditions that have been inherited from generation to generation, for hundreds of years. Some traditions have been lost in time, but several remain. For example, they have myths deeply connected to agriculture. Typical dances and music are also connected to sowing and harvest activities. The presence of the Titicaca Lake, the highest navigable lake in the world (shared with Bolivia), is very significant as well, due to its influence in terms of ecosystems, agricultural production diversification and economic activities (like fishing and tourism).

1.4. Methods and fieldwork details

My fieldwork took place during March and April 2014 in the region of Puno, Peru, in districts of both Quechua (Cabana and Cabanilla) and Aymara zones (Acora).

As explained earlier, I chose Puno because it is the main quinoa producing region of Peru. In order to select the provinces to work in, I discussed with experts on the topic that I met in Puno city.[10] With the information I obtained from them, I managed to have an overview of the quinoa sector in Puno, the dynamics, the challenges, the main patterns and characteristics of the population (Quechua and Aymara identities).

First, the provinces of San Roman and Lampa (both in the Quechua area) and Chucuito (Aymara area) were recommended, as well as the district of Acora in Puno province. The former provinces are considered "key regions of quinoa production" (Urdanivia, 2013).

[9] Tuber, similar to olluco.
[10] I interviewed agronomical engineers that have been working in quinoa topics for many years, for the government, for NGOs and independently. I also discussed my thesis topic with representatives from the Regional Agrarian Office.

Furthermore, COOPAIN, a very well-known quinoa cooperative is located in Cabana (a district in San Roman) and it influences nearby districts (like Cabanilla) in Lampa, which means that quinoa producers have an additional potential buyer of their product (COOPAIN). For these reasons, I selected Cabana and Cabanilla.

In the Aymara area, I went to Acora, a district in the province of Puno that an engineer suggested me due to its high potential in quinoa production. Information about the three districts that were selected is displayed in table 2

Table 2: General information on chosen districts in Puno

District	*Province*	*Languages*	*Population*			*Quinoa producers associations*
			Urban	*Rural*	*Total*	
Acora	Puno	Aymara & Spanish	13%	87%	28,679	8
Cabana	San Roman	Quechua & Spanish	19%	81%	4,392	COOPAIN, 3 assoc.
Cabanilla	Lampa	Quechua & Spanish	16%	84%	5,573	10

Source: INEI (National Statistics Office) – National Census 2007.

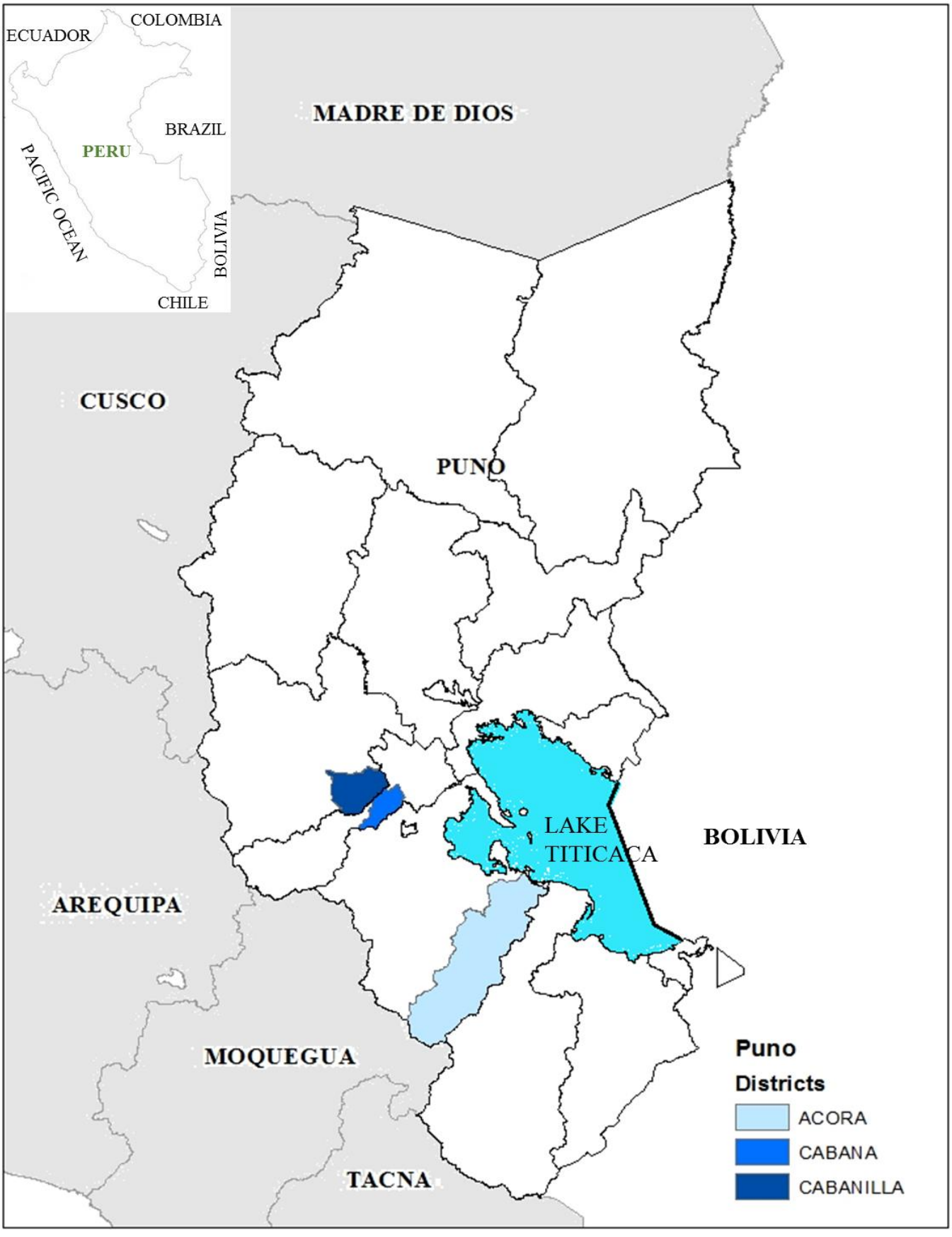
The map below shows the districts I chose in the region of Puno, as well as the neighbouring regions (Arequipa, Cusco, Madre de Dios, Moquegua and Tacna). Peru's location in South America is also presented (on top left).

The next step was to select two households in each of the three districts. Besides comparing the Quechua and Aymara zones, I wanted to compare households belonging to quinoa producers associations and those that were not related to such associations. I managed to do this only in Cabanilla and Acora because in Cabana, where the main quinoa cooperative is, the probability of finding households with no connection to associations or to the cooperative was considerably lower (see last column in table 2). I wanted to do such a comparison to know whether households with easier access to markets and related to organisations were consuming less quinoa or not.

As explained earlier, I opted for a qualitative approach to fulfil my research objective, through participant observation by spending some days in each of the six households (four days in each), as one more household member, working in the harvest of different crops, cooking and sharing food, caring for cattle, walking long distances, milking the cows, cleaning, etc. This approach allowed me to be closer to quinoa producers and their families and to gain their trust. In addition, I kept two separate diaries: one for my general notes[11] and another one for ideas that emerged while on the field.

[11] See Annex 2 for some examples of my notes in this diary.

Map 1: Selected districts in Puno



Source: Own elaboration

Access to producers

My initial plan was to contact quinoa producers through an NGO that has been working for many years in Puno, but I never got any reply from its representatives. Instead I called one quinoa producer of the many that one of the experts had talked to me about (I was given a list of phone numbers of quinoa producers by an engineer). This producer told me that a private firm and the Regional Agrarian Office were organising training sessions for quinoa producers from many districts on organic production of quinoa, and I was kindly invited. This training was called "Día de campo" (field day), as it took place literally on the field, near quinoa parcels, 25 minutes from the capital of Cabanilla (in the Quechua area).

My participation in these first training sessions was key to my later work, as it allowed me to meet several quinoa producers, as well as more engineers and agronomists from an exports firm and from the government that gave me their opinions and insights on my topic. Furthermore, I learnt about quinoa seeds and varieties, organic production, plagues prevention, harvest and post-harvest activities, among others.

While sitting on the field, chewing coca leaves or sharing food and drinks, or during the breaks, I talked to some of the producers, explaining them that I was there to learn and that I was interested in studying their diets. Producers also commented on the information given by the "trainers" (mainly engineers); for example, one of them told me: "what the engineer is saying is wrong because you really need more seeds, not the quantity he just told us". These remarks proved to be very useful throughout my fieldwork. In the end, two quinoa producers from Cabana that belong to quinoa producers associations accepted to help me by receiving me in their homes.[12]

A couple of days later, I was invited to another "Día de campo" in the Aymara zone (in a district called Ilave), with many of the same producers and some others from the Aymara area, thus I had a second chance to meet more producers. Women were easier to approach and very kind as compared to men, who were a bit distant at the beginning, but as the conversation developed, they became more relaxed and even made jokes or gave very strong opinions.[13] After my explanations, a producer from Cabanilla accepted me in her household.

[12] I worked only with one of them due to transportation limitations.

[13] At this point, I thought I could work with producers from Ilave as well, but the leader of the quinoa producers association told me none of them would accept me in their homes because *ilaveños* do not trust outsiders.

I went back to the Quechua zone and attended a meeting at the Cabanilla municipality with representatives from COOPAIN, the cooperative in Cabana.[14] The cooperative wanted to work closer with quinoa producers from nearby districts. At this meeting, unfortunately, no quinoa producer showed up, but I met the COOPAIN representatives, that invited me to another "Día de campo" in Cabana, with the cooperative's members.

At the "Día de campo" in Cabana, with around 300 out of the 500 members of COOPAIN, I met completely new producers, and I managed to talk to them while waiting for the rain to be over or while having lunch. I was very impressed by the degree of organisation of the cooperative and the amount of members participating in the training sessions, and I started asking them if they could host me in their homes for my research, explaining that I wanted to know about their diets. I really wanted to work with one of these producers' household because their cases were very relevant for my purposes: organised quinoa producers in a cooperative that commercialises quinoa to other countries. I found one member who had been in the cooperative for four years and she accepted me; she only showed some concern on the fact that she lived far from the city, that there was no water and drainage, and that her house was a "small hut". I made my best effort to explain her that it did not matter and that I would be perfectly fine, that I wanted to be part of her family for a few days and that I would also participate in the farm work.

After these meetings I already had enough contacts to start working and I began in Cabana, with the producer that belongs to COOPAIN and another one that was part of a quinoa producers association. I wanted to continue in Cabanilla with the producers I had met, but I could not leave Puno city because the main roads were completely blocked by illegal miners that were on strike.[15] The problem extended for a week, and by then the producers were already busy, thus I contacted another household in Cabanilla through an engineer who had previously worked with them; this household currently works with an NGO that promotes organic agriculture and belongs to a quinoa producers association thus this case was quite relevant for my purpose. On the other hand, the second household I worked with in Cabanilla did not have any connection or relation with neither NGOs nor programs from the

[14] I knew about it because I had been going many times to the Cabanilla municipality to talk to people involved in a quinoa project, but they were never in office.

[15] The Peruvian government wanted to implement a law regarding mining activities, but illegal miners from Puno and from other departments of the South of Peru did not agree with it; that is the reason why they blocked the main roads. The problem was not only the blockage, but also that they were attacking everyone who tried to use the roads. This was very annoying to all the population; for example, they could not go to work from Puno to Juliaca (the main commercial city) or even leave Juliaca. Also small towns were left with no food supplies (that are bought usually in Juliaca).

government; they were not participating in any associations, which allowed me to compare it to the first one, and I met a member of this household (the mother) through a friend.

To work in Acora, in the Aymara area, I spoke with an engineer who had worked there and he contacted me with a quinoa producer. However, I do not include this household in the analysis because it had very particular characteristics: the eldest man there had been Acora's mayor; his daughter was an agronomical engineer, had studied biodynamic agriculture in the USA and had worked for NGOs and the Regional Government; his son-in-law was a sociologist; and his son was the community's president. Although I knew I would not analyse this household when I realised about its characteristics, I stayed there because I was getting to know several interesting details on quinoa cultivation. Instead, through COOPAIN representatives, I contacted another engineer that was working in Acora, and he introduced me to some other producers that belonged to a quinoa producers association there, which was very useful for my objectives. Like in the case of Cabanilla, the second household in Acora I selected did not belong to any association or cooperative and I contacted it directly on the field, while grazing cattle. The lady of the first household and I were sitting on the field with the sheep and her neighbour came to say hi; I took the opportunity to introduce myself and to ask if she would allow me to work with her and she accepted. I did this because I already knew she was not related to any association.

Summing up, I relied on the initial contacts I had (engineers), on my own social skills and on my previous knowledge on Puno's culture, customs and traditions to be able to meet the right people that would help me to approach and speak with quinoa producers.

Finally, I must mention that at the very beginning, I told the households that I would pay them for my stay for the additional expenses they would have due to my presence. Despite my insistence, none of the households in the Quechua households accepted the money; they even wanted to pay me by giving me some potatoes for having helped them on the *chacra* work (I did not accept any payment).

Access to key informants

Besides working with quinoa-producing households, I conducted semi-structured interviews[16] with key informants of each districts (one interview in each district). I met two informants (from Cabana and Cabanilla) in the "Día de campo" training sessions and I met the third one directly in the field in Acora.

[16] See the guide for these interviews in Annex 3, and most of the transcription and translation of the interview with the key informant in Acora in Annex 4.

I consider them as key informants because they have broad experience in quinoa cultivation in their districts as well as in agriculture in general; they belong to producers associations; they are leaders and promoters of quinoa, and most importantly they have 'life' experience.

The key informant in Cabana is one of the founders of COOPAIN, the cooperative, and he conserves several quinoa landraces. I met him in the "Día de campo" in Cabana and we agreed on a date to meet at his place.

Regarding the key informant in Cabanilla, he is continuously contacted by the authorities or by private firms whenever they want to discuss quinoa issues, or he is invited as a speaker in conferences or trainings for quinoa producers. He also preserves some landraces.

In Acora, the informant I interviewed is the leader of a dairy cooperative. He has also worked with quinoa projects of NGOs. He is well-known in his community for his hard work to promote development in the area.

The purpose of these interviews was to grasp the informed opinions of key informants on the issue of quinoa cultivation and consumption in their own districts, given their broad experience. I wanted to contrast their views with what I saw in each household.

It is also worth stating that I do not mention the real names of the households' members I worked with, and that I do not even used any other names to refer to the key informants in each district.[17]

Finally, I want to point out that quinoa-producing households are my units of analysis. In Peru, the National Statistics Office defines a household as all the people, whether they are relatives or not, who share the main meals and meet basic needs together. This definition, however, may not take into account the dynamics of households in Puno, that are characterised by seasonal migration especially by men; they usually work in other regions such as Arequipa, Tacna and Moquegua[18] and go back to Puno for some days in a month, or they also leave for 2 or 3 months. In my analysis I include those men who go away in the definition of household because in one way or another they do perform agricultural activities when they are back in Puno and they do contribute to meet the household's basic needs.

1.5. Limitations

This study is completely exploratory by nature, thus it intends to shed some light about quinoa consumption patterns in Puno for further research, based on six households and on opinions

[17] Interviews with the key informants were recorded. Files are available upon request.
[18] See Map 1, subsection 1.4.

of three key informants in three districts. In addition, besides the main topic (quinoa consumption) I focus on quinoa harvest and post-harvest activities only, as my fieldwork took place during the harvest time.

The fact of working in Puno during the harvest time implied a specific diet type. As Orlove (1987) indicates, dietary patterns follow a cycle during the year. For example, the producers I worked with preferred to eat what they were harvesting (perishable food): potatoes, broad beans, barley, oca and izaño, and some vegetables in one case too (carrots, onions and lettuce). They were also buying some other food items (see chapter 4).

Originally my intention was to arrive in Puno in the harvest time, as I did, but also to stay there and see what exactly households would do with the quinoa they had just harvested. However, right after my first experience in a household, I realised that such an analysis would have implied staying in Puno for a year approximately or even more due to several reasons. To begin with, quinoa is not harvested, dried, peeled and sold all at once; quinoa cultivation implies a long and demanding process (see chapter 5). Despite my time constraints, I managed to dig into what they had done and were doing with their quinoa production from the last season, as well as their plans for the latest season's harvest.

The last point above helps me to go on with one more limitation. I took as a reference the 2012-2013 agricultural season for quinoa consumption and it had very particular characteristics such as hail and frost that led to the destruction of nearly 60 percent of quinoa production on average in Puno. In fact, as the literature highlights (see chapter 2), there is no 'adequate' period to choose as representative of a *natural* or *traditional* state of the Andean society; we need to specify the reference period we are working with. In contrast, the 2013-2014 season (the one in which I arrived for the harvest time) was not very much affected by climate conditions on average, and this will allow producers to have more quinoa available.

In addition, I faced some difficulties when asking about quantities of total quinoa production, therefore also for quinoa commercialisation and self-consumption. Whenever I asked producers about quantities (as their total land area also) they said they did not know and I had to keep on asking for estimates.

As in all qualitative studies, the researcher's background does influence the kind of results that are obtained. In my particular case, I have an Economics background and it should be acknowledged. At the end of the day, my previous working experience in Puno as well as my knowledge about their traditions allowed me to establish connections with producers as we

had many topics to talk about (especially their music, dances and rituals, which are intimately related to agricultural activities).

2. The 'Andean diet'? Factors influencing the diet, food practices and quinoa consumption in Peru and Bolivia

The purpose of this chapter is to give an overview of the issues the literature discusses about diets in the Andes, in particular, the factors that influence consumption patterns in Puno. It also presents findings from previous studies on quinoa consumption and food practices in Peru and in Bolivia.

2.1. Factors influencing the diet in the Andes

In general, the diet of peasants living in the highlands reflects their complex history (Orlove, 1987). There is a wide variety of factors that influence their consumption patterns that the literature has identified, such as climatic problems, seasons, social status, participation in wage labour, political forces, agro-ecological zones, production patterns, food availability, cultural and ideological aspects, land tenure patterns, information availability, connection with urban areas, migration, the presence of a Sunday market, among others (Gascón, 1998; Leonard & Thomas, 1988; Orlove, 1987; Graham, 1997). Moreover, the "traditional" diet in the highlands is seasonally variable, non-diverse and marginal in terms of energy and other nutrients (Orlove, 1987; Leonard & Thomas, 1988).

Regarding the frameworks that have been considered for studying changes in the Andean diet until the late 1980s, the three main ones are (Orlove, 1987): 1. Adaptationist, in which diets change because traditional adaptations are not viable due to population growth and pressure. 2. Political economy, that considers peasants as poor people in need of more food and as a source of cheap labour; diet change is a consequence of their deteriorated position within the national economy due to population pressure, lack of technical and economic aid, inability to invest in land improvement, etc. 3. Peasants are characterised as a dominated ethnic group, and as given restrictions by *mestizo* elites. According Orlove, these frameworks are not generalizable to the Andean region and they rely on weak assumptions. Instead, he suggests looking at consumption surveys to have a deeper understanding of traditional dietary patterns in the Andes, and he works with this perspective in Puno, Peru. From his findings, Orlove mentions that there have been two contrasting effects from the "shift away from a subsistence economy and diet": this has led to an increase in income, which allows farmers to purchase more food and therefore increase their caloric intake, but at the same time the proportion of purchased (industrialised) food has increased, which generates poorer nutrition. Nevertheless, the author highlights that this change is not permanent, and that peasants are perfectly able to reverse the latter effect.

Besides, Orlove (1987) describes the challenges researchers have to deal with when studying dietary patterns in the Andes. For instance, he stresses that there is no adequate period to choose as representative of a *natural* or *traditional* state of the Andean society; therefore when discussing about traditional diets or consumption patterns it is necessary to clearly specify the period we refer to (in his research, traditional patterns are "those practiced during the twentieth century by relatively remote populations with a low degree of involvement in the cash economy" (idem: 483)). Moreover, it is important to consider that dietary patterns follow a cycle during the year,[19] which means that food consumption patterns are not stable over time.

Based on a previous study[20] that analysed household consumption surveys,[21] Orlove (1987) describes the food items typically consumed in rural Puno;[22] cereals, tubers and roots are the main items, followed by legumes, fats, oils and sugar, and finally vegetables, meat, eggs, fish, dairy products, condiments and prepared foods. The average diet is found to be adequate in general, but a share of the population is subject to malnutrition.[23] Moreover, there are specific cooking practices that contribute to reaching an adequate nutritional status.[24]

Regarding cultural aspects, Orlove (1987) describes particular food consumption habits, such as in ceremonies (maize and *chicha*[25]), for physiological benefits (coca leaves), more common items (potatoes) and items to be avoided due to their association with negative forces (toads).[26] Furthermore, "the timing of food consumption is also structured culturally" (idem: 492) because some items are consumed only in specific religious festivals throughout the year.[27] The last aspect is associated to quantity, quality and sharing; people in the Andes value food in abundance but they also appreciate specific qualities (such as those from fruits for example). Likewise, they attach importance to sharing food with everyone that is present at a meal.

[19] For example, there are differences in the diet and in the food mix before and after the harvest. In the latter perishable food is consumed, while in the former peasants and their families tend to eat less, and their diet includes what they stored or items they can buy.
[20] Ferroni, M. (1980). The urban bias of Peruvian food policy: consequences and alternatives. Ph.D. dissertation, Cornell University.
[21] The survey was called ENCA (National Survey on Food Consumption) and it was conducted on the 1972-1973 period by the Peruvian government.
[22] In terms of calorie and protein supply.
[23] "Approximately 37 percent of all highland households – urban as well as rural ones, and those in both more and less traditional areas – are at risk for calorie malnutrition; that is, their consumption lies between the minimum recommended levels and the ideal levels, as established by the FAO/WHO. Another 16 percent fall below the minimum level". (idem: 489).
[24] For example, roasting potatoes in earth ovens, consumption of warm foods, brief cooking of potatoes, etc.
[25] A type of beer made of fermented corn juice.
[26] In the witchcraft context, toads represent the person that would be harmed. During my fieldwork, I saw toads many times and I saw different attitudes towards them, but the majority of people threw stones to them to make them leave. However, they also said that toads were associated to having more money.
[27] Orlove sees religious festivals as culture expressions.

Orlove's objective is to analyse changes in dietary patterns in Puno based on three different types of data. When considering a household survey,[28] he compares central and southern highland households' dietary patterns, identifying some changes on the former; traditional highland staples (potatoes, quinoa, maize, barley, etc.) have been replaced by items from the coast area (rice, sugar) or by imported items (wheat flour to make bread, noodles, cooking oil), and also the calorie intake depends more on sweetened hot drinks, bread, noodles and rice. He also finds that households more engaged into subsistence agriculture tend to consume traditional foods mainly.

As of the second data source, the author analyses three diachronic studies for Puno. The first one (performed in 1973 and 1979)[29] indicates that there was a shift in consumption patterns favouring peasants' traditional diet given the particular period in which the study was carried out (a general crisis in the country that included an increasing foreign debt, high inflation rates and currency devaluation). Orlove emphasises that this evidence is unique, as the historical trend to abandoning native foods, favouring non-native ones was in this case reversed.

Other data studied by Orlove were collected from Nuñoa, a district located also in Puno, in 1964 and 1969.[30] The first research stage showed that people depended on locally produced food, while in 1969 a shift towards imported food (wheat, rice, sugar and cooking oil) was identified. However, it is not possible to directly affirm that such evidence shows a long-term change from traditional diets to more westernised ones because, as explained by Orlove, in 1969 the potato harvest had been unusually poor and the district was given external food aid, which affected consumption patterns in the area. Additionally, the inhabitants could have been influenced by potatoes scarcity to underreport consumption expecting to obtain food aid. Overall, Orlove (1987) points out that these data show "the susceptibility of highland diets to environmental fluctuations and to variability in food prices induced by state agencies" (idem: 500).

Finally, the third dataset analysed by Orlove refers to two different areas in Puno, one of them near the Titicaca Lake in 20 communities, performed between September and October 1977, while the other one focused in one community (Huancho) that is very close to the capital of the province, between 1977 and 1978.[31] The main findings indicate that consumption levels depend on the time of the year (pre or post-harvest) and on the agro-ecological zone.

[28] The ENCA survey mentioned before.
[29] Appleby's studies, cited by Orlove.
[30] Mazess and Baker (1964) and Gurksy (1969), cited by Orlove (1987).
[31] Proximity to the capital city implies easier access to purchased food.

Among the factors that promote change, Orlove recognises that prices do influence production and consumption in the highlands in Peru; nevertheless, he underlines the influence that government policies have in agriculture. For example, he describes the Peruvian food policy of those times, which favoured "low food prices and food imports[32] to satisfy the economic and political demands of urban consumers and employers" (Ferroni, 1980, as cited by Orlove, 1987). Another factor, according to Orlove, is the influence of multinational corporations and international policy, as well as particular preferences of people[33] and convenience.

One last idea in Orlove (1987) is worth mentioning. The author emphasises that in spite of their remoteness and poverty, it is too simplistic to characterise Andean peasants either as "isolated traditional people in balance with their local environment" or as "exploited peasants on the margin of survival" (idem: 509).

This last point raised by Orlove helped me to choose a framework to analyse the phenomenon under discussion: changes in diets and in quinoa consumption patterns. In this sense, the framework I use tries to balance the way peasants are seen from outside.[34]

Another study that focuses in changing dietary patterns in the Peruvian Andes is performed for Nuñoa, a district in Puno (Leonard & Thomas, 1988). The impact of changes in political and economic factors in Peruvian agriculture between the 1960s and 1985 are taken into account by the authors, who study how the diet changed in this period, and the extent to which environmental (seasonal) factors influenced dietary intake. The study is based on nutritional data from 33 households "representative of the lower and middle socioeconomic groups". In addition, comparisons of the components of the Nuñoan diet in different points in time (1962, 1967[35] and 1985[36]) are made.

The authors find, by comparing the different surveys, that while the composition of the diet shows a strong variation since the 1960s, including rice, oats, flour, bread, oil, noodles, jam, and vegetables, the energy content of the diet did not change. Another important result is that locally-grown cereals such as quinoa, cañihua and barley exhibit the highest consumption decline: while these cereals supplied 500 calories per person per day in 1962 and 1967, in 1985 they only contributed 58 calories (Leonard & Thomas, 1988); at the same time, there were considerable increases in bread, rice, sugar, and oats consumption.

[32] Especially wheat from the US.
[33] Regarding preferences, Orlove mentions that prestige might play a role in defining them, as barley for example is considered very rural food, while rice is seen as a sophisticated urban dish.
[34] This framework will be explained in detail in the next chapter.
[35] For 1962 and 1967, the data comes from previous studies.
[36] For 1985, the data comes from their study (Leonard & Thomas, 1988).

Like Orlove (1987), Leonard & Thomas (1988) highlight the complexity of studying consumption patterns, as particularities of harvests, imports policies and specific contexts must be taken into account. Moreover, when working with comparisons, the data under analysis must be seasonally-comparable.[37]

The specific historical and political context of Peru is a clear example of what authors indicate needs to be taken into account. During the 1960s, the agrarian economy was stuck due to hard ecological conditions, technological delay, land scarcity and unequal land distribution; people's living conditions were completely precarious. In 1969, the military government of Juan Velasco set a Land (Agrarian) Reform with the aim of promoting equitable rural development through state-sponsored programs of cooperative and communal forms of land ownership. However, this reform had very limited success for many reasons,[38] and in Puno, 75 percent of cultivable land started to be managed by government cooperatives, which employed only 7 percent of the rural population (Aramburú and Ponce, 1983, as cited by Leonard & Thomas, 1988).

Gascón (1998) also studies changes in food consumption patterns in Puno, in the context of a community in Amantaní (an island in the Titicaca Lake) due to the fluctuations at global level in the last 60 years, such as dependence on the capitalist market, land ownership patterns, migration, access to new information, etc.

Amantaní is a special case: as an island it was kept isolated for several years; people were not allowed to leave the place, there was no formal education system and no communication means. The *hacienda* system dominated this area, as many others in the country.[39] Between the 1950s and 1960s this system was abolished thus *amantaneños* managed to contact other districts and started to know new food items and ways of cooking.

Gascón (1998) focuses on economic and demographic aspects to explain why food consumption patterns changed in Amantaní, while only some attention is paid to the influence of ideological or cultural factors.[40] For instance, he explains that from 1,700 inhabitants in 1950, in 1993 the population increased to 4,000 inhabitants, in a context of more access to

[37] Regarding seasonality consumption differences in Nuñoa, for example, during the pre-harvest season, tubers and animal products represent 13 and 8 percent respectively of the total energy, while in the post-harvest season they represent 40 and 14 percent respectively (Leonard & Thomas, 1988). This is related to the fact that people prefer to eat more perishable food items in the post-harvest season.

[38] Unprofessional management, lack of adequate policies to support agrarian activity, no rural development programs to promote efficient use of land, property rights were left incomplete, etc. (Zimmerer, 2002) (de Janvry & Sadoulet, 2002). However, many people on the field told me about how this reform had helped them to get more land to be able to grow their own food.

[39] The hacienda was a system controlled by large landowners, having local people working the fields as peons. It was inherited from Spanish colonizers.

[40] During the *hacienda* system, meat and rice where considered luxury food items and were consumed only in specific occasions because it was difficult to get them. Therefore, they were associated to social prestige and to the idealised and desired "white" industrialised Western world.

markets due to the abolition of the *hacienda* system; a precarious labour market with no capacity of offering job opportunities to peasants and tough working conditions; inability of peasants to introduce technologies; lack of capital; and land scarcity.

Given the substantial population growth amantaneños started to change their practices[41] and to overexploit their resources, which led to a production increase in the short run, but generated impoverishment and considerable productivity reduction in the long run. Therefore, more dependence on the capitalist market of goods was created.

Regarding economic factors explaining the change in amantaneños' diet, Gascón (1987) identifies the following: market prices (rice, wheat and noodles were subsidised or promoted by the government, substituting quinoa and barley); labour diversification (modification in labour division by gender and age, and more non-farm labour activities leave little time for typical and demanding ways of cooking native crops); production profitability (*amantaneños* prefer high-yield plague-resistant crops); governmental and non-governmental food aid programs (which promoted non-traditional food items such as cooking oil, powder milk, sugar, rice, flour); cattle importance (less meat and dairy products consumption which led to the abandonment of typical quinoa dishes made with milk); and trade relationships with other areas (which brought new food items such as drinks and fruits, new ways of cooking and tourism).

2.2. Food practices and quinoa consumption in Peru

To begin with, we should consider that quinoa consumption depends on the ease of obtaining it, on the cost, the socioeconomic group and the location of the family (Ayala, 2003), but there are several other factors to consider, which are described in this chapter.

Urdanivia (2013)**,** in five districts of Puno, analyses the influence of national and international markets' demand for quinoa on agricultural practices and technology, biodiversity management and the creation of opportunities for farmers. More specifically, the author studies these processes by considering land use practices, cultivation aspects, rural development interventions, conservation efforts and farmers' marketing of quinoa, with a qualitative approach.

In addition, a brief history of quinoa consumption is given. According to the author, a decline in quinoa consumption in the highlands started in the second half of the twentieth century,

[41] For example, they started to grow crops in higher fields; to diversify income sources in non-farm activities; to grow eucalyptus to extract wood, and to use more industrialised products.

and it was attributed to factors such as food policies, new dietary habits, off farm employment, the use of Green Revolution technologies, etc. (idem: 15). In the 1980s, however, there was a growing research interest at the national and international level for quinoa and other Andean crops; its nutritional value as well as its potential demand from international consumers were highlighted. Since then, quinoa's role in food security and for increasing incomes of rural communities has been recognised. Moreover, the author describes the significant increase in quinoa exports and the growing trend of quinoa consumption of the middle class in Peru.[42]

When discussing quinoa consumption in Peru, Urdanivia (2013) emphasises that a distinction must be made among the consumption of quinoa producers and their families (which is the focus of my research), and the consumption of people from urban areas. In addition, after citing different quinoa consumption estimates, she discusses the complexity of doing research on this topic, and suggests further studies especially among rural households to see how consumption has been influenced by quinoa commercialisation.

Another important finding in Urdanivia (2013) related to consumption is that farmers who conserve different quinoa landraces (conservationist farmers)[43] hardly eat them on a regular basis. This is very surprising for the author, as farmers are aware of quinoa's nutritional value and of different recipes to cook it. Nevertheless, female conservationist farmers mentioned that they cook and consume quinoa, and they feed their small children with this crop. Regular farmers tend to both consume the varieties of quinoa they produce and to sell them at the local market.

Urdanivia (2013) also distinguished among farmers participating in associations or cooperatives and independent farmers; she finds that home consumption is higher in the latter as compared to farmers that belong to associations. In addition, independent farmers sell their quinoa production only if there is a surplus; their priority is home consumption. For example, producers belonging to the COOPAIN cooperative have to commercialise approximately 80 percent of their production; this is a standard set by the cooperative.

According to the author, it is important to take into account that the estimation of how much quinoa goes to the market to be sold is very difficult due to the many different markets where it goes, in small quantities, and at different times of the year.

[42] In general, middle class in Peru is defined in terms of income.
[43] A conservationist farmer is defined as one constantly keeping and preserving diverse quinoa varieties.

One last relevant finding is about women empowerment; many women explained that they felt more confident due to their participation in associations. They have even acquired leadership positions (idem: 114)

Another recent study (Martínez-Zúñiga, 2007) focuses on the cultural factors that affect food preferences in communities of three different regions in Peru, looking into an Andean crop called *tarwi*. As an example of the importance of culture on people's preferences about what to eat or not to eat, she mentions the case of quinoa, which used to be considered as dirty or dangerous (idem: 7), as food for Indians; later on, as international attention was paid to this crop, it suddenly got national recognition and it was readopted and demanded mainly by upper classes (white people and mestizos). The emphasis is on cultural factors because they are not easy to notice, as compared to, for example, social or external influences.

In 2006, surveys were used by the author to measure *tarwi* consumption and to see how communities perceive it. The main findings indicate that the consumption of *tarwi* and other Andean crops depends on the household location:[44] in one of the communities (in Andahuaylas), the one with less contact with the capital city, people still consume *tarwi* openly and proudly (Martínez-Zúñiga, 2007).

Food practices in a Tantamaco, one more community[45] in Puno have also been analysed (Burga, 2009). The main objective was to study what these practices were like in a context of seasonal change (climatic transition), given that production activities depend on and are organised according to the climate and the agricultural cycle.

Burga (2009) highlights the fact that there are only few studies analysing food systems and practices in Peru, despite the fact that this topic is about daily and common activities. Thus, she looks into the types, "cooking technologies", social uses and symbolic aspects of food. In addition, attention is given to people's actions to buy or obtain food, as they are part of everyday life that in the end determine what is actually consumed.

In order to study food practices,[46] Burga (2009) used an ethnographic approach. Among the main findings, she mentions that it is not possible to understand food practices without understanding the ecological and environmental components, as the agricultural cycle determines which food items are available according to the time of the year. Furthermore, behind food practices there are different sets of roles, organisation and preparation modes.

[44] The ones closer to urban centres tend to buy industrialised food items, while the ones living far away will eat more of their own production.
[45] The community's agricultural activities are for self-consumption.
[46] Food practices are defined as everything that is related to eating, the preparation mode, consumption and ways of cooking.

Additionally, the author finds that the way of obtaining food depends on the particular income-generating activities of the household; there are different strategies the latter needs to implement to have access to specific food items. Moreover, "the kitchen is a reflection of the family's activities and organization" (idem: 256); it is seen by Burga (2009) as the meeting place in the household and a space in which the positions within the household can be distinguished.[47]

One more important aspect the author acknowledges as very influential on consumption patterns is community life. The family decides what is going to be consumed and the way of cooking, but the "community assembly" determines the activities to be performed that later on affect families' organisation, such as areas and working schedules, rules, responsibilities within the community, prices for the products to be sold, etc.

Overall, food practices in Tantamaco are related to productive activities, food production of the area, conservation and transformation ways, and purchases in the market. Food practices show specific cultural values and how families and the community are organised and integrated.

The next subsection shows some studies performed for Bolivia, the largest quinoa exporter in the world (PROINPA, 2011). Bolivia is in the border with Puno and it has been involved in quinoa promotion earlier than Peru; moreover, that country has been the leader in negotiations with FAO to support quinoa production and consumption. Due to the role this country has played, it is important to know about its quinoa consumption patterns.

2.3. Quinoa consumption in Bolivia

In a community with tough climatic conditions (Puqui, in Oruro), the impact of the quinoa market development in peasants' productive systems and lifestyles is analysed (Laguna, 2000). The main finding is that peasants specialised in quinoa production, strengthened their relationships with markets and reduced self-consumption, which implies less opportunities to manage risks. The reduction in quinoa consumption also had an impact in the quality of the diet and it was influenced by migration, by the increase in its price and by its demanding preparation process. Moreover, peasants' rationality was based on three main factors: 1. Maximising labour productivity to be able to send their children to school, 2. Increasing availability of calories by producing potatoes for self-consumption, and 3. Selling as much

[47] Nevertheless, I did not see a clear pattern regarding this issue during my fieldwork: in some households, the kitchen was a place only for women, and families did not come together in it all the time (kids preferred to eat outside or in another room while watching TV).

quinoa as possible to obtain more noodles or rice (which are relatively cheaper) to increase calories intake (Blum, 1995, as cited by Laguna, 2000). However, peasants' strategies had to change in 2000 due to a significant reduction in quinoa prices given its overproduction; they started to store quinoa and to increase self-consumption.

After some years, the same author published a study covering a broader area in Bolivia, including communities in the region around Salar de Uyuni[48] (Laguna, 2011). Regarding quinoa consumption, the main finding is that there is no decline; it has been stable over time or in some cases it has even been increased.

Laguna (2011) points out, reflecting on his previous studies, that changes in quinoa consumption patterns had already occurred in the 1970s and carbohydrates were widely consumed (rice, noodles, bread, wheat flour and sugar); furthermore, the diet had already changed at the beginning of the 20th century due to the connections with external and local markets. According to the author, this situation has not become worse; on the contrary, there has been a nutritional improvement. A key finding of his study is that there might have been reductions in quinoa consumption in relative terms (in the percentage of the production allocated for self-consumption), but not in the actual consumed quantity. By indicating that quinoa sales allowed peasants to improve and diversify their diets (including fruits, vegetables, flour and sugar) and to increase their income, Laguna (2011) stresses that the quinoa boom has not necessarily jeopardised food security.

In addition, the author lists the factors that determine quinoa consumption: total production, access to markets (including infrastructure or participation in cooperatives or associations), location (the more remote a community is, the higher quinoa self-consumption will be), the food experience in general, dependence on (communal) natural resources, economic motivations and interest in reducing physical work. Regarding the latter, farmers indicated that they prefer spending less time in preparing their food, and cooking quinoa involves many activities (toasting, washing, selecting, etc.) hence they prefer to include it in soups or simply boil it. One more important factor influencing quinoa consumption, as seen in this review, is related to culture; several peasants indicated that they increased their quinoa self-consumption when they became aware of the fact that other consumers were acknowledging its nutritional properties. Along the same lines, Laguna (2011) indicates that quinoa sales show a creative process that gives peasants a group identity as quinoa producers, however, this group identity does not imply homogeneity, as there are diverse economic rationalities and

[48] Salar de Uyuni is a salt flat, the largest in the world, in the departments of Oruro and Potosi.

ways to adopt (or not) new technologies (idem: 157). Finally, another factor to consider when discussing changes in consumption patterns is the influence of teachers at school, who were responsible for disseminating urban consumption styles; they are described as "promoters of the new values fostered by the government" (idem: 86).

Another study focused in Bolivia looks into the regional quinoa network to understand the role of intermediaries, by using an ethnographic approach, in the community of San Agustin, in the Lipez region (Ofstehage, 2010). Besides his main topic, Ofstehage (2010) explains quinoa consumption in San Agustin. He finds that quinoa is consumed very often in the community and that it is grown sometimes only for self-consumption. In his own words: "It appears that Lipeño farmers are acting contrary to the common belief that globalisation and commercialisation will drastically alter food systems" (idem: 113). Furthermore, "quinoa consumption may even be a reason for farmers not to affiliate with cooperatives" (idem: 113), as they may be forced to sell their quinoa and thus modify their diet.

Astudillo and Aroni (2012) focus on quinoa in the Salinas and Colcha K municipalities in the South of Bolivia, looking at how the transition from subsistence agriculture to cash cropping has affected farmers' lives. By using the livelihoods approach and a household survey, they find that the promotion of markets by itself does not improve the situation of poor farmers; there should be complementary measures to expand markets.

In addition, Astudillo and Aroni (2012) discuss past and present quinoa consumption patterns. Among their main results, they mention that from their sample, 53 percent stated that they ate less quinoa now as compared to 15 years ago; 10 percent said they ate more and 37 percent indicated they ate about the same amount. The authors explain the decline in quinoa consumption in terms of household economics, taking quinoa's price as the main determinant. However, respondents were also requested to choose the main factor that determines what food to prepare, offering them the following options: price, flavour, nutritional value, ease of preparation or habit. For the majority (57 percent) price was the most important factor when deciding what to cook, which supports the authors' initial claim.

Finally, Astudillo and Aroni's survey asked if respondents had eaten any dish or snack containing quinoa the day before. They find that 37 percent of the sample declared they had consumed quinoa, and the poorest respondents or in a middle economic level ate more quinoa. Among the two municipalities, Salinas produces considerably more quinoa than Colcha K, but this is not associated to more quinoa consumption. The authors conclude indicating that

"the communities that are now more market-oriented are consuming less of this nutritious grain and more of the easy-to-prepare but less nutritious modern foods" (idem: 121).

2.4. Summary

As we have seen, "food choices are not only subject to rational processes, the choices could be useless, harmful and irrational; this could be explained by cultural and social aspects" (Harris, 1987, as cited by Burga, 2009) and even by many other factors that are not static. Therefore, first and foremost, we need to take into account the complexity of the topic under analysis, as well as the challenges that it implies.

The main factors influencing the diet in general identified in this review are: 1. Migration, 2. Governmental and non-governmental food aid programs, 3. Climatic conditions, 4. More infrastructure (information, communications and transport) availability, 5. Production patterns, 6. Land availability, 7. Time of the year (season), 8. Food prices in the market, 9. Religious and social status aspects, 10. Influence of multinational corporations and international policy, 11. Population growth, 12. Non-farm employment, 13. Trade relationships with other areas, 14. Location, 15. Economic motivations, 16. Biological and psychological factors, 17. Interest in reducing physical work, 18. Time availability, and 19. Dependence on (communal) natural resources.

In addition, this literature review helps us to understand that there is almost no representative moment to choose to analyse the "Andean diet", which does not exist by itself; instead, it has been changing over time. In fact, there have always been, at least during the 20th century and since communities started to connect to cities, combinations of Andean crops and other industrialised products. In this context, the conclusion is that the best alternative to study such a topic is to do it directly on the field, by working, cooking, sharing and living with families in the Andes.

Finally, the literature review shows that food systems and practices in Peru have been analysed more in the past as compared to the last decades, even though food and the eating "activity" are constantly present in our lives, especially in the Peruvian society.

3. Analytical framework

The literature review has shown that diverse factors influence the diet in general and quinoa consumption in particular. At the same time, the interaction among such factors impacts diets and not only isolated ones. As a result, no clear distinction or specific classification between these factors can be made; additionally, there is no direct "cause-effect" relationship but multiple causes and multiple effects. In this context, the following concepts are used to frame the discussion on changing dietary patterns (especially in quinoa), looking at the particularities of Puno.

To begin with, living conditions and especially dynamics in Puno are very particular. Puno went through a process that has been called "compulsive modernisation" (Tamayo, 1981, as cited by Pajuelo, 2009) from 1956 to 1980, transforming itself from a traditional agrarian society into a progressive one, where new and typical elements co-existed. In this period, trade activities and small-scale industries began to develop,[49] as well as new social and political organisations. According to Pajuelo (2009), this modernisation process can be understood as a cycle in which Puno tried to overcome its hard situation related to backwardness and dependence.[50]

For the 1980s and 1990s, Pajuelo (2009) mentions that it is not clear how exactly Puno evolved; but those two decades were characterised by neoliberalism (in the Peruvian economy and society) and political violence (Sendero Luminoso[51]). In addition, there has been an important increase in population in Puno, both in urban and rural areas; this process is related to the "urbanisation" of rural areas: a growing population in rural areas demanding basic urban services, which meant that more infrastructure facilities were deployed gradually. Pajuelo (2009) also indicates that Puno's "great transformation" was related to migration: people from rural areas (communities) moved to district and province capitals, but at the same time, many people left Puno (especially to other regions: Arequipa, Tacna and Moquegua).[52] According to Diez (2003), peasants migrated seeking job, education and life opportunities outside of Puno, and in Puno itself they also looked for more land. All these interactions implied more trade relationships within and among Puno and other regions, as well as changes in traditions and diets (idem: 24).

The increase in trade activities, especially in a city called Juliaca, led to a more dynamic market due to local fairs. This process increased consumption possibilities of the population as well as

[49] *Puneños* are known in Peru as very hard-working people.
[50] The author describes Puno's situation as "secular prostration".
[51] A Maoist guerrilla insurgent organisation.
[52] See Map 1 in chapter 1, subsection 1.4 for the location of Puno's neighbouring regions.

the necessary services and institutions for trade growth (such as informal credit and transportation means). Entrepreneurs developed a new vision and started creating family microenterprises, looking for market niches (idem: 25).

Summing up, Pajuelo (2009) points out that Puno went through an accelerated modernisation process (without defining 'modernisation') that has deeply transformed its traditional characteristics. However, the links between cities and the countryside were kept. He emphasises that entrepreneurs commercialising and producing goods in Juliaca (legally and illegally) have boosted Puno's economy and that *puneños* are considered the "Altiplano tigers" (Tapia, 1996, as cited by Pajuelo, 2009), but at the same time, agricultural and animal husbandry activities are still important.

In such a context, the notions on *modernity* and *modernisation* are relevant. Arce and Long (2000) question the typical interpretations of social change by analysing localised practices, focusing on modernity from within.[53] For them, 'modernity' is "a metaphor for new or emerging 'here-and-now' materialities, meanings and cultural styles seen in relation to the notion of some past state of things" (Comaroff & Comaroff 1993, as cited by Arce and Long, 2000), while 'modernisation' implies "a comprehensive package of technical and institutional measures aimed at widespread societal transformation". Modernisation also implies "blending and juxtaposition of elements of self-organisation, policies and global courses of action", or "a growing set of multiple social interactions"; interactions are never symmetrical or entirely integrated into a single historical origin of national and international markets (Arce, Viteri, & Mateos, 2014). Additionally, modernity involves self-organising and transforming practices in different strata and sectors of society (local actors), but modernisation refers to a policy initiative undertaken and implemented by governments or technical organisations ("cosmopolitan administrative and technological elites", national or international). Taking these concepts into account, Arce and Long (2000) suggest elaborating actor-grounded constructs "to reveal the variable, composite and provisional nature of social life, to explore the practical and discursive forms of consciousness and social action that compose it, and to expose the socially-constructed and continuously negotiated nature of knowledge and intervention processes".

The case of Puno illustrates the modernity concept. Firstly, the "compulsive modernisation" process described by Pajuelo (2009) shows that it was entirely led by local actors, searching for their own opportunities to make a living; in fact, modernity initiatives brought development to

[53] For the authors, the term 'modern' "connotes a sense of belonging to the present and an awareness of a past to which people can link and at the same time distantiate themselves."

Puno. There were, of course, modernisation initiatives part of the neoliberal agenda of the government in the 1990s, as well as NGOs interventions, but they rendered different results according to the actors' practices.[54]

The quinoa process does not differ from what has been described above. Selling quinoa was one of the many strategies local actors have been using to survive, but its price was very low until 2008.[55] Due to their own basic needs, quinoa producers took advantage of this opportunity and started to sell more of it, consuming less or producing more of this crop (or both), which will be discussed in the following chapters. At this point it is appropriate to mention that according to Arce and Long (2000), modernity includes a particular assemblage of social and discursive practices and it is never entirely consistent and coherent; instead, there is a heterogeneous dynamism in which ambivalence and ambiguity show differences of interests and knowledge; this is part of what I analyse in the specific case of quinoa.

Many authors talk about the commodification process of quinoa.[56] A commodity is defined as a good or service that is, or could be, bought and sold at some point; seeing things in a marketised way is known as commodification (Ertman & Williams, 2005). According to Ertman and Williams (2005), scholars use the term "commodification" to discuss only specific types of sales; there is no discussion about the commodification of milk for example, but they use "commodification" to "challenge the understanding of things, services or relationships in market terms", including a discussion on what is and should be in and out of the market (idem: 4). The same authors discuss about the different views on commodification, describing how commodities and culture are sometimes seen in opposition, with culture as a differentiating element and commodification as a homogenising one. On the one hand, commodification, or markets, could "strip away local meanings and contexts, universalising a good and making it common rather than unique", but on the other "placing cultural commodities outside the market by declaring them sacrosanct can also impede cultural evolution". In this sense, Ertman and Williams (2005) point out the potential negative effects of both commodification and non-commodification. Appadurai (2005) takes this last point and indicates that such oppositions parody both poles and reduces human diversities artificially.

[54] For example, there was a project to insert small alpaca producers in markets. Only some of them managed to adapt to the new market conditions and to increase their incomes, but the majority kept stagnated. The difference was that the first group developed new organisational ways to commercialise alpaca wool. See Pajuelo (2009).
[55] Most of the people I talked to told me that the actual quinoa boom (a significant price increase) began in that year.
[56] See Recka (2014) for example.

The commodification process of quinoa can be taken as an expression of globalisation because its increased commercialisation started with the rise in international demand for it.[57] According to Appadurai (2000), globalisation worries everyone and generates opposite positions regarding the values it promotes and its effects; there are discourses on social exclusion, aid for the poor, the local, the global, etc. Alternatively, the author suggests looking at the social forms that have emerged independently of the actions of corporate capital and nation-state systems; those social forms imply strategies, visions and horizons and they could be called "grassroots globalisation" or "globalisation from below". Moreover, Appadurai (2000) suggests that globalisation is about flows of objects, persons, images and discourses, and that those flows are in relations of disjuncture (separation or disconnection); he goes further by adding that the paths or vectors of these flows have different speed, axes, points of origin and termination, and different relationships to institutional structures. Disjunctures generate problems and frictions in local situations, and disjunctures between the several vectors produce problems of livelihoods, equity, suffering, justice and governance (idem: 6).

For Appadurai (2000), imagination in social life is a faculty that inspires daily life in several ways such as thinking of migration, resisting state violence, seeking social compensations and designing new forms of civic association and collaboration. Finally, he also highlights the role NGOs have had in grassroots globalisation, as they have managed to mobilise groups on matters of equity, access, justice and redistribution.

As an expression of globalisation, quinoa commodification, together with the processes Puno went through, are based on the notion of modernity (from Arce and Long, 2000) because they involved self-organising and transforming practices of local actors as well as new materialities, meanings and cultural styles (to be explained in the following chapters). We could also say that imagination (Appadurai, 2000) accelerated and contributed largely in these processes.

To conceptualise globalisation, David Harvey (Harvey, 1989, as cited by Inda & Rosaldo, 2002) describes it as a "manifestation of the changing experience of time and space", introducing the concept of "time-space compression". The basic idea is about the speeding up of the pace of economic and social life and the change in the notion and organisation of time. According to this author, the world is not the outcome of a smooth linear compression of time and space, but the result of a discontinuous historical deployment.[58]

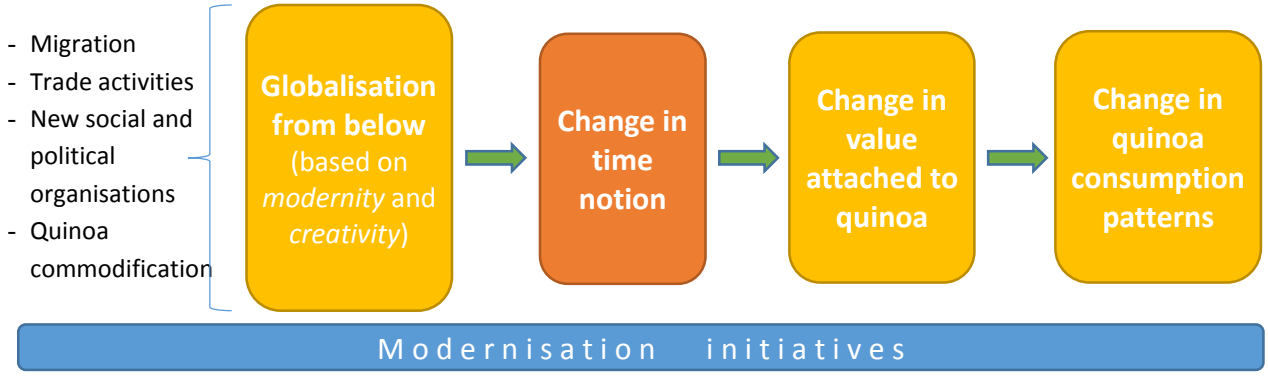
[57] In Peru, from the USA and Europe.

[58] In Harvey's framework, globalisation involves the "shrinking" of space and the shortening of time to do things; distance and time are not seen as constraints to organise human activity. However, according to the context I analyse, I only take the element that refers to the change in the notion of time.

The change in time notion implies doing other activities in general and in cooking and eating in particular. Due to the new speed in which life is lived several changes take place, which shows that social relations and diets are not static.

The following diagram summarises the frame under which the analysis in this study is carried out.

Diagram 1: Analytical framework



Source: Personal compilation based on several authors

I began by describing the several processes that Puno has gone through for some decades, including quinoa's recent commodification, as manifestations of globalisation or globalisation from below, based on the concepts of modernity and creativity already described. Globalisation, as represented by those processes (and as stated by Harvey), generates a change in the notion of time and this in turn, besides making actors reorganise their daily activities, makes them think of quinoa in a different way (in other words, the value attached to it changes). Finally, this variation in quinoa's value will lead to a change in its consumption patterns. Modernisation initiatives have been implemented throughout these processes.

This framework, along with the concepts already described, will be taken as a reference to analyse my findings in the following chapters.

4. Social aspects of food consumption in Acora, Cabana and Cabanilla

One of the main remarks from the literature review is that "food choices are not only subject to rational processes; choices could be useless, harmful and irrational; this could be explained by cultural and social aspects" (Harris, 1987, as cited by Burga, 2009). From this quote I focus on the social dimension of food consumption in the six households of the three districts under analysis because there are many relations that are involved in terms of gender, migration, age, among others.

4.1. General living conditions

To begin with, an overview of the general living conditions of the six households of Acora, Cabana and Cabanilla is given. A summary is presented in the table below.

The six households I worked with have more than four members and in most of the cases some of them were missing during my visit because they were working in a different city or they had already migrated to live somewhere else. This showed me from the very beginning the "globalisation from below" process or modernity projects described in the analytical framework.

Regarding the houses, all of them had separate rooms; one room is used to sleep, another one to store food, tools or vehicles and one more for the kitchen. In general, the kitchen always has to be in a separate room because of their way of cooking (to be explained in another subsection).

The walls of all the kitchens are made of *quincha*, a combination of cane and mud; the roof is made with straw and they have an earthen-floor.

As of some important physical assets, I found that all the households have a TV, a DVD player, a radio and a mobile phone. Furthermore, all of them have either a bike or a motorbike, which is needed to go to the closest city, to go to school or to local markets.

Besides physical assets, I also list the types of livestock that the households have. I consider them assets because livestock is a kind of insurance for difficult moments for producers (they provide cash income) and it is a way of saving money. Moreover, there are several reasons to keep livestock; it provides manure, food, draft power and hauling services, etc. (Pica-Ciamarra, Tasciotti, Otte, & Zezza, 2011).

Table 3: General living conditions in the households of Acora, Cabana and Cabanilla

	Households (HH)	N° people in HH in my visit	N° of family members	Construction material	N° of rooms	Main assets	Water and drainage	Electricity	Cooking fuel
Acora	HH1 (Irma-58)	3 Irma, her son (37)and the son's wife (38)	4 Irma, her husband (58) and their son and daughter (35). The husband works in Cabana and goes home for weekends. The daughter lives in Puno city and goes for weekends too. The son works in mines, but this time he had a job for 9 months in Puno.	Some rooms are made of "quincha" (cane and mud), especially the kitchen and some others are made of bricks and cement	6 - Kitchen - Storehouse - The parents' bedroom - The daughter's bedroom - The son's bedroom - A place to keep the motorbike and some tools Most of them with wooden floor but the kitchen has dirt floor	Physical: - Tractor - Motorbike - Cutting machine - TV and DVD - Radio - Mobile phone Cattle: - Plenty of hens and chicks - 3 cows - 2 calves - 25 sheep - 2 dogs	- Water collected from a well - No drainage but there is a 'hole' they use as a toilet.	Available, but with power cuts when there is a storm or hail	Dung most of the time. Gas kitchen also available but hardly used.
	HH2 (Lina-60)	2 Lina and her husband (60)	6 Lina, her husband, their 3 sons and their daughter. All of them are in their 30s; the sons live in Tacna (another region in Peru and the daughter in Acora city)		5 - Kitchen - Storehouse - The couple's room - A place to keep some tools - A big room for sons and daughter	Physical: - Motorbike - Cutting machine - TV and DVD - Radio - Mobile phone - Motocar: mixture of motorbike and van, 3 wheels Cattle: - 50 sheep - 3 cows - 2 calves - Alpacas (shared with the community			

		N° of people in HH	N° of family members	HH's construction material	N° of rooms	Main assets	Water and drainage	Electricity	Cooking fuel
Cabana	HH3 (Ana-47)	3 Ana and her son (13) and daughter (19)	4 Ana, her kids and the husband (43). The husband works in a mine in Arequipa, another region in Peru. He goes home in Cabana every 21 days	Some rooms are made of "quincha" (cane and mud), especially the kitchen and some others are made of bricks and cement	3 - Kitchen - Storehouse - The main room where all of them sleep	Physical: - 2 Motorbikes and a bike - Thresher machine - TV and DVD - Radio - Mobile phone Cattle: - 1 sow - 4 piglets - 2 cows - 1 calves - 22 sheep - 2 dogs	- Water collected from a well - No drainage but there is a 'hole' they use as a toilet.	Available, but with power cuts when there is a storm or hail	Dung most of the time. Gas kitchen also available but hardly used.
	HH4 (Fernando -69)	2 Fernando and his wife (68)	7 Fernando, his wife and their 5 sons and daughter. Two sons and the daughter live in Juliaca (the closest city) and the other two live in other departments (Arequipa and Apurimac)	Quincha	1 The main room where both of them sleep	Physical: - TV and DVD - Radio - Mobile phone - Bike Cattle: - 5 cows - 2 hens - 25 sheep - 2 dogs			

		N° of people in HH	N° of family members	HH's construction material	N° of rooms	Main assets	Water and drainage	Electricity	Cooking fuel
Cabanilla	HH5 (Esteban-26)	5 Esteban, his wife (25) and their 3 small kids (5, 3 and almost 2)		Only the kitchen is made of quincha. All the other rooms are made of bricks and cement	6 - Kitchen - Bedroom for all of them - Food storage - Clothes storage - Motorbikes and tools storage - Trout farm	Physical: - TV and DVD - Radio - Mobile phone - Laptop - Printer - 2 motorbikes Cattle: - 15 cows - 12 hens - 2 roosters - 10 guinea pigs - 4 dogs - 22 sheep - 2 trout	- Water collected from a well - No drainage but there is a 'hole' they use as a toilet.	Available, but with power cuts when there is a storm or hail	Dung most of the time. Gas kitchen also available but hardly used.
	HH6 (Laura-53)	5 Laura, her husband (55), their son (27), the son's wife (25) and the son's daughter (8 months). The husband and son work in mines, in Arequipa and Sandia (jungle area of Puno), respectively. They were at home during my visit		Some rooms are made of "quincha" (cane and mud), especially the kitchen and some others are made of bricks and cement	4 - Kitchen - The youngest couple's room - The eldest couple's room - Storage room	Physical: - TV and DVD - Radio - Mobile phone - Laptop - 1 motorbike and 1 bike Cattle: - 12 sheep - 1 pregnant cow - 4 hens - 1 cat - 1 dog	- There is a tap outside - No drainage	Available, but with power cuts when there is a storm or hail	Dung most of the time. Gas kitchen also available but hardly used.

Source: Own elaboration

It is almost a rule in Puno that households should have both sheep and cows, at least a few of them, as well as dogs to prevent theft and cats to avoid mice.[59] In the six cases I analysed, all of them had sheep and cows and only one household did not have a dog.[60] Besides, I found pigs, guinea pigs, hens, cats, alpacas and even trout.

In terms of basic services, all the households had electricity, but they had problems with it when there were strong storms or hail. There was no piped water but in one of the households in Cabanilla (a small tap outside); in the rest, households were getting water from wells. Additionally, there was good mobile phone signal in all the communities I visited.

The last aspect I considered to describe living conditions is the cooking fuel they use. This is relevant because it is directly related to food consumption patterns as it will determine how much time cooking will demand. In all the households, dry manure is used to cook most of the time. All of them have a gas stove and a gas cylinder but they are not used very often; households have a discount voucher provided by the government to pay half the price of the gas cylinder.[61]

Finally the table below shows an important characteristic of the households: whether they are related to any organisations or not; these relationships can influence households in terms of the markets they can access to sell their production (to be explained later).

Table 4: Links with organisations of households

Districts	Households	Link with organisations
Acora	HH1 - Irma	Yes - producers' org. and NGO
	HH2 - Lina	No
Cabana	HH3 - Ana	Yes - cooperative
	HH4 - Fernando	Yes - producers' association
Cabanilla	HH5 - Esteban	Yes - producers' org. and NGO
	HH6 - Laura	No

Source: Own elaboration

4.2 Agricultural practices, land management and land use

According to Canahua, Tapia, Ichuta, & Cutipa (2002), peasants' land management in Puno is based in a holistic conception of nature and in conservation practices of natural resources: soil, water and agro-biodiversity; however, in my opinion, it is hard to identify the elements that define a "holistic conception". At the same time, Canahua et al (2002) indicate that land

[59] Mice eat cereals and other food that is stored.

[60] They told me that the community was a safe place. Likewise, they said they were lazy and did not want to cook additional food to feed the dog.

[61] About this voucher, many women told me that the government was cheating on them because the cylinders they could buy with such vouchers had only half of the regular content. More details on the kitchens are given in another subsection of this chapter.

management in Puno has agro-ecological, cultural and socioeconomic motivations but that demographic pressure, urbanisation, modernisation elements and articulation with markets are undermining its importance;[62] in addition, traditional knowledge from the area is getting lost with new generations when in fact, peasants' knowledge on Andean agro-ecology and their culture constitute the foundations for sustainable development (idem: 286).

In this context the households I worked with, and most of the households in the highlands, grow their crops using a rotation system. This process implies growing different crops in sequential seasons and fallow periods in the end; they distribute and divide land according to soil characteristics and agro-ecological zones.

Nowadays communal and private land tenure patterns coexist, as well as communal and private land management. For example, in the Aymara zone I found communal land management of private land in *aynokas*.[63] According to the producers I talked to, the Quechua zone also had communal land management (*mantas* or *suyus*) but I did not find them in the districts I visited. Esteban, from Cabanilla, told me:

> *"In the past we used to have suyus, where we, as a community, cultivated different crops all together. In 1994, an irrigation project started and everyone wanted to have their own individual parcels, so we had to divide our suyus; there is no more communal land".*
>
> *(Field note 1*, 04/01/2014)

What Esteban describes is how a modernisation initiative (irrigation project) directly impacted on households' activities and organisation, as they started to manage land individually and not anymore as a community.

An *aynoka* or *suyu* is a land area (I heard there were some of 6 ha and some others of 80 ha for example) that is managed by a community. It implies taking care of it in all senses and they are usually a bit far from houses. The rotation cycle in an *aynoka* is collectively managed by the community, sharing the same crop and stages; it contains several different plots, each one belonging to a specific owner, and each owner decides individually on the specific activities to perform on their plots.

The *aynokas* I saw in Acora were collections of parcels of the communities' households, inherited from their parents or grandparents. There can be many *aynokas* in each community, and this organisation implies that community life influence the kind of crops households grow, and thus

[62] For example, the authors mention the reduction of fallow periods due to demographic pressure.
[63] An *aynoka* (Aymara) or *suyu/manta* (Quechua) is a land area managed by a community.

what they will have available to cook and eat. The key informant from Acora explained me about *aynokas* and rotation cycles:

> *"The community decides in which aynoka we will grow our crops each season, but if we start with potatoes, the following year will be quinoa for sure, and in the meantime another aynoka is being prepared to start with potatoes. After quinoa we grow barley. Each year we try to allocate an aynoka for potatoes. After barley we grow alfalfa, but in the past we used to have fallow land. We are experimenting with alfalfa. No one thought alfalfa would improve the soil that much because in this area the soil has been overused. This shows that alfalfa is very useful to improve soil quality. We are thinking we could introduce alfalfa in all the aynokas now. The soil could "rest" with alfalfa for around 6 or 8 years and then we start again with potatoes."*
>
> *(Interview in Acora, 04/06/2014)*

As the key informant explains, the typical rotation cycle in Puno starts with potatoes and it is followed by quinoa. One of the households I worked with in Acora grows either quinoa or cañihua the second year. In the third year, they plant either oats or barley. All the households begin the fallow period on the fourth year, and as the key informant mentioned, some others are introducing alfalfa instead. For Esteban's household in Cabanilla "fallow period" means growing alfalfa. Only one household (Laura's) does not have fallow land. The rotation cycles of the 6 cases I study are shown in table 5.[64]

Table 5: Rotation cycle in each household

District	Households	Year 1	Year 2	Year 3	Year 4	Cultivable area
Acora	HH1 Irma	Potatoes Potatoes*	Quinoa/Cañihua Oca*	Oats Wheat*	Fallow (3 y.) Fallow*	7.5 ha
	HH2 Lina	Potatoes	Quinoa	Barley	Alfalfa or Fallow (1-2 y.)	2 ha
Cabana	HH3 Ana	Potatoes	Quinoa	Oats	Fallow (2 y.)	2 ha
	HH4 Fernando	Potatoes	Quinoa	Oats/barley	Fallow (3 y.)	4 ha
Cabanilla	HH5 Esteban	Potatoes	Quinoa	Barley	Alfalfa	4 ha
	HH6 Laura	Potatoes	Quinoa	Oats	-	2 ha

*Another rotation cycle of the household in the mountain slope. It is different because it is warmer there.
Source: Own elaboration

This typical rotation cycle, as Soto, Valdivia, Valdivia, Cuadros, & Bravo (2012) mention, has been modified in some cases. For example, Ana in Cabana and Esteban in Cabanilla, and the key informant in Cabana told me that sometimes they grow quinoa again on the third year and then continue with oats or barley. This reorganisation of their agricultural activities, or their self-

[64] For more information on rotation cycles in Puno, see Soto, Valdivia, Valdivia, Cuadros, & Bravo (2012).

organising practices or strategies, is directly related to quinoa commodification because they are well aware of the fact that selling quinoa represents and additional income source and that it would be easily sold due to the high demand for it. According to the key informant in Cabanilla, growing quinoa twice on the same field is a common practice nowadays, which implies more plagues, more diseases, lower yields and smaller size of panicles.

Besides, there is one household (Irma's) growing crops in the mountain slope or hillside in Acora. Irma explained me that weather conditions there are different there (warmer) thus they grow different crops as compared to the ones in pampas. She also told me that this pattern in the mountain is changing due to the increasing demand of quinoa (some people are starting to grow quinoa there). Again, this shows one more strategy circumscribed to quinoa commodification.

Box 1: How do peasants manage *aynokas* in case of adverse weather conditions? An experience of the informant from Acora

"I remember when I was young, I saw what the community was doing to control hails and frosts. It was well-organised, so it was easy. Everyone was very active in many communities in this area. This happened in February, right after the Candelaria festivity. Our potatoes aynoka of 80 ha was perfect, with beautiful flowers, but we knew the frost was about to start, so people came out from each house, all of them. Nowadays we know that frosts start very early in the morning (4-5am), but in those days we used to stay on the aynokas all night long making fires. During that week we didn't sleep because we were taking care of the aynoka. We were there with our woods and chakalladas.[65] In the morning we saw that the frost didn't have any effects on our potatoes; they were fine, and we did the same for a week! Only some leaves were burnt, but we managed to save our potatoes.

For hail we would also take action. Whenever we had it, anyone could let the community know by using a pututo[66] and we would all run to try to do something. It was harder to control hails, but now it's easier with fireworks; there's a specific moment in which you have to do it."

(Interview in Acora, 04/06/2014)

Regarding the issues mentioned at the beginning of this subsection, again the informant from Acora explained that demographic aspects impact the quantity of available food:

"My parents and grandparents used to work with an 8-year fallow period. Now the issue is population. We are more and more people and land has to be divided, so parcels become smaller. If we have aynokas of 30 ha, we put them together because they are too small."

(Interview in Acora, 04/06/2014)

[65] Typical dance with traditional flutes from the Andes.
[66] Sound device, a horn or conch, which has to be blown.

All the households I worked with grow their crops with no chemicals, even those that are not related to producers associations or NGOs. Instead, they use sheep and cow's manure.

In Acora, Irma told me that an American NGO went there many years ago giving free chemical fertilizers, but

> *"…we never used them; in the community no one wanted to use those chemicals, so we went to the Sunday market and sold them there (giggling)".*

(Field note 2, 04/09/2014)

In Cabana, one household was part of an organic quinoa producers organisation and the other belonged to COOPAIN, the organic quinoa cooperative. Both of them have to comply with regulations from organic certification bodies such as preparing and using compost. Preparing compost usually takes at least three months and they begin in June.

Esteban's household in Cabanilla works with a lot of cow and sheep manure, compost and guano especially for potatoes and quinoa. Laura's household, also from Cabanilla, is not related to any organisation but uses plenty of manure for potatoes only; she told me that manure is enough and that is why they do not need fallow periods.

In four of the cases I studied, women were the ones doing most of the agricultural work because their husbands go to work somewhere else: mines, schools or constructions.[67] The only two cases in which men are more involved in agricultural work are those in which they are older; one of them (from Cabana, 69) used to work in a mine and the other one (from Acora, 60) has worked only in agriculture his entire life. However, women usually wait for their husbands to be back at home to do some activities that demand more strength; for example, during my stay at Ana's household, we harvested and covered all the quinoa panicles and she told me they would only do the threshing once her husband arrived from Arequipa because it involves a lot of hard work.

I also considered information regarding agricultural technologies and I found that all the households do use a tractor and one of them (Irma's from Acora) even has a small one. Irma's son and daughter invested in it 10 years ago. Nowadays they use it for ploughing and to harvest potatoes. Irma stressed that the tractor really helps to save a lot of time and to work better:

> *"The tractor takes the land from the deepest parts. Before, without tractors, we needed one entire day to plough only one parcel".*

(Field note 3, 04/09/2014)

[67] Something that called my attention was the fact that in the youngest household (from Cabanilla), Esteban is the one who goes to the meetings and trainings with NGOs, while his wife is the one that actually does the majority of the agricultural activities.

Irma also highlighted her son's help:

> *"My son helps me a lot because he drives the tractor and I sow. If he weren't here I wouldn't be able to do anything"*

(Field note 4, 04/09/2014)

In the rest of the cases, households rent tractors either from neighbours or from the municipalities of Cabana and Cabanilla (Acora's municipality does not have tractors). When they want to rent the municipalities' tractors, they need to subscribe in advance because the demand is very high and a plan needs to be made according to the location of the communities. For example, in Esteban's household, they were quite late to subscribe for the tractor and they could sow only in November (the majority does it in September).

Picture 1: Irma's tractor

Source: The author's picture

Picture 2: Parts of Irma's tractor

Source: The author's picture

When there were no tractors, *yunta* was used. It implies using two animals (oxen or cows) for ploughing (to open furrows); usually the man pulls the cows and the woman goes behind him putting seeds. Among the households, only two of them told me they use yunta sometimes.

Regarding the use of tractors, the key informant from Acora told me his opinion trying to make a balance, but his conclusion is that there has been an exaggeration of its use.

> *I think everything here is mechanised. There are no yuntas. Now people only use tractors to prepare the soil. There are advantages and disadvantages. In the past, in this time of the year (April), we were already ploughing with yunta, moving the soil and everything, and it helped for the decomposition of organic matter, but now with tractors people plough at any time, for example only when they are about to sow. This is why the yield is lower now; it's not like before ('ya no es como antes'). People don't take care of anything; soil is not managed properly, that's the problem with the machines we use. Technologies are good to make things faster, but we have altered our natural resources, we are not being careful. Before, our traditional knowledge*

was about taking care of the soil, the environment, everything, but now with machines sometimes we exaggerate and ruin everything. Our traditions are ruined, our soil is ruined, the sow, everything. It's not the same.

(Interview in Acora, 04/06/2014)

The key informant from Cabana minimised the disadvantages of using tractors:

"We use tractors nowadays, yunta is hardly used, only for some small areas. Many years ago we only had yunta, but after the land reform we got more land and it's more profitable to work with tractors. We get it from the municipality or from our neighbours. The ones from the municipality regulate prices. About the disadvantages of tractors, I would only think of some of the small animals such as lizards and frogs that tractors kill when we use them. I don't see any other problems".

(Interview in Cabana, 04/30/2014)

In Cabanilla the key informant told me that households use both tractors and yunta; the latter is used for sowing while tractors are for ploughing. He said that quinoa grows better when it is sown using yunta or when they pile up soil around the crops with yunta. He added that it is worthless to use tractors for less than 1 ha. In addition:

"There are clear differences when you sow with tractor and with yunta. When you use yunta it is more uniform, and when using tractor seeds are scattered unevenly. It's much better to use yunta but it takes much longer: 1 entire day as compared to 1 or 2 hours with tractor. Also, with tractors the soil gets compacted and it's ruined".

(Interview in Cabanilla, 05/04/2014)

Overall, the use of tractors represents the interest of households in reducing the time needed to perform agricultural activities, which exemplifies the time-space compression concept (Harvey).

Besides, I also found cutting machines in Acora for the harvest and I was told that they help to save plenty of time. Both households had them, but only one of them (Lina's) used it regularly to cut quinoa panicles, barley or oats.[68] In contrast, the rest of the households use the typical sickle.

For threshing, two of the households use thresher machines (the ones in Cabana); in Ana's case, she has one at home, and Fernando rents it whenever it is necessary. All the rest use the traditional *jaucaña* or *huajtana*, a solid stick with which panicles are hit.

[68] In the other case, Irma told me they could not use their cutting machine too often but only when her son was available.

Picture 3: Lina's cutting machine

Source: The author's picture

Picture 4: Sickle

Source: The author's picture

Picture 5: Esteban's son showing me their huajtana

Source: The author's picture

The summary of what the households use (machines and traditional items) is shown in table 6.

Table 6: Agricultural machines and materials used by the households

District	Households	Use of machines	Use of traditional materials
Acora	HH1 - Irma	Owns a tractor and a cutting machine	Jaucaña
	HH2 - Lina	Rents a tractor from neighbour (S/. 35.00 per hour)	Jaucaña
		Owns a cutting machine	
Cabana	HH3 - Ana	Owns a thresher machine	Sickle
		Rents a tractor from municipality (S/. 50.00 per hour)	Yunta sometimes
	HH4 - Fernando	Rents a tractor from municipality (S/. 50.00 per hour)	Huajtana
		Rents a thresher machine	Sickle
Cabanilla	HH5 - Esteban	Rents a tractor from municipality (S/. 50.00 or S/. 60.00per hour)	Huajtana, yunta sometimes Sickle
	HH6 - Laura	Rents a tractor from neighbour or municipality (S/. 60.00 and S/. 30.00 per hour, resp.)	Huajtana Sickle

Jaucaña and Huajtana are the Aymara and Quechua terms referring to the large stick used for threshing.
S/. 1.00 (one Peruvian Nuevo Sol) is US$ 0.36 or € 0.27 as of 30th July 2014 (source: www.bloomberg.com).
Source: Own elaboration

It is clear that there is some kind of negotiation among the use of traditional ways or techniques and modern instruments; both coexist and are used according to the households' needs and priorities, especially taking into account a variable such as time. However, the key informant from Acora described some issues:

> *"In each aynoka there was a special place to make ceremonies, but everything has disappeared now. For example, look at that small hill (pointing), in that place we used to do our offerings for the land; the ceremony was beautiful, but it wasn't simple: a special person, a wise person had to do it, the one who's successful on his chacra. For example, if someone does the land offering for this season and in the end we see that he has good results, then the same person must keep on doing the ceremonies in each season because it means Pachamama (mother earth) is accepting that person; if there's no frost or hail, our crops will grow without problems because of this person. But those Yatiris (wise men) don't exist anymore. Also, as we now use tractors, those special places where we used to do our ceremonies are gone. In the past those places were sacred and respected by all of us. As time passes by things change; we had such beautiful traditions and knowledge that were part of our lives, but now we've lost everything. No one cares. And even when some of us who know more talk about them, people say: 'hey! What are you talking about? Those are old stories! Let's try something new!' Many of them don't understand anything, but some of us still know that our traditional knowledge was the best technology, it was very well-implemented and it took into account all the characteristics of our land. We respected nature and that's why there were no illnesses, no plagues.*
>
> *(Interview in Acora, 04/06/2014)*

Moreover, he suggests that the repositioning of traditional knowledge has to do with the education system:

> *The education system had always been focused on neglecting our knowledge and on admiring foreign things. Teachers would tell us that our knowledge was only a legend; ('nos han transtornado la cabeza'). Because of the education system, we felt we were worthless, that our grandparents' knowledge was useless. We were told that only the ones with money know more. The education was just like that. That's why we are now individualistic and even families are not as close as they used to be. Also we envy each other but it shouldn't be like that. If we want to develop this area, we have*

to work as a group, we won't achieve anything individually. Education has taught us silly things ('la educación es lo que nos ha fregado').

(Interview in Acora, 04/06/2014)

Finally, there was a very particular agricultural tradition in the Aymara area related to the moon. I stayed in Lina's household when there was full moon thus the tradition indicates we are not supposed to work or to 'touch the soil'. This tradition has been affected by the presence of religious groups. Her husband explained me the following:

"When I was young, I used to go to the Adventist church, so I didn't take into account the ancestral knowledge or traditions of the community; they said those things came from the devil, but I left that church. Land must not be touched today, we just have to take the sheep to graze. Once, we harvested our potatoes on a full moon day, and all of them got ruined; when we tried them, they were very bitter, awful! We just went to the market and sold them (giggling)".

(Field note 5, 04/15/2014)

4.3 Food production and food purchases patterns

As mentioned in the previous chapter, most of agricultural production in Puno is for self-consumption and the households I worked with are not an exception. In this sense, I found that the main food item both produced and self-consumed is potato.

Puno has around 800 varieties of potatoes. The main distinction producers make is among 'papa dulce' and 'papa amarga' (sweet and bitter potatoes) and they are used differently according to the dish.

Picture 6: Different potatoes varieties

Source: The author's picture

The summary of the crops the households I visited produce is in table 7. All of them produce potatoes, quinoa, barley or oats and alfalfa. The only exception for alfalfa is Laura's household because alfalfa does not grow in the area she lives in. From households' production, oats, barley and alfalfa are kept as fodder.

Table 7: Produced crops by each household

District	Households	Produced crops
Acora	HH1 - Irma	Potatoes, quinoa, alfalfa, oats, broad beans, izaño, olluco (papa liza), cañihua, oca, barley
	HH2 - Lina	Potatoes, quinoa, alfalfa and barley
Cabana	HH3 - Ana	Potatoes, quinoa, oats, alfalfa
	HH4 - Fernando	Potatoes, quinoa, oca, izaño, olluco (papaliza), broad beans, peas, alfalfa, oats and barley
Cabanilla	HH5 - Esteban	Potatoes, quinoa, cañihua, barley, broad beans and alfalfa. Future plans: build a greenhouse to grow fruits and vegetables
	HH6 - Laura	Potatoes, quinoa, oats, oca, izaño, broad beans, onions, carrots, barley, coriander, lettuce and tomatoes

Source: Own elaboration

4.3.1 Acora

In Irma's case, their production does not only feed her household but also her daughter's; Irma's daughter lives in Puno with her two kids and husband, but they go to Acora in the weekends. They work together and then split everything. Additionally, Irma has already assigned the parcels for her daughter and for her son, but in the end they keep working collectively because it is easier for them.

As in all the cases, Irma's household production is for self-consumption but they sell quinoa and sometimes potatoes and *chuño*.[69]

Besides consuming their own crops, Irma told me that they buy fruits and vegetables *(*onions, garlic, tomatoes, pumpkin, carrots, celery, parsley*)* from the market, but that they get rotten quite fast.

> *"Most of the time we buy vegetables and fruits. My daughter is the one who brings them for me.[70] As I can't carry too many things, I never go to the market. Sometimes I don't have enough food and I have to wait until my daughter or my husband comes on the weekends. We rarely buy rice; we only buy it when we feel like having it; we prefer having our potatoes and broad beans".*

[69] Chuño is made of potatoes that have been dehydrated outside with frosts.
[70] Irma had an accident with a sheep and she lost the movement of her right index finger. Since then she has had many difficulties in her daily life. She also had stones on her kidneys and spine problems; that is the reason why she cannot carry heavy things.

"We buy vegetables for our soups. I don't know what else to prepare, so I always make soups"

(Field note 6, 04/10/2014)

They also buy some alpaca meat for the soups, *chaco* (a type of clay to avoid gastritis), salt, sugar, oil, bread, flour, pepper, *cal* (calcium oxide, for *mazamorra*[71]) cheese and oregano.

Lina's household, also in Acora, consists only of her and her husband because their sons and daughter migrated to other regions of Peru. They make a living out of their agricultural production and have never worked in any other activity. Some years ago they used to plant oca, izaño, olluco, broad beans, onions, lettuce and carrots, but not anymore because they are tired. Pascual, Lina's husband, told me:

"Our onions were huge, huge! And mainly for us, but sometimes we also sold them. We are very lazy now, we are 60 and we just buy everything."

(Field note 7, 04/16/2014)

There has been a change in how they get food due to their age and laziness, as expressed by Pascual. They have even changed some other agricultural practices: many years ago, there was a project from the government that promoted construction of *andenes*;[72] the community managed to build them and to grow different crops, but this couple told me they do not do it anymore because it is very far and they get tired.

"There are not so many people planting there, we are all lazy now. It is very far and we get tired, but in that area crops grow nicely; anything grows there because it's warmer".

(Field note 8, 04/16/2014)

Like the previous household, Lina and her husband enjoy and buy fruits. Lina told me:

"I really like fruits. When I travel to Sandia (jungle part of Puno), I buy big boxes of pineapples or grapes. I also buy oranges and mandarins for my husband only because I was told not to have those fruits".[73]

(Field note 9, 04/15/2014)

Besides fruits and vegetables *(*onions, tomatoes, pumpkin, carrots, celery*)* for their soup, they buy *chaco*, salt, sugar, oil, bread, flour, some spices, cheese and oregano. They hardly buy meat

[71] *Mazamorra* is a kind of porridge that is usually made of purple corn and it is typical from Lima, Peru's capital city, but in this context I saw a different version: quinoa *mazamorra*.
[72] A type of terrace in the slopes of mountains to grow crops.
[73] Lina has some food restrictions due to an "illness". This will be explained in detail in another subsection.

because they do not have teeth (they told me they would get dentures soon), which indicates that food consumption is also determined by age and dental health.

Also as Irma's case, the production from Lina's household is shared with her sons and daughter. When Lina travels to visit them she usually carries a bag of potatoes, oca or anything they want.

4.3.2 Cabana

In Cabana, one of the households I worked with is related to COOPAIN (Ana is a member), while the other belongs to a quinoa producers association, thus both of them have easier conditions to sell their quinoa. Additionally, both of them are close to the main town (Cabana) where the Sunday market takes place and to the main commercial city of Puno (Juliaca).

Ana does not produce too many crops (potatoes, quinoa, oats and alfalfa) and buys most of the food items her household consumes. She buys vegetables (onions, garlic, tomatoes, pumpkin, carrots, and celery) in Cabana's Sunday market, together with some other products (spices, rice, eggs, coffee, meat, chicken, fish, jelly, oil, flour, salt, sugar, *chaco*, noodles, canned milk, maize, bread, olluco) and her husband when coming back from the mine brings fruits. She also prepares cheese almost every day from her own cows' milk.

Fernando's household (him and his wife) eats meat, chicken and fish even though they are supposed not to have too much of them due to their religion (they go to the Adventist church). The sons and the daughter living in Juliaca (the closest city, 30 minutes from Cabana) come to visit every Sunday and spend the day there. They usually call the mother to ask which food items she needs, and they bring fruits such as watermelon, grapes, papaya, oranges and pineapples. Besides, they buy rice, carrots, *chaco*, bread, semolina, sugar, salt, oil, lentils, among others.

4.3.3 Cabanilla

Esteban's household has been working with an NGO that promotes organic production of quinoa. They are a young family and they are more aware of nutrition topics due to the trainings the NGO organises, which shows the important role this organisation has had (as highlighted by Appadurai, 2000).

Alicia, Esteban's wife, buys plenty of fruits for her three little kids (orange, mandarins, apples or bananas). She also buys bread, cookies and yogurt for them. Pork, alpaca meat, lamb and beef are consumed sometimes only and they buy garlic, pumpkin, tomatoes, rice, carrots, onions, *chaco* and lentils regularly.

Alicia told me that they are planning to build a greenhouse for both fruits and vegetables. They were going to do it some time ago, but Esteban's mother fell ill and they had to spend a lot of money and time helping her. Alicia said:

"The fruits and vegetables we buy in the market are grown with chemicals and they are not healthy. If we build our greenhouse we will not depend on anyone else and we will have very nice fruits and vegetables!"

(Field note 10, 04/01/2014)

The other household in Cabanilla (Laura's) is more self-sufficient because they grow their own vegetables such as onions, carrots, coriander, lettuce and tomatoes. Laura told me:

"We don't need to buy anything, just a few things. We are lucky because we grow our own vegetables also, and we used to have many other things some time ago."

(Field note 11, 04/17/2014)

They usually buy rice, noodles, oil, broccoli, celery, chicken and alpaca meat, and some fruits.

Food is bought in different ways. Some households try to buy large quantities because they get cheaper prices but others do not have enough money, thus they buy only the things they need for the week. For example, Ana buys big bags of rice, noodles, salt, flour and everything she can. In Esteban's household they also try to buy food in large quantities but they do not have enough money all the time.

Picture 7: Carrots and onions - Laura's household

Source: The author's picture

Picture 8: Food stocks - Ana's household

Source: The author's picture

4.4 Food habits

The previous subsection helps to get an idea of what is both produced and consumed and what is bought, while this one complements it by explaining food habits, including quantities of food, daily food and food for special occasions, preparations, snacks, the importance of certain dishes, preferences, consumption of drinks, etc.

Food consumption in the households under analysis is organised in two basic types. The first one consists of three moments of the day for eating: breakfast, lunch and dinner. The other type has

the same structure but it includes snacks between breakfast and lunch, between lunch and dinner or both. Two of the households had the first consumption pattern (Irma's and Laura's) while the rest had the second one (Lina's, Fernando's, Ana's and Esteban's). It is important to highlight that, as expressed especially by the women I worked with, these consumption patterns depend on the activities each household has to perform, on food and time availability and some other factors. Time availability was mentioned in the majority of cases as the major constraint, which shows that the notion of time in a setting such as Puno (with the processes it has been through) plays a significant role (see analytical framework).

The first pattern I found (breakfast, lunch and dinner) includes soup in the morning usually with tea and *mazamorra*; from what I saw, the inclusion of *mazamorra* (especially quinoa *mazamorra*) was determined by the activities to be performed in the *chacra* (if a long and demanding journey was expected then quinoa *mazamorra* was a must). As of lunch, they have what they call *fiambre*, which consists of boiled or oven-cooked potatoes, cheese, *chaco* and oca sometimes; *fiambre* is the typical food they have on the field, while working on harvests. For dinner, these households usually have soup and tea.

The pattern of food consumption including snacks among main meals varies. In most of the cases, soup is for breakfast and the snacks could be either fruits or bread. Dinner consists of soup or leftovers.

Most of the households have breakfast between 6:00 and 6:30 am and only Fernando's has it at 7:00 am. To do so, women have to wake up at least at 4:30 am to start preparing the soup (or *caldito*, as they call it), which is what most of them always have; again, the exception is Fernando's household, which has quinoa *mazamorra* (with milk and *cal*).

The importance of soup in this context is very clear: it is the first dish that is consumed to be able to work the entire day. Likewise, soups are prepared every day, either for breakfast, lunch, dinner or for all of them. According to Pazzarelli (2010), while women cook soups daily, other food preparations depend on items and money availability. The same author indicates that as women are the ones washing, peeling, chopping and cooking, they constitute an essential actor that determines the reproduction possibilities of the household and of the community's activities (idem: 14).

Picture 9: Different soup types

Source: The author's picture

Soup preparation

As Weismantel indicates (Weismantel, 1994), women classify ingredients as essential ones and substitutable ones to prepare soups. In the households I study, for the first type I found: potatoes, carrots, salt and a piece of any kind of meat; according to the women, they really need to put at least a small piece of meat to add some flavour to the soup; otherwise it would be *chuma* (tasteless).

The following table lists the ingredients I found on the soups in all the households according to the type of food and to the frequency of its consumption. Women use vegetables, salt, some meat and some ´thickeners' such as starches or cereals.

As the table shows, carrots, onions and pumpkin are the main vegetables used to prepare soups, while, broad beans, broccoli and celery are not so important. Besides salt, garlic and oregano are widely used, but they are not mandatory. Finally, apart from potatoes, quinoa, rice and *chuño* are also used to make soups thicker.

In the six households I visited all the members would have more than one soup bowl, especially in the morning. Women always serve first to their husbands, that get the largest pieces of meat and amount of potatoes, and then to everyone else.

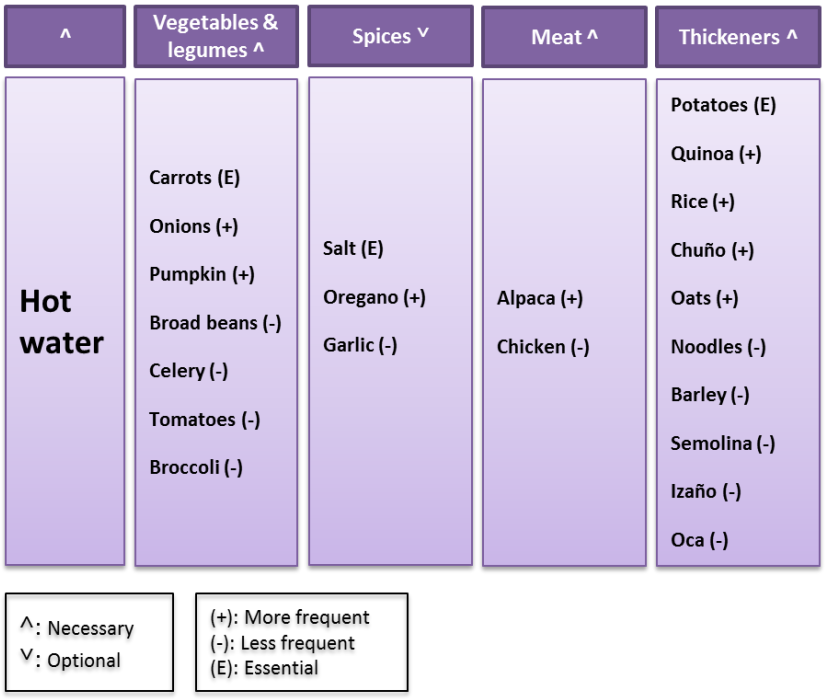
Table 8: Types of ingredients for soups by household and districts

Type	Items	Acora		Cabana		Cabanilla	
		Irma	Lina	Ana	Fernando	Esteban	Laura
Vegetables & legumes	Carrots (E)	1	1	1	1	1	1
	Onions	1	1		1		1
	Pumpkin	2	2	2	1	1	1
	Broad beans	1			2		2
	Broccoli						1
	Celery		2				1
	Tomatoes	2		2	1		1
Spices	Salt (E)	1	1	1	1	1	1
	Oregano	1		1		1	1
	Garlic	1			1	1	1
Meat	Alpaca	1	2	1	1	1	2
	Chicken			2			1
Thickeners	Potatoes (E)	1	1	1	1	1	1
	Chuño		2	1			1
	Noodles			2			2
	Rice		2	2	2	2	1
	Barley			2			
	Oats	2	2			2	
	Quinoa	2	2	2	1	2	
	Semolina	2			1		

Numbers indicate the priority given to food items for its inclusion on soups.
(E): Essential
Source: Own elaboration

The diagram below, adapted from Weismantel (1994), summarises and classifies the ingredients women use to prepare soups.

Diagram 2: Ingredients used to prepare soups



Adapted from Weismantel (1994)

It becomes evident that soup is a very special and important dish on these households' diets, but I also found in five cases that they have a main dish called *segundito* (referring to 'second' in diminutive form) sometimes or quite often. *Segunditos* usually include rice and either a meat or vegetables (or tubers) stew or fried meat, and they are a clear proof of the influence of non-typical food items and cooking styles from Puno, that have been there for many decades, since transportation means became available and since globalisation from below processes started. However the literature review already showed that transportation means were only one of the several factors influencing consumption patterns. The informant from Cabana, who is 65, told me:

> *"When I was a kid… we didn't have rice, noodles, all those things. There were no transportation means, only a train sometimes. There were even many different products such as k'alagrano[74] but we don't find them anymore."*
>
> *(Interview in Cabana, 04/30/2014)*

It is important to indicate that a *segundito* dish could be a chicken stew, an olluco stew, a *chuño* stew or fries, always with rice. Noodles with meat, eggs or vegetables also count as *segunditos*.

In Acora it was only Irma's household where I found *segunditos*, which are prepared sometimes (once or twice a week) depending on Irma's time. During my visit we had rice and fries once for dinner because, according to her, it is fast and easy.

In Ana's household in Cabana they have *segunditos* very often due to the influence of Ana's mother[75] and her husband; she told me she has always had *segunditos* even as a child, including items such as rice, noodles, wheat flour and oil. Regarding the husband, she told me that when he comes back after having worked in Arequipa, he asks her to cook rice with fried eggs and fries. He does not like the typical food from Puno anymore and complains whenever Ana puts too much *chuño* on soups or on *segunditos*. Furthermore, he used to take Ana to Juliaca to eat *cebiche*, a typical dish from the coast area of Peru made of raw fish, onions, lime juice and sweet potatoes (a very different style as compared to Puno's). As of drinks, Ana's husband wants to have coffee only, while the others (Ana and the kids) prefer natural herbal teas. Ana's husband case illustrates how migrating to work elsewhere can be related to new food habits and preferences.

Also in Cabana, both Fernando and his wife always have both soup and *segunditos* due to their previous lifestyle in a mining camp in Arequipa, where Fernando was working; they only moved to Cabana and started doing *chacra* work 13 years ago. While living in the mine area they told me they only ate rice, noodles and barley; there were not so many options. For this reason, they

[74] K'alagrano is a crop similar to wheat but when it is toasted it opens as popcorn. I asked why it is disappearing and they told me that it is not as profitable as other crops.
[75] This indicates that food preparations are somehow inherited from parents and grandparents.

always eat rice and noodles at least once a week, but also chicken and lamb or trout on Sundays. When I arrived they were having a chicken stew with carrots, onions and tomatoes, together with rice and potatoes.[76]

Alicia, Esteban's wife, tries to prepare *segunditos* sometimes, especially for her husband and for their 5-year-old kid (Gino). Gino sees that his cousins eat rice and fried chicken, or fried food in general and he wants to eat the same at home. When I asked him about his favourite dish he said it was *chicharron* (fried pork). Additionally, Alicia likes preparing and eating lentils and avoids preparing chicken. She is aware of the fact that chicken has lots of hormones; she said it is not healthy. Alicia added that they prefer alpaca meat, which does not have fat and has more proteins. She said lamb is bad because it increases cholesterol, but they like it very much; they do not have it too often. Sometimes she cooks *pachamanca*,[77] only when they feel like having it.

The other household in Cabanilla, Laura's, also has *segunditos* quite often. When I was there, Laura prepared a vegetables *segundito* consisting of garlic, cauliflower, oca, potatoes, tomatoes and salt, with rice.

Households with three meals

As explained earlier, in two cases food was consumed three times a day: Irma's and Laura's households. There are examples below of what we ate in one of the days during my visit. However, it is important to note that all these menus depended on many factors. To begin with, I conducted my fieldwork during the harvest time, which means that more perishable food items were preferred.

Irma	6:00 Soup and quinoa mazamorra 12:00 Potatoes, chaco, oca and cheese 18:30 Soup	**Laura**	6:00 Soup, tea and mazamorra 12:00 Potatoes 'watia', chaco and cheese 18:30 Soup and herbal tea

For example, in Irma's household, we had soup and quinoa *mazamorra* for breakfast that day because we had to work hard on her potatoes harvest; we needed to eat a lot to avoid getting tired, according to her. Our lunch included boiled potatoes, *chaco*, oca and cheese because those are the easiest things to carry to the field and it is the most common type of lunch when working on harvests.

[76] Fernando's wife also told me that she has always cooked in this way, including vegetables and trying to cook different dishes. As a teenager (since she was 15), she worked as a maid in a house in another region (Arequipa); in those times she learned to cook and she was introduced to new food items.

[77] This dish is like a meat *watia*. It involves cooking marinated mutton, pork, chicken or alpaca in an earthen-oven (*watia*), with potatoes, broad beans and corn.

In Laura's case, food also depends on what needs to be done in the *chacra* and on the weather. That particular day was very dry thus it was the best moment to prepare 'watia'; this means cooking potatoes on an 'earth' oven. Such potatoes are usually eaten with cheese and *chaco*.

Picture 10: Lunch with Irma (fiambre): potatoes, chaco, oca and cheese

Source: The author's picture

Households with more than three meals

The other four households have either four or five meals (see below).

Fernando	07:00 Quinoa mazamorra with milk 10:00 Fruits 12:00 Soup and segundito 16:00 Hot milk and bread 18:00 Mazamorra or soup	**Esteban**	06:00 Soup and apple juice 10:00 Apples and bread (yogurt smallest kid) 12:00 Lentils with rice 16:00 Cheese sandwich and tea 18:30 Soup and apple juice

Ana	06:00 Soup and herbal tea 12:00 Pesque and herbal tea 16:00 Bananas 18:30 Lunch and breakfast leftovers, herbal tea	**Lina**	06:00 Soup and herbal tea 11:00 Grapes 12:00 Toqtochi, chuño, potatoes and herbal tea 18:30 Toqtochi and herbal tea

In Fernando's case, the oldest household, they usually have *mazamorra* with milk for breakfast. As we were in the harvest time, I was told it was better to have quinoa *mazamorra* to be stronger and work harder. After that, at around 10:00, they have fruits as snacks. Their lunch consists of a soup and the main dish (*segundito*), while at around 16:00 they always have hot milk with sugar and bread. That particular day there were soup and *mazamorra* leftovers for dinner.

Like Fernando's household, Esteban and his family have five meals a day. Again, food preparations depend especially on Alicia's time (Esteban's wife) because she needs to wake up early, prepare the soup, serve food, take the cows and sheep to graze, milk the cows, prepare her kids' and husband's lunchboxes, feed the dogs and cat, bathe the kids and take them to school with her motorbike in the morning. This particular day, she managed to prepare lentils and rice early

morning for lunch apart from the soup and the rest of food. Usually, she has to cook what her husband likes (fries, rice and fried chicken) [78] and she told me:

> *"I have to be careful and do not put the lentils in his lunchbox (her husband's)! I'll only put rice and fries; otherwise he will get angry".*
>
> *(Field note 12, (04/03/2014)*

Nevertheless, she added:

> *"I do not like noodles and rice. I get headaches when I have them and I feel as if I was drunk".*
>
> *(Field note 13, 04/03/2014)*

Additionally, she told me fries are very easy to prepare:

> *"When I am lazy I just make fries. It is very fast, easy and my husband loves them".*
>
> *(Field note 14, 04/03/2014)*

It is clear that time in many cases is highlighted as an important factor determining food consumption.

In Ana's and Lina's households they have four meals a day. In the former case it is in the afternoon while in Lina's it is in the morning but both consume mostly fruits. Once again, these food consumption patterns depend on their particular characteristics and ways of organising their time and household activities.

Ana prepares both breakfast and lunch early morning to be able to work in her chacra. After her son goes to school, she milks the cows and then takes the sheep to graze to a place that is 40 minutes far on foot. She ties up the sheep and then goes back home to work on the harvest. During my visit, her daughter was on vacations from university and was there to help also. We would eat at 12:00, when food was still warm and then keep on working. At 16:00 we would have fruits and at the end of the day we were exhausted thus we had breakfast and lunch leftovers.

Agricultural activities in Lina's households are divided among her and Pascual, her husband. After having soup, they both take out the cows to milk them and take the milk to the community's 'office'.[79] Later on Lina takes the sheep to graze to their parcel in an *aynoka* that is more than one

[78] I asked Alicia if she knew how Esteban got these food preferences and she said that it was because of his father; for some time, Esteban's father worked in a mine and brought different food habits to his family (in a mine there are fewer food alternatives and people working there usually depend on what restaurants sell). In addition, Esteban told me that he had studied for a year and a half in Arequipa (a different region), and that he was there by himself, alone, and he used to cook rice and a fried egg because it was faster and easier; sometimes, when he had money, he would go to a restaurant there selling food from Puno.

[79] The community is organised by sectors to collect milk and then they sell it as a group.

hour on foot, while Pascual works on the harvest. Lina stays with the sheep until 15:00 and then goes back home. I decided to go with her to take advantage of all the hours we would spend together sitting and taking care of the sheep. Due to this organisation, she prepares *toqtochi* for lunch with some *chuño*. *Toqtochi* is a kind of bread but it is deep-fried (wheat flour, water, salt and sugar are mixed and then fried). *Toqtochi* is what Lina and Pascual eat the most, even for dinner every day. I asked Lina what was the main reason for not cooking something else and she told me:

> *"If we had wawas (babies) here, I would cook, but cooking only for us is not nice, and also I'm very lazy to cook".*

(Field note 15, 04/14/2014)

Picture 11: A typical lunch (fiambre) for Lina while taking care of the sheep

Source: The author's picture

More general patterns

As mentioned earlier, people on the field need to work hard thus they have at least two bowls of soup early morning, which makes a huge contrast with urban realities. Alicia, Esteban's wife, who has been to Lima, the capital city, saw the difference between what *puneños* and *limeños* eat. She told me:

> *"We, people from Puno, eat tons of food. People in Lima say we eat like mules*[80]*"* (a bit upset).

(Field note 16, 04/03/2014)

I also found that all the households consume a large amount of sugar. Absolutely all of them put at least 3 spoons of it on whatever they drink (milk, herbal teas, coffee, lemonade, etc.) even though many of them know it is not so healthy. For example, Irma told me she had heard that if sugar is not put on tea then the herbs are very good for health. Something similar happens with fried food; again Laura told me:

[80] In Peru, "eating like a mule" means eating a lot.

"It's not good to eat too many fried things, but it's more practical and faster, what to do!"

(Field note 17, 04/19/2014)

This case illustrates that practices are never entirely consistent and that ambivalence and ambiguity show differences of interests and knowledge (Arce & Long, 2000).

Besides, they have water or any kind of liquids only (sometimes) with their main meals. For me, according to my own consumption patterns, this was not enough due to the amount of work and the heat at midday, even though I was eating the same as them.[81]

Finally it is worth mentioning that what I have described so far is what these households eat on a daily basis,[82] but on special days it is quite different. For instance, most of them have spiced mutton (*asadito*) on weddings, funerals or any celebrations. *Asadito* is served usually with *chuño*, potatoes and corn, and it is considered very special because they choose the best lamb to prepare this dish. In other occasions such as Holy Week they prepare some other dishes on Easter Friday, fasting in the morning first; several of these dishes are made of quinoa (see next chapter).

4.5 The kitchen: characteristics and interactions

Most of the social meanings of the kitchen are related to the internal matters of the household and there we can see the dynamics of the relationships among people: mother-daughter, wife-husband, host-guest (Weismantel, 1994). I was able to witness such relationships in all the households, but I first describe the kitchens' physical and general aspects.

Physical and general aspects

As explained earlier, kitchens are made of rustic materials and are in separate rooms. The utensils that are used were more or less the same in all the households: plastic or metal bowls and cups, spoons (no forks or knives), clay and aluminium pots (separate ones for the family and for the dogs and cats, all black because of soot), wooden ladles, plastic jars, washing troughs to keep the dishes and buckets to keep the water that is brought from wells to wash (only with water) everything that has been used. Typically there are no chairs or tables, only very small wooden (sometimes) and rock benches, and several small or big bags containing vegetables. In addition there is a radio in each kitchen, which is turned on early morning to listen to the news.

[81] They said that if we chewed coca leaves we would not get tired, thirsty or cold. I did so but I was thirsty all the time.
[82] Sample menus can be seen in Annex 5.

Picture 12: Kitchen in Cabana

Source: The author's picture

Picture 13: *Q'oncha* and utensils in Cabanilla

Source: The author's picture

Women cook in something called *q'oncha*, a kind of stove that works with dry dung or wood. In addition, a kind of tube needs to be used to blow air through it on the fire. In some cases, they had 'improved' *q'onchas* (see picture below) to try to avoid the smoke coming inside the room; they are one meter and a half high approximately, but in some other households they have the classic *q'onchas*, very close to the floor, thus women sit on a rock or on the dung (see picture above).

Picture 14: 'Improved' *q'oncha* in Acora

Source: The author's picture

Q'onchas are used most of the time, as compared to gas stoves that the households also have, even though cooking with them takes a lot of time. In fact, I saw that a gas stove was used only once, in Irma's household because of a particular situation: the storm had ruined the dung (which was left uncovered) and her son had just arrived tired and hungry from work thus she needed to prepare soup as soon as possible.

From what I saw and what I was told, everyone prefers food that has been cooked in a *q'oncha* as compared to a gas stove. They said that although it takes longer to cook with *q'oncha*, food is much tastier, it is kept warm longer and they simply need dry dung. Nevertheless, whenever I was

entering a kitchen for the first time in any of the households, women apologised for living in such conditions, a bit ashamed. They would say:

> *"We live just like this, we cook just like this, I apologise (Así nomás vivimos, así nomás nos cocinamos, vas disculpar señorita)".*[83]

(Field note 18, 03/19/2014)

One more aspect worth mentioning is the fact that women are experts in re-using everything, even waste. For example, potatoes and vegetables skin are collected in a separate bucket to feed pigs or to make soups for dogs, and the water in which the dishes were washed is used for this type of soups too. Besides, we should always eat everything that we are served because:

> *"Here we don't throw away anything! (¡acá no se bota nada!)"*

(Field note 19, 03/19/2014)

Social aspects

To begin with, women are always the ones responsible for cooking and cooking work: peeling, washing, chopping, etc. For example, at Irma's household (with an 'improved' *q'oncha*), she and her daughter-in-law (Sara) both wake up early to cook for Irma's son,[84] who has to go very early to work. Irma shows Sara (and me) how to do some things or indicates what else needs to be done. Usually, the first thing to do is to wash and peel potatoes. After her son leaves, the three of us would sit and have our soup. Sara helps Irma a lot because Irma lost the mobility of her right index finger due to an accident.

At Lina's household I also saw the same pattern: Lina going directly to the kitchen to prepare soup first and then *toqtochi* and boiled potatoes for lunch (*fiambre*). Pascual would only come to the kitchen to eat once soup was ready (we had to go and call him) and would be given his soup bowl first. The same happens in Fernando's household in Cabana.

At Ana's household, also in Cabana, it was Ana, her daughter and me on the kitchen again, but her son did not come to the kitchen to eat with us; Ana's daughter had to go to their main room (where they sleep) to give him his soup bowl, which is served first and he eats while watching TV either breakfast, lunch or dinner. Both Ana and her daughter are together all the time working (not only in the kitchen).

In Cabanilla, in Alicia's kitchen, there is a small table and a couple of benches but they are hardly used; to eat, we all sat on the buckets and sometimes the kids would eat on the bedroom or

[83] I only looked at them, gave them a pat on the back and told them not to say that, that everything was fine.
[84] Sometimes they do not have time and give him oats with milk.

sitting outside on the grass, with the dogs and the cat. When food is ready, Alicia has to call everyone to get their bowl and her husband is served first.

Laura and her daughter-in-law (Nadia), in Cabanilla, do not go together all the time to the kitchen. Sometimes it is Laura cooking and some other days it is Nadia. However, Laura always gives Nadia indications about the quantities to serve or what to put according to the person that will be given the bowl. Furthermore, Laura asks her for her opinion on what salad best goes with their *segunditos*.

In all the households, after finishing any meal, everyone present in that moment used to say thanks to each person, and I noticed women were happy if anyone wanted more food. Even if we had not finished yet, she asked if we wanted more (*¿un aumentito?*)

4.6 Influencing factors: summary and additional factors

In this last subsection I summarise the factors influencing the general diet of the households I worked with in Acora, Cabana and Cabanilla in Puno. I also mention some additional factors that have not been described previously. The several factors that are identified have different effects in each household or, in other words, each household has its own consumption patterns.

As we have seen, women are the ones determining and taking decisions on what to cook and eat, according to their time, but there is also the influence of particular preferences (what other members like and what they do not like).

The amount of activities the household decides to perform also affects diets. For example, if they have small kids (Esteban's case) or if they planted plenty of crops and need to work hard on their harvest (Lina's case), less time would be available for both cooking and eating. Therefore, they might choose to cook easier meals (fried potatoes, rice or fried food in general). This is related to another factor: how many members the household has and what roles they play; food consumption patterns are different in households of two members as compared to those with more people that can collaborate in all the activities.

There is an issue of attitude towards life too. In many cases, people over 50 told me they were already tired of having worked so much in their lives and that they were lazy now. Besides, feelings also play a role. For instance, Lina told me:

"I'm lazy, I'm tired. I wish my kids came more often to visit and help us; they just come when all the harvest and work are done, and to take the largest pieces of anything. We feel very lonely sometimes".

(Field note 20, 04/16/2014)

Also:

"It's nice to cook when our family comes, but only for the two of us it's not worth it."

(Field note 21, 04/16/2014)

This shows that value is attached to sharing food with all the family and thus influences food consumption patterns.

In addition, I found that some men of these households go away to work and when going back home they already have different eating habits and request to be served the new items they found elsewhere. In contrast, being away from home can also strengthen the liking for their local food, as Laura's husband said; when at home he eats their own food only.

"In the mine they give us a lot of chicken and rice and I'm fed up; I miss my food from home, but I can't do anything. They don't even give us 'caldito', only sometimes. Maybe they just give us what's cheaper for them".

NGOs also influence consumption patterns with nutrition trainings they promote (Esteban's case), as well as the availability of transportation means.

Religion or religious groups constitute one more factor influencing food consumption patterns. For instance, Fernando and his wife participate in the Adventist church in Cabana and this group imposes some restrictions and recommendations on their food consumption: Both Fernando and his wife love meat, especially mutton, but they are told not to eat too much of it. In addition, their religion does not allow them to chew coca leaves. Fernando said:

"Coca is a drug. We used to chew it but now we are not allowed to do so. It helps you against the cold weather, it is good for the nerves, and it makes you strong, but we can't have it anymore.

(Field note 22, 03/28/2014)

The Adventist group also suggests having plenty of fruits and vegetables; Fernando is happy to follow this advice. Vegetables are consumed every day while fruits are a kind of dessert, more or less three times a week (especially after lunch).

The young couple in Cabanilla (Esteban and Alicia) belongs to the "Worldwide Missionary Movement" (Evangelist religion). This group does not allow drinking alcohol (and dancing), but they do so sometimes, especially Esteban. Their religious group also promotes Sunday gatherings in which food and drinks are shared in a great amount; all the members cook together and share.

Climatic conditions constitute a factor all the people I talked to mentioned; it determines to a great extent food availability and each year can be very different. Consequently, households have to deal with uncertainty and risk. For example, Laura's household in Cabanilla highlighted that climatic conditions have significantly changed over time; they feel very vulnerable because sometimes they do not get any crops due to hail or frost. Esteban and Alicia, also in Cabanilla, share the same concern; they said that in the past they could use bio-indicators[85] to cultivate their crops, but now those 'tools' do not work anymore according to them. Lina illustrated this situation very clearly, referring to quinoa in particular:

> *"You never know how much quinoa you can get. You may plan for a quantity, but it can get frozen"*
>
> *(Field note 23, 04/01/2014)*

There are also social status ideas influencing consumption patterns. This is what the informant from Acora remembered from his childhood:

> *"We didn't have many choices, just siki,[86] quispiño (quinoa preparation) and some other herbs. We used to eat a lot of those and I think we got the minerals, proteins and vitamins we needed from them. We had those habits and ate well, but we felt we were poor… I was poor, while the ones eating chicken, noodles and rice were rich."*
>
> *(Interview in Acora, 04/06/2014)*

In Acora I found that community life influences food consumption as well. When I was there either with Irma or Lina, in different days, I saw that it is very common for women to share their lunch while they take care of the sheep; they come together in a central point from which they are able to see their own sheep, sit, open their 'bags'[87] and start sharing. This might be related to their tradition of helping each other, of considering everyone as *jilatas* (brothers) and *kullakas* (sisters) and of greeting everyone they see on the way. For example, Lina told me:

[85] Bio-indicators refer to natural indicators of weather patterns. They are expressed in the form of stones, plants, animals and the wind (Apaza Ticona, 2007 as cited by Urdanivia, 2013).
[86] "Siki is the poor's food and I ate it when I was a child. It's like a small tuber with a flavour similar to carrots".
[87] Women use a big piece of cloth, fold it in a special way and then tie it up on their back.

"Even though we don't grow oca anymore, we always eat it because our jilatas and kullakas give us some, here while taking care of the cattle or at any time."

(Field note 24, 04/15/2014)

Seasons, age and dental health also determine what households eat, as mentioned earlier.

There are also some beliefs that influence food consumption. For example, Lina has some food restrictions due to an "illness" that a shaman diagnosed: 'Te han pishtaqueado', he said. According to him (who works with herbs and natural medicines), she had suffered an attack from a "pishtaco". The shaman gave her some herbs and told her not to eat banana, avocado, orange, apple, quinoa and cañihua.

"The doctor also told me not to eat lamb, but I have it sometimes. He said I should eat alpaca because it's healthier and I buy it sometimes"

(Field note 25, 04/15/2014)

The pishtaco is a legendary character that, according to puneños, takes the fat from people and then sells it. This generates many problems and if not detected in time, victims die.

Location might also play a role in determining food consumption patterns. Some studies (Astudillo & Aroni, 2012) have found that more isolated households' diets are based only on their own production. In my study, however, most of the households were not so far from the main towns where local markets are; people could go by foot (less than one hour) or by bike or motorbike without major problems.

Finally, I want to point out that factors such as market prices and economic motivations are described more in detail in the next chapter, where the discussion revolves around quinoa.

5. Quinoa production, commercialisation and consumption in Acora, Cabana and Cabanilla

This chapter provides details regarding production, commercialisation and consumption of quinoa in the six households under study, taking into account the analytical framework described in chapter three.

As indicated earlier, quinoa commodification (as well as the other processes mentioned before) is an expression of globalisation, based on modernity and creativity, leading to a change in the notion of time in rural households, which are now more connected to urban areas, markets and services. Therefore, the value attached to quinoa has changed, which thus generates a variation in quinoa consumption patterns. In addition, throughout Puno's dynamics there have been modernisation initiatives from the government and from NGOs.

Regarding NGOs, several of them started working in Puno many years ago, both in conventional and organic agriculture, as well as in initiatives trying to promote access to markets for farmers. There have also been programs from both the central and the regional governments, in different agricultural areas. The broader one, directly related to quinoa, is the national exports plan, which included quinoa in 2013 in the list of products to promote abroad, but the quinoa boom had already started some years before.

In the concrete case of quinoa, I focus on the role Harvey attributes to time due to globalisation in terms of the speeding up of the pace of economic and social life and the change in the notion and organisation of time. This change in the notion of time will translate in a shift in household's activities such as cooking and eating (see previous chapter) that will be done differently, demonstrating the dynamism present in social relations and diets. We also see that new and traditional elements co-exist.

The data collection I conducted, as explained earlier, was based on six households in Puno, spending some days in each of them to be able to witness how variable, provisional and complex social life in such a context could be. Furthermore, I managed to see that social practices were sometimes not consistent and coherent at all and that ambivalence and ambiguity were present in the households' dynamics.

All these concepts are discussed in combination with the results from the field in Acora, Cabana and Cabanilla.

5.1. Quinoa production in each district[88]

Quinoa production goes for commercialisation and for self-consumption; both types bring different implications regarding post-harvest activities (see next sub-section). Quinoa commercialisation has constituted one of the many strategies households (local actors) have been using to meet their needs, selling more quinoa by either allocating less for self-consumption or by producing more of this crop (or perhaps a combination of both).

5.1.1. Acora

In Acora, Irma had more than ¼ ha, in different parcels (individual parcels and other parcels in the community's *aynokas*) for quinoa production. From this area, she said she could get more or less 150 kg, and that on the previous season they did not get the expected amount of quinoa due to frosts and *qona qona*.[89] From the previous season, Irma's household obtained 50 kg approximately.

The seeds Irma's household uses are from her own production, but last year she bought some from the NGO that is working with her and the producers organisation she belongs to. Besides, as a group, the members of the organisation planted a new quinoa variety called 'Altiplano' in one of the community's *aynokas*. They did this with the collaboration of the NGO as well.[90] This shows one of the many modernisation initiatives that are developed in Puno by NGOs, as well as how actors are responding to them.

Irma started working with the NGO two years ago; she has been receiving trainings on organic agriculture but she has always had organic production. I asked if she had perceived any benefits from working with this NGO and she said:

> *"It's too early to say it has benefited us; they have given some trainings but we would have to work together for more time to see the effects.*
>
> *(Field note 26, 04/09/2014)*

Lina's household, also in Acora, is not related to any organisations, but they have always produced organic crops. I asked why she did not go to the meetings the NGO was organising in the community and she said:

> *"I don't know, I think I didn't have time. I'm very lazy also"*
>
> *(Field note 27, 04/15/2014)*

[88] For quinoa production I refer to the 2013-2014 season (what producers were about to or had already harvested). Sometimes they also talked about their production from the previous season (2012-2013).
[89] *Qona qona* is a kind of worm that grinds quinoa grains.
[90] Irma does not know yet how they will divide or what exactly they will do with that quinoa.

Approximately, Lina's household had 500 m^2 of quinoa and they calculated they might get 100 kg out of that area (in the previous season most of their quinoa got frozen). Seeds are obtained from their own production.

The key informant from Acora told me the following about quinoa production, which illustrates the ambiguity that is faced when growing potatoes:

> *"Quinoa production has for sure increased in the last years, but we still need to improve yields. The main problem is the incorporation of organic matter. In the past we used to have a lot of cattle and manure was available in a huge quantity, and we used it for our potatoes. Nowadays we don't have many sheep, thus no manure. Also we think 'shall we use manure or not?' Sometimes we just grow our potatoes without too much manure and the yield is not that bad, but it could have been much better. Nowadays there's organic matter scarcity."*
>
> *(Interview in Acora, 04/06/2014)*

As explained in the previous chapter by the same key informant, in Puno it is considered essential to grow potatoes first in the field where quinoa is going to be planted later. Potatoes demand a lot of effort and attention as well as fertilisers (manure) in order to prepare the soil adequately for quinoa. Consequently, potatoes cultivation directly influences quinoa cultivation and production.[91]

5.1.2. Cabana

In Cabana, Ana had around four quinoa parcels for the latest season, but when I asked her and the children about their land area they could not estimate it; Ana told me the total harvest would be among 700 to 800 kg (last year it was around 600 kg), highlighting the fact that they are very vulnerable to hail and frost. The seeds she uses for quinoa cultivation are from her own field; she never buys them from anyone else. Ana added that the quinoa to be used as seeds is not passed through their thresher machine because it would get spoilt; instead, they hit the panicles with their *huajtana*. This is a clear sign that traditional knowledge and new elements are combined and coexist.

Ana joined COOPAIN (the organic quinoa cooperative) three years ago, persuaded by friends who were already there. This cooperative has played an essential role in the development of Cabana in terms of quinoa production and commercialisation; it started as a way of stopping quinoa

[91] In many households I was told that when taking good care of potatoes, later there was no need of using fertilisers while growing quinoa.

intermediaries' power in markets, as they were price-setters and took advantage of quinoa producers.

Picture 15: Ana in one of her quinoa parcels

Source: The author's picture

Box 2: COOPAIN in Cabana and its origin – experience of the key informant from Cabana

Many years ago, once I collected 10 arrobas of quinoa; I made my budget and intermediaries in Juliaca would buy it from me at a price of S/. 19.00 per arroba[92], and I arranged everything. I took all my quinoa to Juliaca and suddenly they reduced the price to S/. 9.00. It was less than 50% and they told me "take it or leave it", but as I had already taken all the quinoa to Juliaca, I had spent my money and everything and I lost, what could I do? Just like that, we had many problems. There were times that intermediaries told us 'the price fell in Cusco, in Lima' just because the plants were there. Of course, we could not go to complain there, so they always took advantage of us. We were so annoyed with this situation that I started to call the producers, to ask them for solutions, to get organised; we needed to do something to change things. We got organised little by little, we founded our association of quinoa producers.

Our quinoa plant, the cooperative, was made with collaboration of an NGO from Belgium. The central government gives almost no support. Some technicians come every now and then but they are changed very fast; the boss of the region is removed and then everyone leaves and new people come with new proposals and we are tired of that situation. I'm old and I know how things work, I don't want to work with the government because they always change everything; I get tired. The technicians are changed in the best moment when we are working together. I don't trust the government. It's the same with the municipality; there are technicians also, veterinaries… but you already know who you're working with. The Belgian NGO has given us the quinoa plant and we trust them more."

(Interview in Cabana, 04/30/2014)

[92] 1 arroba equals 11.5 kg.

As the key informant from Cabana mentions in the box above, besides their self-organising practices, a Belgian NGO contributed largely with them to found COOPAIN, their quinoa plant, which shows how modernity and modernisation processes can come together and contribute to actors' objectives (in this case, obtaining and additional income source).

Fernando, also in Cabana, has 2 ha of organic quinoa in 4 different parcels but he said 1.5 ha were in bad conditions due to frost and lack of rain. Fernando calculates that they would obtain 200 kg of quinoa production in total (on the previous season they obtained 300 kg).

Regarding seeds, Fernando's household always gets them from their own field, but for next year they are planning to buy seeds from INIA,[93] to improve the quality of their production, according to him. Like Ana, Fernando explained that a thresher machine helps a lot to save time but that it spoils the grains thus one cannot use the grains obtained with it as seeds for sowing. As already pointed out in the previous chapter in the description of the use of traditional instruments and more modern ones, time is a very important variable that is mentioned in several occasions. Consequently, this household with its self-organising and transforming practices tries to take advantage by saving time with their thresher machine but also using the traditional *huajtana*. Again, this shows the coexistence of traditional and newer elements.

Fernando and his wife started with organic production three years ago and they belong to an organic quinoa producers association.

The key informant in Cabana pointed out that production in that area depends largely on the weather:

> *"It depends on the weather. We must try to control hail; that's the main problem. We need to make fires. For example, this has been a great season, but sometimes we have frost and hail so both destroy our quinoa."*
>
> *(Interview in Cabana, 04/30/2014)*

Besides time, climatic conditions were mentioned several occasions as an important factor determining quinoa production and thus self-consumption.

5.1.3. Cabanilla

Esteban, in Cabanilla, and even his mother have been working with an NGO for many years. This NGO has helped them on their organic production and has given them incentives to invest on their own projects, such as their trout farm. This evidence shows how NGOs (modernisation processes) do influence households' practices and modernity projects.

[93] National Institute of Agrarian Innovation.

This year they will not get too much quinoa out of their ¼ ha due to frosts and to the fact that they started sowing too late (in November); the tractor they rent from the municipality was not available when they needed it. In addition, they devoted more time and money to their trout business (they managed to sell a lot even to different districts in the Aymara area). In contrast, a couple of years ago they harvested a bit more than 1 tonne of quinoa from 1 ha.

When Alicia (Esteban's wife) and I were harvesting her quinoa, she calculated they would get maximum 500 kg, but Esteban, in a different moment and place, told me that if they were lucky, they would get 200 kg. From what I saw, I would say Esteban is right; he is the one in charge of selling the quinoa (either to the NGO they work with or in local markets), thus maybe he knows better about quantities. The complexity of using numbers and quantification in these areas became evident; whenever I asked producers about quantities they said they did not know and I had to ask several times to get the information.

As the previous cases, the seeds they use are always from their own production.

In Laura's case, also in Cabanilla, they calculated they would get 10 arrobas.[94] In the previous season they only obtained 5 arrobas due to frosts. This household does not have any relationship with any organisations but this does not mean that they did not go through a modernity process as the rest of households (see later sub-sections).

Finally, the key informant in Cabanilla told me the following regarding quinoa production in this area.

> *"There has been a huge increase in quinoa production in Cabanilla. For example, a producer used to have ¼ ha of quinoa but now they use twice that area or even more, 1 or 2 ha; here people have a lot of land."*
>
> *(Interview in Cabanilla, 05/04/2014)*

Overall, from the opinions of the key informants, I found that there has been an increase in quinoa production in the districts under analysis, but when looking at the cases in each household, it is clear that production is determined largely by climatic conditions, the presence of organisations (such as NGOs or the cooperative in Cabana) and by households' particularities.

[94] In many occasions, producers talk about arrobas rather than kilograms. 1 arroba equals 11.5 kg.

5.2. Harvest and post-harvest activities of quinoa and required tasks to consume it

Quinoa harvest can be divided in three stages: Swathing, threshing and storage (including drying and cleaning) (Aguilar & Jacobsen, 2003). At the same time, other authors (Salas, 2003) define 'harvest' as the cutting stage only, while the rest of activities belong to the post-harvest category.

In all the households I visited, cutting was done with sickles mainly in April, sometimes also in May, but this is defined by the colour of the panicles (they should be dry) and by time and labour availability. As the majority of *chacra* activities, I found that cutting quinoa panicles is very demanding: one cannot go furrow by furrow cutting all of them; it is necessary to first look if they are dry already. In addition, I was told it was better to take out the panicles without roots because parts of soil could remain on them thus it would be harder to wash later. Finally, one needs to be careful and gentle because when cutting, if panicles are too dry, quinoa grains easily fall and are lost.

Picture 16: Quinoa panicles

Source: The author's picture

There are also post-harvest activities[95] and specific tasks to be done when a household wants to consume its own quinoa but I was not able to see all of them. Post-harvest activities include: pre-drying,[96] threshing, airing (to remove small leaves and soil rests) and storing, while for being able to eat it, households would have to wash it (especially to remove saponin, which gives quinoa a bitter flavour) and dry it (putting it in the sun). In some cases, I worked cutting the panicles and in

[95] I was not able to see all of them. For more details on post-harvest activities, see Aguilar & Jacobsen (2003) or Salas (2003).
[96] More or less during 15 days.

one case (with Laura in Cabanilla), I helped on washing, drying[97] and even in grinding to make quinoa flour.

As explained in the previous subsection, quinoa production is both for commercialisation and self-consumption. Quinoa that is sold either in local markets, to the cooperative or to producers associations does not need to be washed, while if producers want to eat their own quinoa, they need to go on with the rest of the activities described above.

In Acora, Irma's household does quinoa threshing with *jaucaña*; there are machines available to rent, but they do not use them. When I arrived they had already collected all the quinoa panicles and they were covered.

As Irma is alone most of the time, her family helps her with quinoa harvest and post-harvest activities only over the weekends. Sometimes she also hires people for S/. 25.00 a day. [98] About labour availability she said:

> *"I have to go and beg for help, but there are always people available".*
>
> *(Field note 28, 04/11/2014)*

And about threshing:

> *"We won't thresh all the quinoa yet until we finish harvesting our potatoes; frost is about to start and we could lose our potatoes".*
>
> *(Field note 29, 04/11/2014)*

This shows that within all the activities they have to perform, they establish and decide what to do according to their priorities and needs.

Picture 17: Covered quinoa panicles

Source: The author's picture

[97] In the case I did not consider to analyse consumption patterns (the particular case in Acora described at the beginning, methodology section), I worked on quinoa manual threshing and cleaning, but they did not dry it; we directly and immediately prepared *pesque* with it, a typical quinoa dish.

[98] S/. 1.00 (one Peruvian Nuevo Sol) is US$ 0.36 or € 0.27 as of 30th July 2014 (source: www.bloomberg.com).

In Lina's household they also thresh quinoa with *jaucaña* and they told me it would be done only in June, once panicles were dry. As explained earlier, both Lina and her husband work exclusively on agricultural activities thus they are the only ones taking care of quinoa harvest and post-harvest activities. Like the previous case, most of their quinoa was already harvested; there was only a small parcel left for us to cut.

In Cabana, the most famous district in Puno due to the organic quinoa cooperative (COOPAIN), both Ana and Fernando's households cut quinoa panicles with sickles and both use thresher machines (*huajtanas* are used only to hit panicles with the best grains for seeds). In Ana's case, she and her daughter and son (when he finishes his school homework) do the cutting and they wait until Ana's husband is back from work (in the mine in Arequipa) to do the threshing.

As explained earlier, Ana does not need to wash the quinoa she sells to COOPAIN; after the harvest and threshing she needs to put it in the sun for some time. Then it has to be aired to remove small leaves, broken grains or any other impurities. The cooperative takes care of saponin removal and then commercialises it. Regarding quinoa for self-consumption, it is not washed, aired and dried all at once; Ana's household and the rest of them do these activities only for the quinoa they want to eat in specific occasions.

When cutting the panicles with Ana, she explained me that we had to get rid of the panicles with coloured varieties because the cooperative pays a higher price for white quinoa. During the harvest, I saw several panicles of Ayara quinoa (a wild quinoa that grows almost everywhere) that were left aside on the field for the cows.

In Fernando's case, when I arrived they told me they had not started with quinoa harvest yet because they wanted to finish with their potatoes harvest first. They calculated they could start with quinoa by the end of April and start threshing it probably in May.

Fernando's wife told me that she is the one taking care of washing their quinoa. She explained that it takes a lot of time and that plenty of water is needed. The main problem, she said, is that there are many things to take care of in their *chacra*; they do what they can, but attention must be paid to all their crops and especially to their cattle. In this case, time scarcity due to the many activities to be done is highlighted as preventing the household from devoting more time to quinoa.

In Cabanilla the two households I worked with use sickles for cutting quinoa panicles and do not use thresher machines. In Esteban's household they were starting with quinoa harvest because they had sown it a bit late. In contrast, in Laura's household, they had already finished harvesting

their quinoa and it was covered with straw; she told me they were waiting for it to get dry and that more or less in June they would start threshing it.

Picture 18: Laura's harvested quinoa

Source: The author's picture

During my visit in Laura's household, they told me they had some quinoa left from the last season and that they needed to make quinoa flour, thus we had to go through the entire preparation process. Their quinoa was already aired and we did the following:

First, quinoa is put in a kind of wide bucket made of a special stone. They told me this "bucket" belonged to their grandparents and that nowadays it would be very difficult to get one of them.[99] Then one needs to step on quinoa, pressing as hard as possible so that its skin comes out.

Picture 19: Stepping on quinoa

Source: The author's picture

Picture 20: Quinoa ready to be washed

Source: The author's picture

Later, quinoa should be put on a pot, for example, with water to start washing it many times.

[99] I was told the same in Acora by the key informant. He said men from Capachica, another district in Puno (quite far away from Acora) used to go there selling those special buckets, but not anymore.

Picture 21: Washing quinoa

Source: The author's picture

Plenty of water must be used for washing quinoa until all the impurities come out. It takes a very long time to do so. Once it is washed, it must be put in the sun to get dry (picture on the left) and after some hours it is ready to be grinded and finally obtain flour (picture on the right).

Picture 22: Drying quinoa on the sun

Source: The author's picture

Picture 23: Grinding quinoa manually

Source: The author's picture

We worked for many hours washing the quinoa, starting at 9:00 am and then needed to wait until it got dry; we started grinding it at night. While it was getting dry, we tried to work in the rest of the activities, but also we had to check whether it would rain or not to cover it.[100]

As mentioned previously, the processes Puno has gone through have generated a changing experience of time which makes people reorganise their daily activities. I clearly perceived this in the case of making quinoa flour, as I was told by most of the people I worked with that in the past they used to do this more frequently; they even told me that it seemed for them that now time passes faster than in the past, when they used to eat quinoa every day. Harvey would attribute this change in the notion of time to globalisation, as explained in the analytical framework.

5.3. Quinoa varieties and their characteristics

Before going in depth in the main topic, quinoa varieties must be described, as well as their particular characteristics.

According to a study carried out by the regional government of Puno (Marca, Chaucha, Quispe, & Mamani, 2011), there are at least 11 improved quinoa varieties:

a. White varieties: Chewecca, Illpa INIA, Blanca de Juli, Kancolla, Salcedo INIA, Tahuaco I, Sajama, Rosado Taraco and Collado.
b. Grey or red: Pasankalla
c. Black: Negra Collana

Besides, I heard of a variety called Altiplano (white) and of ecotypes in Acora such as Qoito, Vituya, Orco Vituya and Cohiro, [101] and Ayara (a wild quinoa).

For some of the producers it was quite hard to distinguish among varieties and they are mixed on the parcels. When I asked which varieties they were growing they would say “white”, a bit hesitant. At the same time, some others knew much more about quinoa varieties and could even distinguish which kinds were for specific preparations.

In Acora, Irma told me they had Kancolla, Rosado Taraco and Pasankalla. She added that Pasankalla is very complicated to mill because it is too hard. In addition, she said that together with the producers of the association they were experimenting with a new variety called Altiplano that the NGO they are working with sold them. She did not distinguish among quinoa varieties for specific preparations.

[100] See Annex 6 for a graphic illustration of the process quinoa goes through when households want to eat some of it.
[101] In fact, there are around 3,000 ecotypes and the National Institute of Agrarian Innovation in Peru keeps around 2,000 of them. See: https://www.youtube.com/watch?v=NF9-ADkgl0g.

At Lina's household they told me that some time ago they had many different varieties, but that not all of them were good. They used to grow Qoito, Amarilla (yellow) and Vituya. Nowadays they grow Sajama and Blanca de Juli, although they did not seem to know the proper names (they said it was white).

About quinoa varieties in Acora, the key informant told me:

> *Now they're lost. Now we all harvest white quinoa only: Salcedo INIA and Kancolla because those are easier to commercialise. Many years ago our aynoka was very colourful: yellow, red, grey, green, all the colours, it was beautiful! Our quinoa aynoka was very colourful. As buyers are more interested in white quinoa, and many institutions have worked hard with it saying "white quinoa is better", in the end we've left our varieties and we only grow white quinoa now. Little by little, the price of coloured quinoas such as Qoito and Pasankalla are increasing.*
>
> *Other quinoas are much nicer! I remember the ones my mom used to grow, especially for quispiño and taqte (quinoa dishes). They were delicious! It was yellow quinoa; the panicles were red, but the grains were yellow. We called it wila cayuni kello, but I think now people call it vituya, and there are hembra vituya, macho vituya, orqo vituya. My mom had those and they were beautiful! I still remember their great taste! These days I only see white quinoa. I rarely see coloured varieties.*
>
> *(Interview in Acora, 04/06/2014)*

He also described some problems regarding where to grow specific quinoa varieties.

> *I want to talk about something that is very important. In the aynokas we knew which area would give us sweet potatoes or bitter potatoes. The type of soil determined which variety we had to plant, we had that knowledge also for quinoa. For example it's difficult to grow the Qoito variety right here; people had to go to colder areas. But nowadays people plant white quinoa anywhere. That's the problem. We have lost our traditional knowledge. Our grandparents were experts on that, they knew the soil very well for each variety. They knew if the soil was too humid, too cold, sandy, etc.*
>
> *(Interview in Acora, 04/06/2014)*

This discussion on quinoa varieties indicates that quinoa commodification as an expression of globalisation has led to a loss on quinoa coloured varieties (as expressed by the key informant), but at the same time, households' (actors') self-organising and transforming practices show different interests and knowledge, as they are somehow specialising in white varieties. The

dilemma would be among selling only white quinoa to be able to earn extra money versus keeping coloured varieties as well as traditional agricultural practices. Finally, the informant also points out that due to the influence of institutions (modernisation initiatives) coloured varieties started to become marginal as compared to white varieties, but also nowadays, the price of coloured varieties is increasing gradually. This last point shows that quinoa's commodification process still has unpredictable effects.

In Cabana, Ana could not distinguish very clearly among her varieties. She had mixed Salcedo INIA and Kancolla (white varieties).

In contrast, Fernando talked a lot about quinoa varieties, focusing on white ones. The information he gave me is summarised in the following table. For example, he said that they had Blanca de Juli, Salcedo INIA, Kancolla and Pasankalla; they have always grown the same varieties.

Table 9: Quinoa varieties and purposes – Fernando's household

Purpose	Varieties
Sales	Blanca de Juli and Salcedo INIA
Resistant to frost and plagues	Kancolla
Cooking	White varieties
For flour	White varieties
Bigger size	Pasankalla, Blanca de Juli and Salcedo INIA
Better taste	White varieties

Source: Own elaboration

Fernando explained that the most resistant variety for him is Kancolla, to frost and plagues; Kancolla is bitterer than any other quinoas and birds do not like it.[102] For cooking and to make flour they use white varieties as well. Regarding size, he mentioned Pasankalla and other two white varieties, stressing that in fact size does not depend on the variety but on the panicle.

He also said about Ayara

> *"(It is) the best one and the very first that existed; it is either red or brown. Every quinoa producer throws away the Ayara panicles because nobody would buy that type, we just leave it for our cattle."*
>
> *(Field note 30, 03/27/2014)*

The key informant from Cabana, who keeps different quinoa varieties, told me the following:

> *"There were… many quinoa varieties, because they have different properties, different flavours and they are for different preparations, so peasants, to avoid getting bored eating always the same, had to grow different quinoa varieties, to prepare different*

[102] Flocks of birds go to quinoa fields and eat it.

things, but not anymore; for commercialisation everyone grows white quinoa. Many of those varieties are lost now, but some of us still keep a few of them. I, for example, have some ecotypes and I'm always on the first places on the rankings of the fairs that are organised, and I'm always invited to some events. For example I've been invited to Bolivia for internships.

Right now I have more than 30 quinoa ecotypes. I don't sell them, I just grow them to keep having them. I just sell white varieties. I work with these ecotypes with INIA; they are all well classified. Some varieties are well adapted to this area, some others aren't. For example, Blanca de Juli doesn't adapt, but Salcedo INIA works fine. I also have Pasankalla, which has grey grains. I also have a black variety; it's not sold very often, but sometimes there are people interested in it."

(Interview in Cabana, 04/30/2014)

Picture 24: Some ecotypes the key informant of Cabana has

Source: The author's picture

Esteban and his wife, in Cabanilla, only grow Rosado Taraco nowadays. In the past they had more varieties, but they found out that this one is bitterer (it has more saponin), thus birds do not like it. According to them, it is also more resistant to frost and hail and it has higher yield. Rosado Taraco is also lightweight. This household clearly distinguishes among some varieties and their purposes. The table below shows what they told me.

Table 10: Quinoa varieties and purposes – Esteban's household

Purpose	Varieties
Sales	White varieties
Resistant to frost and plagues	Rosado Taraco
Easier to cook	Salcedo INIA
For flour	Any of them
Bigger size	Salcedo INIA, also heavier
Sweeter	Salcedo INIA
Easier to peel	Salcedo INIA, Blanca de Juli
Higher yield	Rosado Taraco
Better price	Same price for any type
Better taste (for Alicia)	Ayara

Source: Own elaboration

Like the previous household, they said that for sales white varieties are better. As of cooking ease, they told me that Salcedo INIA is cooked faster and that Rosado Taraco takes two or three hours. Salcedo INIA is also bigger, sweeter and easier to peel. Alicia's favourite quinoa is Ayara (to be explained later). Finally, regarding price, they said there were no differences among varieties when selling in local markets because intermediaries do not ask anything and buy quinoa directly.

About Ayara, Alicia told me it has more value nowadays and that it is not only being used as feed. For example, it can be used to prepare plasters and cover fractures. Alicia also collects Ayara to make *pesque* (quinoa dish) and she shares it with her mother-in-law, because the rest of the family does not like it as much as they do.

The ecotypes Esteban and Alicia had in the past include: Cuchiwilla (red variety used to prepare chicha), Misakino (each grain is both red and white, good to make cakes and to prevent illnesses)[103] and Qoito (grey, especially for *mazamorra*). They are planning to cultivate these varieties, starting in September this year. Esteban explained me that he was able to participate in different fairs selling his quinoa, and that he earned a lot of money. Such a strategy illustrates how traditional elements (quinoa ecotypes) are also part of the quinoa commodification process.

In the other case in Cabanilla (Laura's household), as in some other cases, they did not know exactly the names of the varieties they had. They said they had white and Ayara.

According to the informant in Cabanilla, the main varieties that are grown there are Rosado Taraco and Kancolla because they are very resistant to frost, hail and drought. Some households also grow Salcedo INIA and Illpa INIA, but those varieties are too weak. He also said that some people keep ecotypes like Negra Collana and Pasankalla (red). The yellow variety is also grown but

[103] A sociologist I met in the Aymara area told me that a red and white quinoa was used in the past in rituals, together with coca leaves.

in very small quantities; these coloured varieties are used to prepare *chicha*[104] and other drinks to give them natural colours. Households in Cabanilla grow them for self-consumption and to preserve the ecotypes.

5.4. Quinoa preparations

Before looking into quinoa consumption it is important to mention first some of its preparations such a *pesque*, *quispiño* and *mazamorra*.

Pesque

Picture 25: Ana serving *pesque*

Source: The author's picture

Picture 26: *Pesque* dish

Source: The author's picture

Pesque is perhaps the easiest quinoa preparation. Quinoa has to be boiled for some time (depending on the variety) and then it is served with a lot of milk and cheese. I had it at Ana's and Laura's households.

Mazamorra

During my visit to Irma's household, her daughter-in-law prepared *mazamorra*. It includes cal, quinoa flour, salt and water. First quinoa flour is put together with salt, and cal needs to be dissolved in water. Then ingredients are put together in a pot until the mix boils. *Mazamorra* is usually had as breakfast with milk and herbal tea (bottom left); it can be made a bit thicker as well (bottom right). As mentioned before, it is usually prepared when people are planning to work hard.

[104] A drink made of fermented quinoa.

Picture 27: *Mazamorra* preparation

Source: The author's picture

Quispiño

Picture 28: *Quispiño* preparation

Source: The author's picture

Quispiño includes quinoa flour, salt, oil, water and cal. All these need to be mixed until getting the dough. Later on, small pieces have to be prepared to put them in a special pot with straw at the bottom (they are steamed).

Besides, the key informant from Acora told me about the associations of specific varieties to some preparations:

> *In the past, the different varieties were associated to special dishes. For pesque there was another quinoa variety, we called it Cohiro, but now there are new names, I don't know. We had this variety that was exclusively for pesque, for a delicious pesque (emphasis on the fact that it has been lost), with very special grains. Nowadays people prepare pesque with any variety, and it's not the same!*
>
> *For taqte (toqtochi) we used the Qoito variety. Our toqtochi plus our potatoes and chuño was the best meal we could have. For mazamorra we used another variety as well. Our quinoa use has changed a lot. Nowadays people use any variety for any dish. There was a nice varieties management."*
>
> *(Interview in Acora, 04/06/2014)*

Quinoa is also used to prepare drinks such as juice and *chicha*. The informant in Cabanilla said that coloured varieties were used to prepare *chicha* and other drinks to give them natural colours. Besides, to prepare quinoa juice it is necessary to boil quinoa with apples, cinnamon, cloves, sugar and a bit of corn starch to make it thicker.

This subsection shows that two of the most typical quinoa preparations (*mazamorra* and *quispiño*) include quinoa flour as the main ingredient. I have previously described the long process that making quinoa flour implies, thus, with the modernity processes that have taken place in Puno and the subsequent change in the notion of time, it would not be surprising to find significant changes in quinoa consumption patterns.

5.5. Quinoa commercialisation and consumption

As explained in previous chapters, quinoa commercialisation has been increasing over time and a lot of attention has been paid to this fact due to the consequences it may bring in terms of nutrition and impact on the environment. There has been a debate among those supporting quinoa commodification, considering it a "superfood" with potential to feed the world, and those claiming that quinoa producers could have serious malnutrition problems as they might be eating less quinoa. This subsection explains, based on the six households, how much quinoa is

commercialised and self-consumed, where or to whom it is sold, the different prices producers get, why households sell quinoa and what they do with the money they obtain.

To begin with, it is essential to mention that producers face some difficulties when asked to quantify their quinoa production (see quinoa production sub-section above) as well as the size of their parcels. Furthermore, as quinoa is sold according to households' needs and at different points in time, one can only talk about rough calculations, which is what I obtained when I asked.

About the fact that quinoa is sold according to specific needs, the key informant in Cabana told me:

> *"If a student needs something or needs to go to an excursion and the family has no money, then he can take 3 or 4 kilos of quinoa to sell and it is sold very easily; it's like having cash. Parents already know and ask: 'how much do you need?' the son says the quantity and they tell him 'take the quinoa to sell it'. The son takes it on its backpack and the problem is solved; quinoa is very effective to solve any problem because people buy it anywhere…"*
>
> *(Interview in Cabana, 04/30/2014)*

Besides households' needs, quinoa is sold at different points in time due to the different prices producers get. For example, Fernando told me that from his production he will sell half of it, but that he would not sell it all at once; in March he gets S/. 120.00 per arroba, while during the harvest period he gets only S/. 80.00.[105] He also mentioned that they need to keep some quinoa to sell it in case of emergencies in the local market (on Sundays) or in Juliaca. The following table shows the different prices households obtain in harvest and non-harvest time.

Table 11: Different quinoa prices obtained by households (per arroba)

District	Households	Harvest time	Non-harvest time
Acora	HH1 - Irma	S/. 80.00 - 90.00	S/. 115.00 - 120.00
	HH2 - Lina	S/. 75.00 - 90.00	S/. 110.00 - 120.00
Cabana	HH3 - Ana	S/. 70.00 - 75.00	S/. 110.00 - 115.00
	HH4 - Fernando	S/. 80.00	S/. 120.00
Cabanilla	HH5 - Esteban	S/. 54.00 - 70.00	S/. 90.00 - 120.00
	HH6 - Laura	S/. 60.00 - 70.00	S/. 90.00 - 110.00

S/. 1.00 (one Peruvian Nuevo Sol) is US$ 0.36 or € 0.27 as of 30th July 2014 (source: www.bloomberg.com)
Source: Own elaboration.

As we can see, selling quinoa implies strategies, visions and horizons to be able to meet basic needs and to deal with emergencies, as it constitutes a relatively new and alternatively income

[105] He said: *Necesitamos hacer una venta escalonada*.

source since its commodification started (since 2008 according to the people I talked to). This has generated, taking into account the role of time also, a change in the value attached to quinoa, which can be easily sold nowadays, and therefore on consumption patterns.

The following table shows the calculations I obtained when asking about the latest season and the previous season regarding total quinoa production and how it is distributed among sales and self-consumption.

Table 12: Quinoa sales, self-consumption and total production by households

District	Households	Season	Sales		Self-consumption and seeds	Total production
Acora	HH1 - Irma	*Latest*	90	(60%)	60	150
		Previous	20	(40%)	30	50
	HH2 - Lina	*Latest*	Dep. on needs	?	?	100
Cabana	HH3 - Ana	*Latest*	Dep. on needs	?	?	700 - 800
		Previous	500	(83%)	100	600
	HH4 - Fernando	*Latest*	100	(50%)	100	200
		Previous	200	(66%)	100	300
Cabanilla	HH5 - Esteban	*Latest*	Dep. on needs	?	? (A: 300)	200 (A: 500)
		*Previous**	990	(94%)	60	1050
	HH6 - Laura	*Latest*	Dep. on needs	?	?	115
		Previous	30	(52%)	28	58

*Not the previous but from 2 years ago.
'A' refers to Esteban's wife calculations.
In kilograms
In parentheses: Percentage relative to total production.
Source: Own elaboration.

In a couple of cases, Irma and Fernando's households, they could calculate how much they would sell of this year's harvest (60% and 50% of total production, respectively), but the rest said they would sell according to their needs. As of the previous season, in almost all of the cases (but Irma) the percentage allocated for commercialisation is more than half of total production and they vary a lot among households (from 52% to 94%). This is determined, as explained above, by each household's strategies and needs.

5.5.1. Acora

Irma

In Acora, Irma sells her quinoa to the NGO she has been working with, as a group, with the members of the producers' association. For this, representatives from the NGO go to the community and take the quinoa with them. Reflecting on quinoa sales, Irma also told me:

> *"It's not easy to sell quinoa; sometimes you get good production but it's not like that all the time. Last year most of our quinoa was frozen. In the end, I prefer to keep it for us*

to eat it, but I know that some people hurry to sell it to buy rice or noodles. I rarely buy rice, only when we feel like having it; we prefer having our potatoes and broad beans".

(Field note 31, 04/09/2014)

Once again, vulnerability to climatic conditions is mentioned as a negative factor, and preference for their own crops is highlighted.

With the money Irma obtains from selling quinoa, she buys other food items, mainly vegetables for their soups. Additionally, Irma explained me that she gets money faster from selling their quinoa and milk (both are easily sold at any moment) as compared to selling their cattle:

"To earn some money from our cattle we need to feed them for 2 or 3 years first."

(Field note 32, 04/10/2014)

Additionally, she told me that her husband does not bring too much money from his work in Cabana because he is studying a course in which he spends most of his money; quinoa is therefore a very important income source.

Regarding consumption, Irma told me that on average her household consumes 50 kg of quinoa a year in different forms. She added that all her family enjoys quinoa and that she likes to prepare it even though she cannot use her right index finger. Moreover, she pointed out that quinoa can be easily stored thus they can keep it for a long time, especially for their own consumption.

During my visit, considering that we had to work on potatoes and barley harvest, Irma's daughter-in-law prepared quinoa *mazamorra*. The following day they prepared *quispiño* because it was almost weekend and Laura's daughter was coming. Irma said:

"We prepare quispiño sometimes for my daughter so that she can take it to Puno and eat it with her kids instead of bread".

(Field note 33, 04/10/2014)

Irma told me she also prepares quinoa "graneada" (boiled, used like rice) and quinoa *chicha*. She said that the NGO she has been working with always tells them they should eat quinoa.

Finally, Irma said that as a kid she had *quispiño* and cañihua every day but:

"Nowadays people don't eat quinoa every day because it has a good price; everyone sells more. I used to get bored by eating quinoa all the time".

(Field note 34, 04/11/2014)

Irma's household case shows that quinoa commodification has contributed as an additional income source that allows them to obtain different food items, thus its value has changed

because as a kid she used to consume it on a daily basis. At the same time, her household considers quinoa as food that helps when one needs to work hard; it is also considered as better than bread (given that Irma prefers giving *quispiño* to her daughter and her family). Finally, despite commercialising quinoa, they still consume it in different preparations.

Lina

In Lina's household, as they are not related to any association, their quinoa and potatoes are sold only in the local market in Acora on Sundays.

Pascual, Irma's husband emphasised that:

> *"Quinoa can be kept for 20, 30 years without problems. We keep our quinoa and when we need money we go to the market and sell it, we don't need to eat all of it; we also give some to our sons and daughter when they come to visit"*

(Field note 35, 04/16/2014)

Moreover, like the previous case, quinoa earnings are used to buy other food items.

As indicated previously, Lina was told by a shaman[106] that she was sick and that she could not eat quinoa and some other food items (cañihua, bananas, oranges and meat); this is the reason why nowadays quinoa is hardly cooked in her household. Pascual, her husband, really loves quinoa but they told me they did not want to cook separate dishes all the time, only for the two of them, thus they eat almost no quinoa. Before Lina's illness, they used to have it twice a week. Pascual told me:

> *"I like quinoa in toqtochi; instead of wheat flour, we used to make it with quinoa flour and it's very nice. The only thing now is that she (his wife) is sick and we don't want to prepare different stuff for each of us to eat, and also, we are now very lazy"*

(Field note 36, 04/16/2014)

In fact, Lina told me she never liked quinoa, not even as a kid; in those times she would only have potatoes, chuño, oca and broad beans, always trying to avoid quinoa. Given that Lina never paid any attention to quinoa, she only learned how to cook it with her mother-in-law; she gave Lina some recipes and they used to cook it together many times. She also told me:

> *"My parents were very lazy. My dad worked as a driver and my mom didn't want to work alone in the chacra, so I didn't have the chance to eat natural food, grown by us. Besides, they never loved me and they sold me to a teacher who took me to Ancash (another region of Peru) to work as her servant. I managed to come back to Puno after*

[106] Lina visited the shaman when she was in Tacna, another Peruvian region, where her son and daughter live.

a year and a half, but they didn't want to see me. They had to put up with me for a year, until I met my husband and married him"

(Field note 37, 04/15/2014)

Even though Lina told me she had never enjoyed quinoa that much, I was curious about the shaman's diagnosis (related to the *pishtaco*[107]) and recommendations to get better. I wanted to know if quinoa could actually be harmful in some way, therefore I met a doctor in Puno; he told me that sometimes people do not wash quinoa properly thus saponin is still on it and it is toxic. Inappropriate washing of quinoa could explain what Lina was saying:

"When I eat quinoa, I feel my heart burns, same with cañihua. I don't know why. I will go again soon to see the doctor; I hope I'm better now"

(Field note 38, 04/14/2014)

My visit to Lina's household was before the interviews with the informants in Cabana and Cabanilla thus I also asked them about their opinions on this issue. The first one told me the following:

"Maybe that lady has another illness, but for healthy people quinoa is fine. For example my father for some time was not able to eat white quinoa; he was old and his body could not accept quinoa anymore, only coloured varieties. It depends on each body and you can't generalise. If you're ill then your body may reject quinoa.

(Interview in Cabana, 04/30/2014)

In Cabanilla, the informant gave me a longer explanation, even telling me about his own experience:

"Many factors could explain this. For example, maybe that lady had not eaten quinoa for a very long time, but really a long time, one year or more. The thing is that quinoa has a very high percentage of proteins and it is a very different type of food. Our grandparents said that when quinoa was fresh it could be harmful because some people have weak stomachs so they fall ill. I think this problem is mostly for old people or for those that don't eat quinoa very often.

I remember I couldn't and didn't want to eat quinoa until I was 8. My mom explained me why; she said that I was eating rice and noodles only and I didn't like quinoa. When she weaned me she started giving me cookies; my dad was working in a cookies plant

[107] As explained in the previous chapter, the pishtaco is a legendary character that, according to *puneños*, takes the fat from people and then sells it. This generates many health problems and if not detected in time, victims die.

so they gave me a lot of them. My body got used to that and it was rejecting quinoa. To make things worse, in those times there was a drought so they didn't get quinoa and had to feed me with rice only. After that I started eating quinoa gradually and my body got used to it. Now I can eat it without problems."

(Interview in Cabanilla, 05/04/2014)

All these factors could explain Lina's problem with quinoa, although she thinks it is because of the *pishtaco*.

Finally, the little quinoa this household consumes is mainly in quinoa flour. They do not mill the quinoa themselves, instead they take it to the market in Acora.

"We are not strong enough to do it ourselves, and also some varieties are difficult to mill, and we are lazy".

(Field note 39, 04/16/2014)

Lina's household illustrates that changes in quinoa consumption depend on very different reasons and not only on its recent commodification. These reasons include their beliefs, laziness (according to them) and influence from parents. Additionally, like the previous household, selling quinoa allows them to buy other food items.

The following extract shows the opinion of the key informant from Acora about quinoa consumption.

Box 3: Key informant's opinion in Acora about quinoa consumption

I think people are eating less quinoa than before because in the past there was no place to sell quinoa. We would get S/.10 per arroba. Ten years ago I would get maximum S/.13 for one arroba, so it was useless and we preferred to eat our quinoa. We would eat it every day in *mazamorra*, *toqtochi* and *quispiño*. That's why I always say that the ones who have eaten quinoa are healthy nowadays, but I also felt I was poor, while the ones eating chicken, noodles and rice were rich. I was eating the poor's food. However, I feel I'm healthy, I'm intelligent, strong, I don't fall ill often, and I realised we were having a good diet based on quinoa. We would also eat *siki* but it's not consumed anymore; *siki* is the poor's food and I ate it when I was a child. It's like a small tuber with a flavour similar to carrots. It's delicious especially when you let it get some sunlight for a while. The pigs would be digging the soil and I would run to go pick up *siki*.

We might have been poor, we had no money, but we are clever and we have lots of skills. Nowadays we're strong, we don't have cancer problems or other diseases even when having very low temperatures. I've never had a flu or cough, I don't know what those are like. However, nowadays' kids do suffer from many illnesses because they don't eat as much quinoa as we did. If there are families still eating quinoa, maybe they eat little portions. The families that are aware of quinoa's benefits maybe force their kids to eat quinoa.

> People want money and now quinoa has a good price, so we sell it and eat the little that remains. But there's also another factor: we don't have instruments to cook our quinoa. We used to buy special stones to grind it, from people that came from Capachica, but they don't come anymore. Maybe they already died and we can't get those stones. How are we going to grind quinoa? We can buy manual mills but it demands a lot of effort. In the end we have to take it to the mills in the closest city. We can take a big sack and get quinoa flour and we can prepare anything, but we'd need to pay.
>
> Also, people nowadays just want easy things. We work hard and then we don't want to grind quinoa, so we take it to the mills in the city. For me, the main factor influencing the decrease in quinoa consumption is its higher price. We have more quinoa production to sell. It doesn't mean we sell all our production, but we keep a small amount for us. We don't eat as much as before. Some families do eat a lot of quinoa, but if we want people here to keep eating it, we have to educate our children. We should feed them with quinoa so that they get used to it, otherwise we're fucked up ('ya nos fregamos') and they won't feel like eating it.
>
> *(Interview in Acora, 04/06/2014)*

This key informant thinks that households in Acora are eating less quinoa than in the past due to its higher price. He also talks about the preparations and the advantages of having eaten quinoa on a daily basis, as well as about what quinoa consumption meant when he was a kid (poverty). The informant considers that the lack of quinoa is generating illnesses that they did not see in the past, especially when referring to children. This illustrates that quinoa commodification could represent a conflict, contradiction or an encounter of values: on the one hand, it is an additional and significant income source but on the other, its lack is having effects on people's health.

Furthermore, this key informant points out two more factors that influence quinoa consumption: the lack of instruments to cook it, and the fact that people choose the easiest options. Finally, he mentions that some families still consume quinoa, but not as they used to, and that children should be fed with quinoa.

5.5.2. Cabana

Ana

Before selling quinoa to COOPAIN, Ana used to sell her quinoa on the Sunday market in Cabana to intermediaries, but she says there has been an improvement since she joined the cooperative because intermediaries were price-setters and used to cheat quinoa producers with their scales. Moreover, she explained me that due to the competition that intermediaries exert, the cooperative has to pay attention to them to offer the same or a bit higher price to its members (otherwise the cooperative's members would prefer to sell their quinoa to intermediaries).

When talking to Ana, she told me that her household's main income source is her husband's monthly wage from working in the mine, but that selling quinoa allows her to buy enough noodles, rice, sugar and oil for a year. For example, the last time she sold quinoa she could buy three big bags of rice of 50 kg each. She was also able to buy school items for her son and daughter. For Ana, like Irma, selling quinoa is far more profitable than selling her cattle. Again, the evidence from this household shows the importance of quinoa as an additional and helpful income source, or in other words, selling quinoa is a strategy to meet basic needs.

Quinoa consumption in Ana's household is around three or four times a week. She said it has always been like that, even before joining the cooperative. I managed to confirm this information with both her son and daughter, separately. I had the opportunity of working on the quinoa harvest with each of them in different moments and while cutting the panicles we had very deep conversations, discussing things about life in general, about their problems with their parents, with their friends, at school and at university.

Ana's son told me:

> *"Sometimes we eat too much pesque and it is boring. I enjoy quinoa on soups, and I really like it when mom uses quinoa flour also".*
>
> *(Field note 40, 03/19/2014)*

Her daughter said:

> *"I love quinoa for breakfast and also as mazamorra, which is prepared with cal. I prefer to eat it as soon as it has been cooked, but my mom cooks lunch most of the time early morning and it is not the same to eat it some hours later."*
>
> *(Field note 41, 03/20/2014)*

Ana also told me that somehow COOPAIN promotes quinoa consumption by its members because it offers quinoa milling and washing services, thus it is easier for them to eat it. In addition, during the "Día de campo" described on the methodology chapter, I heard from the cooperative representatives, while giving the trainings saying: "Quinoa producers should not face malnutrition problems; it must be consumed by all the producers". At the same time COOPAIN asks producers to sell around 70% of their production to the cooperative and the rest must be kept for self-consumption (they repeated this many times during the training). As we can see, this organisation promotes quinoa commodification by demanding more than half of the production of its producers (especially to be exported), but at the same time it promotes quinoa consumption among its members.

When I asked Ana about her own quinoa consumption as a kid, she told me that her mother always cooked quinoa (like Ana does now, three or four times a week) but also rice and noodles; wheat flour, sugar and oil were also included in her diet. As mentioned in the previous chapter, food preparations and consumption patterns could be inherited, like in this case.

Fernando

As explained above, in Fernando's household in Cabana they use quinoa as a kind of insurance when having emergencies. Fernando really considers that they are receiving a good price for it and with the money they obtain they buy rice, fruits, vegetables and fireworks to prevent the problems generated by hails. Besides, Fernando is the one who goes to sell the quinoa when needed.

In this household they eat quinoa two or three times a week, preparing *pesque*, *mazamorra* or soup. Fernando is the one demanding to have quinoa more often, especially as *mazamorra*. They told me that they have always sold and consumed the same quantity of quinoa, and that they would not be able to stop eating it because they really like it.

Both Fernando and his wife told me that as kids they had quinoa every day.

Summing up, the two households I worked with in Cabana sell quinoa to be able to buy other food items. Moreover, they still consume quinoa and enjoy it very much. In the case of Ana's household, their consumption pattern has not changed due to the strong influence of her mother's cooking patterns, and in Fernando's they consume quinoa two or three times a week now, when as kids they used to have it on a daily basis.

I also asked the key informant in Cabana regarding his opinion on quinoa consumption in that area. The details are in the extract of the interview below.

Box 4: Key informant's opinion in Cabana about quinoa consumption

I think people here are still consuming quinoa because we even have a mill in our plant; they can take their quinoa there and it's easier to consume it in that way. Maybe consumption has fallen a bit, but I don't think so. The thing is that long time ago, when I was a kid, quinoa was on our staple diet; we didn't have rice, noodles, all those things. There were no transportation means, only a train sometimes. There were even many different products such as "kalagrano", and many quinoa varieties, because they have different properties, different flavours and they are for different preparations, so peasants, to avoid getting bored eating the same, he had to grow different quinoa varieties, to prepare different things, but not anymore; for commercialization everyone grows white quinoa.

I think people still consume their own quinoa. For example, our plant makes promotions and they give us the quinoa already milled on small bags, ready to prepare our food. We are still eating quinoa, but I think that a bit less than some

> time ago. There are many reasons; for example, for preparation, it takes a lot of time. Sometimes we are in a hurry and rice or noodles are much faster and easier to cook, and in *chacras* there are always plenty of things to do. That would be the main factor. Other than that, I think people still eat their own quinoa.
>
> *(Interview in Cabana, 04/30/2014)*

For him, people in Cabana still consume quinoa because of the mill they have in their cooperative; it constitutes an advantage because it makes quinoa consumption easier. At the same time, he acknowledges the fact in the past people used to eat quinoa every day because there was no rice or noodles and no transportation means. Additionally, he highlights the fact that there has been a reduction in quinoa consumption due to its time-consuming preparation, taking into account that there are many activities to do in *chacras*. This key informant's opinion refers to the speeding up of economic and social life, and to the change in the notion and organisation of time, that leads to a reorganisation of daily activities and to changes in quinoa consumption patterns.

5.5.3. Cabanilla

Esteban

Alicia, Esteban's wife, emphasised that when they need money they immediately go to the local market on Thursdays to sell their production; the most profitable product is quinoa, but they also sell cañihua or broad beans. When talking about this particular topic she told me that cañihua is healthier, better and easier to grow as compared to quinoa, but in the market people do not pay a decent price for it. She added:

"We have become lazy, and quinoa takes too much time and effort".

(Field note 42, 04/01/2014)

The comparison Alicia makes among quinoa and cañihua, acknowledging that the latter is healthier, shows that cañihua (as it is not sold very often) could represent an important and nutritious food item for this household.

With the money they earned selling quinoa (almost 1 tonne) from two years ago they managed to build one big room made of cement and bricks, where they keep their motorbikes and tools; they also made some improvements to their bedroom. In contrast, from the previous season they had no quinoa left, but Esteban's mother usually gives them some of her own production.

Alicia likes quinoa a lot. If it depended on her, she would have it more often in *pesque*, "graneada" with *chaco* and *quispiño*. However, Esteban does not want quinoa anymore because as a kid his

mother cooked quinoa all the time. He is fed up now and gets angry when she cooks it. He prefers having fries, fried chicken and rice.

Alicia likes quinoa so much that she collects Ayara to make *pesque* and she shares it with her mother-in-law, because the rest of the family does not like quinoa. She also showed concern about this year's quinoa harvest by saying:

> *"We will not have enough, I eat a lot of it! I used to feed my kids with more quinoa than now, but they do not want it anymore. This year I will grow more cañihua also; it is very nice and its yield is high".*

(Field note 43, 04/01/2014)

Regarding changes in quinoa consumption, Esteban said:

> *"We have always had quinoa, always; I am not that old but I do remember having quinoa all the time. The only difference now is that we cultivate larger quantities, but moms keep cooking it, I would say in the same amount. Also if there are changes in quinoa consumption they are related to climatic conditions"*

(Field note 44, 04/03/2014)

Laura

In Laura's case, she sells her quinoa in the local market in Cabanilla on Thursdays, to any intermediary. She told me:

> *"I go early morning and sell my quinoa whenever it's necessary, but buyers put the price; I just have to accept whatever they offer".*

(Field note 45, 04/17/2014)

Laura's household has never had any benefits from programs of the government or from NGOs. When I explained them the work I had been doing and about the places I had visited, Laura's daughter-in-law showed great interest in starting to grow more quinoa to sell because they have some more available parcels. Her husband asked me about the associations and about what they could do to start selling their quinoa to other markets and to other buyers.

Laura also told me about a particular situation in which selling quinoa helped her a lot, to pay her son's studies:

> *"My husband works for himself only; he never gives me money for anything. I wanted my son to be a professional; he is my only kid, so I wanted the best for him. I started many small businesses to earn some money to pay for his studies (he studied Mines*

Engineering); I started to sell clothes, to cook and sell food on the local market, and to sell especially my quinoa, potatoes, oca, and as many things as I could. That's how I could send him to study at university in Puno city. In those times, we never ate any quinoa; I was obliged to sell all of it, and after such an effort, for one year I didn't grow anything, I ended up very tired and ill. It's only a couple of years ago that I started again, and now I sell quinoa sometimes, when there are emergencies".

(Field note 46, 04/18/2014)

About quinoa consumption, Laura's daughter-in-law explained the following:

"We eat quinoa only when we feel like having it, not all the time and not very often; 'papa' (Laura's husband) doesn't like it that much, he says it's too heavy for him".

(Field note 47, 04/18/2014)

Laura added:

"It's more or less once a week nowadays; we make quinoa soup or pesque, and in Holy Friday we make quispiño and mazamorra. When I was a kid, I used to have it every day; we were bored of quinoa. I think now most people here just sell it because it's very difficult to prepare."

(Field note 48, 04/17/2014)

Regarding the difficulty of cooking and growing quinoa, Laura told me:

"I'm very lazy to do it; it takes too much time and here we always have many things to do. I'm not as strong as I used to be when I was young, so it's hard for me to mill it. When we really want to eat it, we try do it ourselves or take some quinoa to Cabanilla to the mill in there and they don't charge too much for doing it".

(Field note 49, 04/17/2014)

These two cases show that the strategy of selling quinoa have helped largely in their modernity projects: for Esteban and Alicia, quinoa allowed them to build their house, while for Laura it helped her to pay the studies at university of her only son.

Regarding consumption, Esteban points out that first there has been a change in quinoa production; households in Cabanilla are growing more quinoa to sell more of it, but they are still consuming the same amount. Laura, on the other hand, emphasises that cooking quinoa takes a lot of time and that there are always many things to do, thus its consumption has reduced. Once again, the time variable is mentioned as a factor that impacts quinoa consumption.

Box 5: Key informant's opinion in Cabanilla about quinoa consumption

Producers still consume quinoa but now the problem is that it has a high price, so they eat less and prefer to sell it. It used to be our basic foodstuff; people could live thanks to quinoa and they could not sell it because its price was very low.

Rice, noodles and new food items started to arrive in the 1980s and since then people are eating those things, always, but still I think that people have started to eat more of them since quinoa's price increased. Everyone of course prefers to sell rather than eat. However, producers keep on eating their own quinoa; maybe it's not that much as compared to what it used to be. Maybe they used to eat it 4 times a week but now only 2 times; this is all because of its demand.

(Interview in Cabanilla, 05/04/2014)

Like the key informant from Acora, the one in Cabanilla mentions quinoa's high price as the main factor that is reducing quinoa self-consumption. However, he acknowledges that new items such as rice and noodles had already been introduced in the 1980s. He also indicates that households would prefer selling that eating due to quinoa's high demand, but they continue to eat it at least in a small amount.

5.6. Quinoa consumption in special occasions

Most of the households told me that quinoa is consumed like daily food, but some of them said that Holy Friday was a very special occasion to prepare it in different ways for lunch.[108]

In Acora I did not find any particular interest in quinoa for special occasions. Moreover, Lina told me that they do not do anything on Holy Friday and that it is like any other day because she thinks it is not worth it to cook only for her and her husband.

In contrast, in Cabana, Ana told me that on Holy Friday they cook around six or seven different dishes including *pesque*, quinoa soup, *quispiño*, olluco, rice, among others. Additionally, she told me that on the 25th December they make a special salad with boiled quinoa leaves. Finally, for the anniversary of COOPAIN, they make *turrón* (a dessert made with quinoa flour, honey and candies) and quinoa cake.

Also in Cabana, Fernando mentioned that on Holy Friday they cook around 12 different dishes that include quinoa such as *pesque*, quinoa cake, quinoa cookies, quinoa *chicha*, quinoa juice, and also olluco, *machas* (a type of seafood), trout and *pejerrey* (a small fish) with his entire family.

[108] This tradition also includes skipping breakfast as a way of respecting Jesus' suffering.

Similarly, Esteban's wife in Cabanilla also cooks *pesque*, quinoa cake, quinoa juice, quinoa *mazamorra* and some other dishes on Holy Friday.

I could spend Holy Friday at Laura's household; there were three different types of soups, *pesque*, *quispiño*, quinoa graneada, quinoa *mazamorra*, alpaca meat and onions salad.

5.7. Quinoa taste and effects on the body

There were quite different opinions regarding quinoa taste. As already explained, most of the people I worked with really enjoy having it regularly, but at the same time others mentioned that they were bored of it because they used to have it on a daily basis as kids. However, it is worth mentioning that from what I perceived, the latter were not bored of quinoa itself, but of having had the same preparations all the time. Some people talked with pride of the fact that quinoa is now being used to prepare juice, cookies, bread, noodles, cakes, and other desserts.

Besides, quinoa is associated to strength and endurance and it is usually consumed as *mazamorra* when planning to work hard. There were different opinions regarding what they felt after eating it.

In Acora, Irma told me:

> *"When you eat pesque, you're hungry after a while, but if you have mazamorra or quispiño, they keep you strong for a long time. I think it is because of cal; I think that's what helps."*
>
> *(Field note 50, 04/10/2014)*

The following is the opinion of the key informant from Acora:

> *"Quinoa is good against tuberculosis, anaemia, and we even heard quinoa is good against cancer. I think that's true, because no one here has cancer. Many years back we didn't even know what cancer was. Our quinoa makes us strong and we don't suffer any illness."*
>
> *(Interview in Acora, 04/06/2014)*

In Cabana, Ana's daughter said:

> *"I feel quinoa makes me strong, and it is not necessary to have a lot of it; I am already full after eating only some of it. As you have seen, we work hard, so we need to eat a lot to be strong."*
>
> *(Field note 51, 03/20/2014)*

Ana added that quinoa is digested very fast and when consumed very often it could generate diarrhoea. She said they try not eat it when it is fresh.[109]

Likewise, Fernando mentioned that quinoa makes him strong and that he becomes a tiger whenever he has it.[110] In addition, he said that since last year he is collecting Ayara quinoa for himself instead of keeping it for their cattle because he got to know it is good for the bones, that it could make his bones stronger. He also told me that quinoa is good for cancer and to avoid prostate problems. He finished by saying:

> *"It is a very healthy cereal that avoids any kind of illnesses; I have read that it was consumed even before the Incas and that's why they were so strong and were able to build things such as andenes and chullpas.[111]"*

(Field note 52, 03/29/2014)

The key informant in Cabana said:

> *"If we usually eat quinoa, there aren't any problems. We need to get used to it. It's good food. But if one isn't used to eating it, there will be some changes. I don't have any problems; I've eaten quinoa since I was a child."*
>
> *"It definitely has benefits for health. That's why I'll live until being more than 100 years old, like people in the past. In my family the majority has lived being more than 100 years old because in the past we all used to eat quinoa and different grains. We hardly bought food from the market, only salt I think."*

(Interview in Cabana, 04/30/2014)

In Cabanilla, again, Alicia related quinoa to strength:

> *"Quinoa makes me strong, I feel like a bull when I have it. Also, you get full with a little portion. If I eat rice or noodles I need more and more to be full. I like quinoa more for breakfast to feel strong during the day, and later I would not need lunch".*

(Field note 53, 04/03/2014)

Laura, when discussing quinoa consumption, told me:

> *"Most people sell quinoa here and don't eat it very often; maybe that's why we're ill and weak. I fell ill when I stopped eating quinoa; I started having haemorrhages and it must be because I was not eating quinoa. Before that I had never fallen ill".*

(Field note 54, 04/19/2014)

[109] In this context, "fresh" quinoa refers to quinoa that has been just harvested.
[110] "Becoming a tiger" means becoming stronger, being able to work at full capacity or reaching high levels of performance.
[111] *Chullpas* are funerary rock towers found in the Aymara area, constructed especially for noble persons or families.

The key informant from Cabanilla said the following about quinoa's effects:

> *"It has proteins and it helps to prevent illnesses such as anaemia, cancer and diabetes. We've seen that our grandparents never knew about those illnesses but now that quinoa consumption is less many people get them. Also it helps to prevent sight deterioration; many years ago our old people could see very well but now people that are 40 or 50 already need glasses."*
>
> *(Interview in Cabanilla, 05/04/2014)*

5.8. Feelings and aspirations for the future related to quinoa

In the youngest household (Esteban's), Alicia told me about what she would like to do in the future with money she can earn from selling quinoa:

> *"I would like to start a restaurant, a hotel and a repair shop for cars, taking advantage of being near the main road, on the way to Lampa. There are not so many restaurants and no repair shops, so I think it would be a good idea because there are many tourists passing by".*
>
> *(Field note 55, 04/03/2014)*

As of the key informants' opinion, the one in Acora told me that he thought in some years the community would start eating more quinoa again but in many new different preparations. He was very optimistic about quinoa's future.

The key informant in Cabana said:

> *"People now are very proud of their quinoa. Cabana is the capital of quinoa production in Peru, so how couldn't we be proud about that? We have a good plant; some people wanted to ruin it, there were problems in its management but we have corrected our mistakes and keep growing. We are very proud of our plant; it's the only one in the region and we have some advantages, bonuses, gifts in Christmas, group meetings. We are all very united."*
>
> *(Interview in Cabana, 04/30/2014)*

Finally, the key informant in Cabanilla told me:

> *"I think that more and more importance will be given to quinoa because its price is increasing; production will increase as well year by year. Besides, everyone knows very clearly that some illnesses that we didn't have are appearing, especially for women, such as diabetes, and when they were going through menopause in the past they didn't*

suffer as much as they do nowadays. Thus there are many people that now decide to keep at least half of their quinoa production. I think in the future production will increase but also our own consumption, due to the illnesses. People are now more aware of the health risks of not eating quinoa".

(Interview in Cabanilla, 05/04/2014)

5.9. Conclusion of the chapter

This chapter has shown six different cases of quinoa-producing households and their quinoa production, commercialisation and self-consumption, considering quinoa commodification, modernisation initiatives, modernity projects and the role of time.

Regarding quinoa production, the key informants indicate that there has definitely been an increase (especially considering land area), but when looking at each individual household, it is clear that quinoa production is determined largely by climatic conditions, the presence of organisations (such as NGOs or the cooperative in Cabana) and by households' particularities.

Harvest and post-harvest activities related to quinoa, as well as the tasks that are required to perform to consume it and its preparations, show that this crop certainly demands a lot of time and effort. With the globalisation from below processes Puno has been through, a changing experience of time has been generated, which makes people reorganise their daily activities and prefer mostly time-saving options.

The subsection on quinoa varieties indicates that quinoa commodification as an expression of globalisation has led to a loss on quinoa coloured varieties. Nowadays, also due to modernisation initiatives (NGOs), white varieties are preferred to be sold by households, but at the same time coloured varieties are slowly becoming more valued on markets; these are also preserved by some households.

The evidence on quinoa commercialisation and self-consumption by the households in Acora, Cabana and Cabanilla is mixed. First of all, selling quinoa implies strategies, visions and horizons to be able to meet basic needs and to deal with emergencies (it constitutes a relatively new and alternative income source). This has generated, taking into account the role of time also, a change in the value attached to quinoa (which can be easily sold nowadays), and therefore on consumption patterns.

Changes in quinoa consumption depend on very different reasons and not only on its recent commodification or higher price; beliefs, laziness, lack of instruments to cook it, and influence from parents do play a role as well.

Despite quinoa commodification, I was told and I verified that the households I worked with continue to enjoy and eat quinoa, at least in a small amount which is less when compared to the amount they had during their childhood. At the same time, at least three of the households still consume the same quantity of quinoa even after the quinoa boom. Of course, some households' members told me that they were already bored of it. The process of replacing quinoa by other food items such as rice or noodles had already started almost three decades ago, as indicated by one of the key informants.

Quinoa is seen as food that helps when one needs to work hard and as food that helps to prevent different illnesses. It is acknowledged as an additional and significant income source (taken into account for plans for the future) but on the other, there is growing awareness of the fact that its consumption decrease is having effects on people's health.

6. Discussion

The literature review and the results from this qualitative research provide evidence on the complexity and variety of factors that influence diets, especially in a setting such as Puno, in the Andes region. Furthermore, this complexity supports the idea that one cannot talk about or refer to an "Andean diet" *per se*, which entails an idealistic notion about peasants' lives, consuming only their own native crops and in balance with their local environment. Instead, diets in this region are not static or homogeneous and depend largely on households' self-organising practices, time, experience, knowledge, interactions, modernisation initiatives, among others.

Orlove (1987) discusses, even in the 1980s, that there have been two contrasting effects from the shift away from a subsistence economy and diet: an increase in income, which allows households to purchase more food and increase their caloric intake, but simultaneously an increase in the share of purchased (industrialised) food, which generates poorer nutrition. Quinoa's case shows these contrasting effects, as its commodification has implied an extra income source for households to fulfil their modernity projects, but also (according to the key informants and to some households members), other food items are bought and this has damaged people's health, together with particular circumstances. Nevertheless, it is important to emphasise that, as the results illustrate, consumption patterns had already changed some decades ago (in the 1980s) in the districts where I conducted my study. Moreover, Orlove mentions that changes in diets are not permanent and peasants are perfectly able to reverse any effects. This last point is illustrated by the opinion of two key informants (from Acora and Cabanilla), who think quinoa consumption of quinoa-producing households will increase in the near future (even with new preparations) due to the growing awareness about its nutritional properties and the illnesses that are threatening them.

Quinoa commodification, as a manifestation of globalisation processes, has been generating in some way not so favourable effects, as suggested by some of the people I worked with and by some journalists and researchers. This fact may lead to think about the appropriateness of its commercialisation, as according to Ertman & Williams (2005) the term "commodification" is used mostly to discuss specific types of sales and to discuss what is and should be in and out of the market (idem: 4). In this sense, commodities and cultural aspects are sometimes seen in opposition, with culture as a differentiating element and commodification as a homogenising one. The same authors indicate that commodification, could damage local meanings and contexts, making a good common rather than unique, but at the same time, leaving commodities related to cultural aspects out of the market by declaring them sacrosanct can also impede cultural evolution.

In fact, as Ertman and Williams (2005) point out, there are potential negative effects of both commodification and non-commodification, and as Appadurai (2005) mentions, the oppositions that are created parody both poles and reduces human diversities artificially. For the case of quinoa, instead of discussing whether it is appropriate or not to commercialise it, I think it would be more useful to look at what consequences its commodification is bringing and to act accordingly.[112] Quinoa commodification has been a product of globalisation but also of households' self-organising practices or modernity projects, as the results indicate (for education opportunities, improving housing conditions, being able to deal with emergencies, etc.). Therefore, rather than worrying about globalisation, I would suggest (based on Appadurai, 2000) looking at the social forms that have emerged independently of the influence of international demand for quinoa, as households' strategies, visions and horizons are behind those social forms. A balance must be reached among households' needs and aspirations, and the possible adverse consequences that the quinoa commodification process could bring.

In addition, Appadurai (2000) indicates that flows of objects, persons, images and discourses are part of globalisation, and that those flows are in relations of disjuncture (separation or disconnection); the vectors of these flows have different speeds, axes and points of origin and termination. Disjunctures generate problems and frictions in local situations, and disjunctures between the several vectors also produce problems of livelihoods, equity, suffering, etc. (idem: 6). Quinoa commodification has basically implied flows of objects, images and even discourses, and disjunctures among the vectors of these flows have generated the problems already described, such as health issues, modification of rotation patterns, loss of biodiversity, etc. However, quinoa commodification is not the only element to take into account in this process, as globalisation from below initiatives (migration, trade activities, new organisations, etc.) did also play a role in generating these issues, even before the quinoa boom.

The analytical framework, as well as the results, highlights the role that the notion of time has in the value that is attached to quinoa and therefore in its consumption by the six quinoa-producing households under analysis. I took David Harvey's concept of *time-space compression* to understand globalisation's effects and to explain my findings. This concept involves the speeding up of the pace of economic and social life and the change in the notion and organisation of time. Harvey highlights social aspects, indicating that both time and space are social constructions product of social and historical processes in a specific type of society. In this author's perspective,

[112] For example, one of the latest measures taken by the Peruvian government has been to promote quinoa cultivation in the coast area of Peru (taking advantage of the crop's adaptability to different climatic conditions), to be able to meet the Peruvian demand for quinoa and to reduce its price in the Peruvian market. However, more measures are needed in the highlands area.

focussed on the political economy arena, spatial barriers have constantly been reduced over time, a fact that is vital for capitalist development; this has led (according to him) to the destruction of certain kinds of life and to the fragmentation of spatial-temporality in some societies. Harvey adds that *time-space compression* is likely to produce insecurity and that there is a need for local populations to set boundaries, with reactionary and exclusionary perspectives. For Harvey, capital is the main determinant of *time-space compression* (Harvey, 1994).

Nevertheless, I do not consider all the elements from Harvey's view, as it is quite structuralist in essence, given that he focuses on external elements only (such as capital) which determine (according to him) dynamics in local settings. My results do show that the notion of time has changed due to globalisation, but also due to globalisation from below, based on modernity projects and on creativity of local actors. Rather than reactionary or exclusionary perspectives, I found more progressive ones, not only on the households I worked with but also in Puno, as its history shows.

Another important issue to discuss is the value that is attached to quinoa. As the key informant from Acora said, some decades ago quinoa meant being poor and it was only for daily consumption; almost all the eldest households' members told me that they could easily get bored by eating quinoa every day when they were kids. However, as more attention has been paid to this crop and as its demand has considerably increased in several countries, quinoa is now a crop to be proud of, and quinoa-producing households are becoming aware of the importance of consuming it. These elements illustrate that "value" goes beyond the economic dimension.

Regarding the main topic of analysis, quinoa consumption by quinoa-producing households in Puno, I want to point out that instead of affirming that it has increased, decreased or that there has been no change, I would rather say that quinoa consumption depends on very particular circumstances of each household. The key informants mentioned some general trends (such as a decline in quinoa consumption by local populations) and highlighted the fact that quinoa's price has significantly increased, but my results reveal that there are specific contexts and situations that determine quinoa consumption. Food consumption in general, and quinoa in particular, depends on a myriad of factors (or vectors of flows) that generate different patterns. It is even harder to determine what has happened with quinoa consumption if we take into account the difficulty that quinoa producers face when trying to quantify their production and how it is allocated (among self-consumption and commercialisation), and even to quantify the amount of land they have.

To finish, I also want to emphasise the important role women have in terms of agricultural work (growing crops and taking care of cattle), food provisioning, food preparations and the general organisation of households; they also minimise losses of food (re-using several different items) and thus constitute essential actors that determine the reproduction possibilities of the household and of the community's activities (Pazzarelli, 2010). However, the fact that women are the ones responsible for food provisioning and cooking does not guarantee that diets will be healthy or highly-nutritious. As the results show, some women are aware of what is healthy (due to the information dissemination of NGOs or what they have heard) but some others are not. In addition, the ones who have some notions on what is better to eat in nutritional or health terms, sometimes cannot actually cook healthier options due to lack of time or to the preferences of their husbands and children. Considering all these factors, if more quinoa consumption (or the consumption of healthier food) by quinoa-producing households is to be promoted, the focus of attention should be women, but also the entire family needs to be become more aware of healthier food options.

7. Conclusions

The significant increase in quinoa commercialisation in the last years and some related modernisation initiatives have raised concern regarding its impact especially for quinoa-producing households in rural areas in terms of nutrition (due to less quinoa consumption), soil quality and a trend for mono-cropping. However, this exploratory research provides evidence on the fact that quinoa commodification or commercialisation is only one among several factors that influence food consumption patterns and other practices.

From the factors already identified in the literature review (answering my first research question), this qualitative research allowed me to identify almost all of them on the field, but living together with six different households helped me to find additional and more specific elements that do impact diets, such as age, dental health, particular beliefs (*pishtacos*), the influence of cooking patterns of parents and grandparents, issues of time to cook (laziness, as expressed by them), tiredness (of the many activities to be performed in *chacras*), boredom (of having eaten quinoa everyday as kids), and emotions or feelings (preferring to cook only when more relatives are present). All these factors are related to the households' own modernity projects, and they might be interconnected, directly or indirectly through actors' practices. In addition, such factors are associated to modernisation initiatives (from organisations of the government or NGOs); therefore, taking both modernity and modernisation processes into account we can talk about a "blending or juxtaposition of self-organising elements, policies and global courses of action", or "a growing set of multiple social interactions", following Arce et al (2014).

My second research question is related to the divergence or convergence among traditional and modern elements of consumption and knowledge in the general diet and in quinoa consumption of quinoa-producing households in Puno. The study found that the general diet in this context is still determined by agricultural practices, and that both traditional and newer elements co-exist; in this sense, the use of tractors and *yunta* in the studied households of Cabana and Cabanilla are an expression of these assemblages. The use of both *huajtanas* or *jaucañas* and thresher machines (producers indicated that thresher machines must not be used to obtain quinoa seeds) and the use of sickles and cutting machines in Acora to save time are further combination of elements. To cook, *q'onchas* are preferred due to the special flavour it gives to food, even when stoves and gas cylinders are available (stoves are rarely used, only in emergencies to save time). Overall, households combine traditional and more modern elements, even though some traditions are not taken into account anymore (according to one of the key informants).

Moreover, regarding quinoa consumption, households still try to grind quinoa by themselves, but they prefer to do it faster in the closest town, where mills are available. At the same time, quinoa is consumed and cooked together with food items that are bought in the market (such as vegetables) and combined with more industrialised products (like sugar and flour for quinoa juice and desserts, respectively). This provides evidence on the fact that diets have been re-organised and households are combining traditional food items and ways of cooking with more modern ones. In this vein, households' particular circumstances and priorities are important to understand these processes of change. At this point, it is relevant to mention that such a process had already been discussed by Orlove (1987) indicating that at least during the 20th century and since communities started to connect to cities, combinations of Andean crops and other industrialised products started to come together as complements or also like substitutes. A key element worth noticing is the importance of the change in the notion of time as a consequence of globalisation and globalisation from below processes, which has led to the re-organisation of activities in different domains of life; Harvey's concept of time-space compression has contributed to understand that the new speed in which lives are lived implies several changes, showing that social relations and diets are not static.

One of the main purposes of this study (related to the third research question) has been to show quinoa production, consumption and commercialisation patterns, comparing them to the past. Regarding commercialisation patterns, the results show that quinoa is used as an important alternative income source that helps to cope with emergencies, to buy other food items and to invest in activities such as studies or house constructions, but when considering quantities, I would not refer to "patterns" as such, as there are no clear rules on how households allocate quinoa for commercialisation according to their production levels, but according to households' life-cycle contingencies. Furthermore, another important factor that was highlighted on several occasions during the study, as strongly influencing quinoa production, was the variability of climatic conditions: hails, frosts, droughts and floods for local actors determined total production levels.

As expressed previously, I will not present any closed conclusions regarding what has happened with quinoa consumption of quinoa-producing households since its commodification started. Instead, I focus on the variety of impressions, discourses, images, beliefs and practices I found while working with the six households and with the key informants in each district. This fact is reinforced with the considerations described by Arce & Long (2000) regarding how to analyse social change; for such an analysis, like this case, it is necessary to study localised practices and to consider actors as a basis to be able to show the "variable, composite and provisional nature of

social life" (idem: 8). In fact, my research findings account for a process with heterogeneous dynamism in which ambivalence and ambiguity show differences of interests and knowledge. The relevance of this study becomes clear at this point, given that this topic has been addressed only with surveys in Peru; in contrast an actor-oriented approach considers multiple dimensions and provides more elements for reflection, as shown below regarding changes in quinoa consumption.

The strongest change in quinoa consumption can be found when comparing nowadays' levels to the times when the people I worked with (except for the children) were kids. They used to have quinoa on a daily basis but this pattern changed since their communities started to be more linked to other towns and cities (in the 1980s), when they got to know and consume chicken, rice, noodles, bread, oil, etc. According to the key informants, this change has been intensified with quinoa commercialisation (and its increasing price) because households prefer to sell more rather than eating it; these opinions contrast with my experience in at least three of the households I studied, where I found that they continue to eat quinoa in the same amount as compared to the time before the quinoa boom (in 2008).

The fact that quinoa preparation is very time-consuming has also been mentioned (and made evident) as a cause for a reduction in its consumption, which is related to the change in the notion of time in the studied households, as mentioned above. In contrast, for one of the households' head in Cabanilla, there has been no reduction in quinoa consumption; instead, he indicates that households are growing more quinoa (to be able to sell more) but they are still consuming the same amount as compared to the times before 2008.

Besides the economic value of quinoa, I also found that it is considered as food that helps when one needs to work hard (associated to strength and endurance), and that there are several advantages of having eaten quinoa on a daily basis (given its benefits for health), in spite of having been associated to poverty in the past.

While on the field I realised about the importance that households' members attach to food, its taste, varieties and aromas. This is a central element to take into account if modernisation initiatives are to be carried out to promote quinoa consumption by quinoa-producing households, together with the ease of preparation.

I found mixed evidence on the liking for quinoa. On the one hand, it is enjoyed by many of the members of the households and by the key informants on typical preparations (*pesque*, *quispiño* and *mazamorra*), but on the other, some members were bored of it and told me they prefer different food items (due to their experiences as kids and also in other regions). Nevertheless, this evidence does not mean that people are bored of quinoa itself, as I perceived that they were

bored of having the same quinoa preparations; some were very proud of the fact that quinoa is now being used to prepare juice, cookies, bread, noodles, cakes, etc. This idea is related to the one mentioned in the previous paragraph: if quinoa consumption by quinoa-producing households is to be promoted, innovative and quick preparations should be considered. Modernity nowadays in these households implies that actors look for different flavours and for food variety.

Quinoa is also related to modernity projects for the future and producers are proud of it, especially due to its beneficial health effects; according to them, quinoa is good to prevent tuberculosis, anaemia, cancer, haemorrhages, diabetes, sight deterioration, and any kind of illnesses in general.

Finally, I would like to point out some important issues for further research. To have a more comprehensive understanding about quinoa production, commercialisation and self-consumption, it would be necessary to follow households for an entire agricultural season, to understand all the details of the process: how quinoa is sown; how it grows and what needs to be done; harvest and post-harvest activities; and how, where and when it will be sold or self-consumed. I would also suggest researching about other products that are grown in the Andean area to be promoted together with quinoa, about their consumption and in nutritional terms so that households' health does not depend only on quinoa. More research is needed as well in both food practices and commercialisation of self-produced crops in rural areas, focusing on local producers (local actors) to unveil their own strategies, visions and life perspectives.

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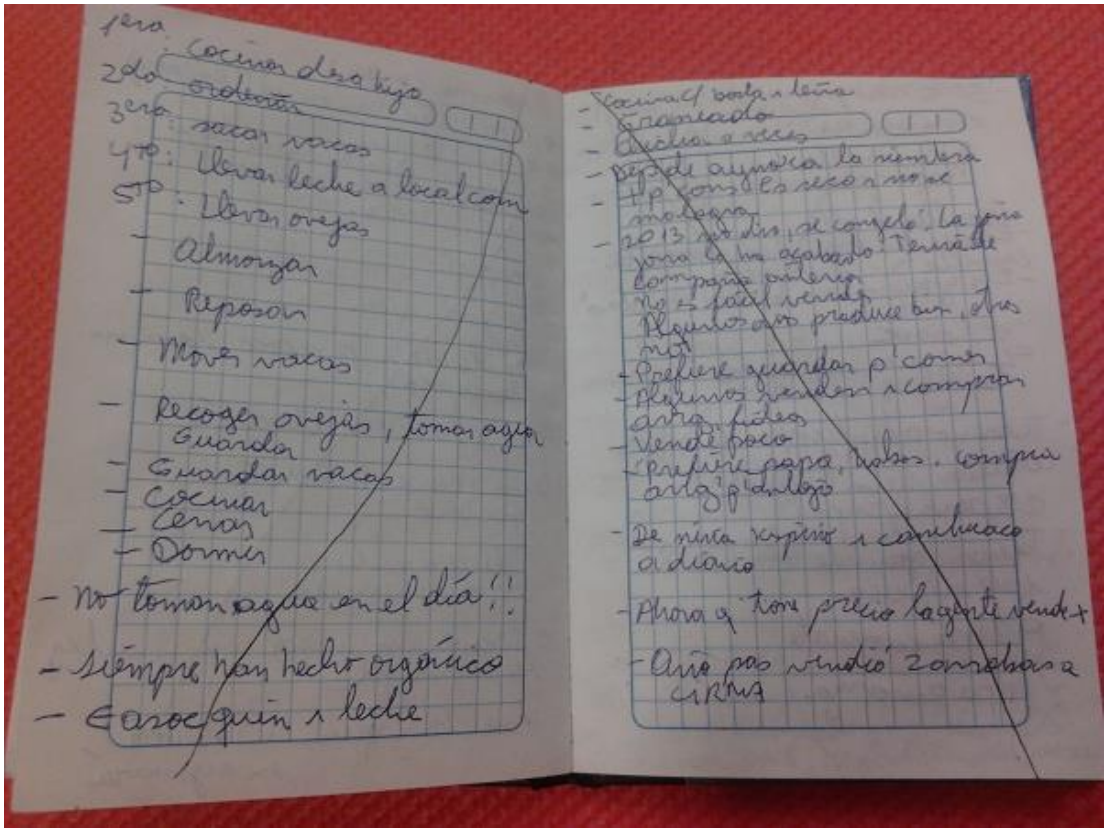
Annex 1: Puno's share in quinoa production in Peru

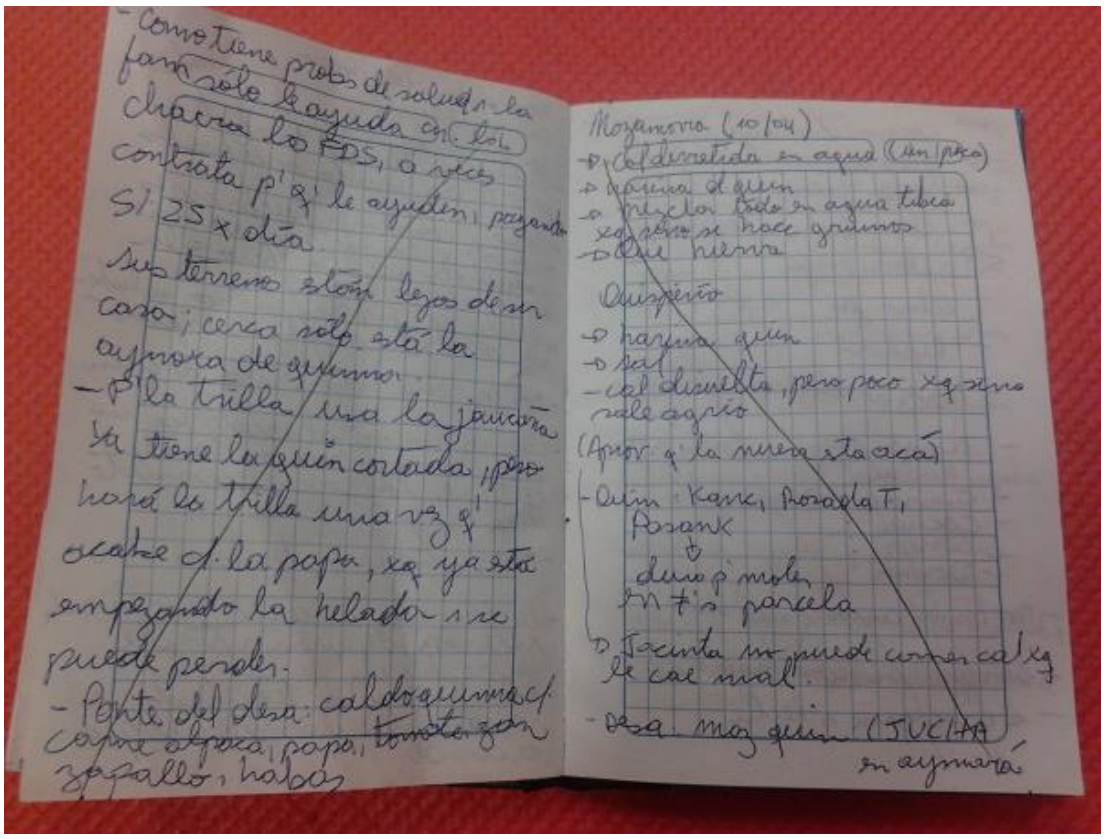
Puno's share in quinoa production in Peru

Year	*% relative to total quinoa production in Peru*
1984	70%
1985	51%
1986	65%
1987	68%
1988	80%
1989	80%
1990	44%
1991	69%
1992	43%
1993	75%
1994	70%
1995	61%
1996	61%
1997	60%
1998	63%
1999	59%
2000	70%
2001	70%
2002	82%
2003	82%
2004	82%
2005	85%
2006	81%
2007	81%
2008	76%
2009	79%
2010	78%
2011	80%
2012	68%

Source: Data series of agricultural production – Statistical Compendium. Ministry of Agriculture and Irrigation of Peru (http://frenteweb.minag.gob.pe/sisca).

Annex 2: Sample pages from my main diary





Annex 3: Guide for interviews with key informants in each district

General aspects:

- Access to technology
- Interaction with factors that are external to the community
- Demography
- Access to credit
- Access to private or public projects or programs
- Social meaning of food
- Welfare and modernity aspirations
- Corporeal experience
- Health effects
- Religion
- Natural resources use and management
- Quantification of production, sales, self-consumption, now and in the past

Study of the landscape in each district to determine the main crops that are produced, food availability and how this has changed.

- General overview of the communities, their productive base, rotation patterns and available technologies.
- Lists of food eaten nowadays and in the past (before the quinoa boom, which will be defined by the informants).
- Look at different ways of quinoa preparation and the technologies associated with it.
- Be aware of the projects (public or private) that may be present in the communities and their effect in quinoa consumption, as well as what they do and propose (access to credit, access to new technologies, organic certifications, etc.).
- Research on the evolution of the quinoa price throughout the year and link it to sales moments (for example, in the pre-harvest season, the price might be higher).
- Participation in markets, fairs and points of sale to observe the dynamics.

Annex 4: Transcript of the interview with the key informant in Acora

Money is important. We cultivate potatoes, quinoa and barley. It's basically for subsistence.

When there was no money, people used to work on handicrafts but not anymore. Some others go to the coast for specific seasons, in groups. They basically go to Arequipa and Tacna for a while to get money. They go for 2 or 3 months, then they come back for the harvest. Women stay here to take care of the house, the farm. Men are the ones leaving. This has changed a bit with milk production. Cows have been improved, there's more milk and now there's a cheese plant, so we gather milk from all the producers in each sector. With this people see that at least they daily have at least 5 or 10 soles. Some are even getting 30 or 40 soles. People are not migrating that much, they prefer to work with milk. Many people have come back and have seen an opportunity. They know that they'll have "platita" (money), so that's the productive base in Acora.

Access to technology:

I think everything here is mechanised. There are no "yuntas" or "chaquitacllas". Now people only use tractors to prepare the soil. There are advantages and disadvantages. In the past, in these times, we were already ploughing with yunta, moving the soil and everything, and it helped for the decomposition of organic matter, but now with tractors they plough at any time, for example only when they are about to sow. This is why the yield is lower now; it's not like before ("ya no es como antes"). People don't take care of anything; soil is not managed properly, that's the problem with the machines we use. Technologies are good to make things faster, but we have altered our natural resources, we are not being careful. Before, our traditional knowledge was about taking care of the soil, the environment, everything, but now with machines sometimes we exaggerate and ruin everything. Our traditions are ruined, our soil is ruined, the sow, everything. It's not the same.

But also we don't have that much of access to technology. We need advanced equipment for our cheeses and we don't have them, we don't know them. We don't have machines as Brazil and Argentina have, those countries are very advanced on the dairy business. There are no institutions helping us on that, no funds, nothing, so we have to keep working as we have been doing for many years.

There's no support from the municipality. The mayor doesn't think about agricultural production. I don't know either what's going on with the university, it doesn't help our communities. It seems it prepares students to go to the coast. In Puno it's difficult because we have small parcels and it's difficult to develop. I understand that, but still students only want to go to the coast, Argentina or Brazil, to more advanced places. They say that here it's impossible to do anything. I think that's not true; with the little land that we have, we can produce at least something, not a lot but at least high-quality products. Our potentials are lost; for example, here in the community we have *aynokas*. The thing with *aynokas* is that we can keep having our customs related to plagues control and plant diseases. Thank God we don't have issues with weevils and this depends on our *aynokas*, on our group work. Sometimes we fight among us also.

Regarding *aynokas*, we used to have many of them but some people are starting to build their houses there, so we have lost that land. Maybe we still have and work on half of them.

The community decides what we will grow in each *aynoka* each year, but if we start with potatoes, the following year will be quinoa for sure, and in the meantime another *aynoka* is being prepared to start with potatoes. After quinoa we grow barley. Each year we allocate an *aynoka* for potatoes. After barley we grow alfalfa, but in the past we used to let the land rest. We are just experimenting with alfalfa. No one thought alfalfa would improve the soil that much because in this area the soil has been overused. This shows that alfalfa is very useful to improve soil quality.

We are thinking we could introduce alfalfa in the *aynokas* now. The soil could "rest" with alfalfa for around 6 or 8 years and then again start with potatoes.

My parents and grandparents would let the land rest for 8 years more or less. Now the issue is with population. We are more and more people and the land has to be divided so parcels become smaller. If we have *aynokas* of 30 ha, we have to put them together because they are too small.

Quinoa production

Quinoa production has for sure increased in the last years, but we still need to improve yields. The main problem is the incorporation of organic matter. In the past we used to have a lot of cattle and manure was available in a huge quantity, and we used it for our potatoes. Nowadays we don't have many sheep, thus no manure. Also we think "shall we use manure or not?" Sometimes we just grow our potatoes without too much manure and the yield is not that bad, but it could have been much better. Nowadays there's organic matter scarcity.

We don't use artificial fertilizers. Once this organisation, CARE I think, introduced a lot of fertilizers in this area, as well as seeds. Some people used them and some others didn't and the ones who used them had problems because when we had frost, everything was burnt. We didn't even have seeds left. When we noticed these chemicals were useless and harmful, we just left them. It was CARE who did this, strongly introducing fertilizers, pesticides and seeds. We didn't know anything about that. Organisations like this one and professionals talk about "peasants", that we complain and ask for many things, but it's not like that. They come and bring things such as these. We never asked for chemicals, they brought them and in the end we are the ones who lost. Everything was ruined: there were many potatoes varieties such as andino and yungay; we had a good production with the fertilizer but then if we didn't use it anymore, the yield decreased and our potatoes were more vulnerable to plagues, illnesses. Everything was altered. And it becomes worse when there are frosts. We had "papas nativas", our own varieties but they were not affected by frosts (-10),

Just a few families keep on using chemicals, but now with the environment's pollution, we have realised that it's enough and that we shouldn't use them.

How did you become aware of environmental issues?

It began with quinoa's international reputation. After that we understood that it's better to have organic agriculture, and organic products also have higher prices. That's why we changed.

It is only 6 years ago that quinoa production and commercialisation started to increase (2008).

Changes

I think people are eating less quinoa than before because in the past there was no place to sell quinoa. We would get 10 soles per arroba. Ten years ago I would get maximum 13 soles for one arroba, so it was useless and we preferred to eat our quinoa. We would eat it every day in mazamorra, toqtochi (taqte in Aymara), quispiño. That's why I always say that the ones who have eaten quinoa are healthy nowadays, but I also felt I was poor, while the ones eating chicken, noodles and rice were rich. I was eating the poor's food. However, I feel I'm healthy, I'm intelligent, strong, we don't fall ill often, and I realised we were having a good diet based on quinoa. We would also eat siki but it's not consumed anymore; siki is the poor's food and I ate it when I was a child. It's like a small tuber with a flavour similar to carrots. It's delicious especially when you let it get some sunlight for a while. The pigs would be digging the soil and I would run to go pick up siki.

We didn't have many choices, just siki, quispiño and some other herbs. We used to eat a lot of those and I think we got the minerals, proteins and vitamins we needed from them. We had those habits and ate well, but we felt we were poor. We might have been poor, we had no money, but we are clever and we have lots of skills. Nowadays we're strong, we don't have cancer problems

or other diseases even when having very low temperatures. I've never had a flu or cough, I don't know what those are like. However, nowadays' kids do suffer from many illnesses because they don't eat as much quinoa as we did. If there are families still eating quinoa, maybe they eat little portions. The families that are aware of quinoa's benefits maybe force their kids to eat quinoa.

People want money and now quinoa has a good price, so we sell it and eat the little that remains. But there's also another factor: we don't have instruments to cook our quinoa. We used to buy special stones to grind it, from people that came from Capachica, but they don't come anymore. Maybe they already died and we can't get those stones. How are we going to grind quinoa? We can buy manual mills but it demands a lot of effort. In the end we have to take it to the mills in the closest city. We can take a big sack and get quinoa flour and we can prepare anything, but it has a price.

Also, people nowadays just want easy things. We work hard and then we don't want to grind ourselves, so we take our quinoa to the mills in the city. For me, the main factor influencing the decrease in quinoa consumption is its higher price. We have more quinoa production to sell. It doesn't mean we sell all our production, but we keep a small amount for us. We don't eat as much as before. There are some families that do eat a lot of quinoa, but if we want people here to keep eating it, we have to educate our children. We should feed them with quinoa so that they get used to it, otherwise "ya nos fregamos" and they won't feel like eating it.

Feelings about quinoa's recognition

Now we know that our product helps for good nutrition. We are proud of it, but only now; before we didn't recognise its value, we thought it was only for the poor, we felt poor, but now we know it's good food and we feel that we don't have any illnesses because we were fed with quinoa, as compared to people in the Coast.

Quinoa is good against tuberculosis, anaemia, and we even heard quinoa is good against cancer. I think that's true, because no one here has cancer. Many years back we didn't even know what cancer was. Our quinoa makes us strong and we don't suffer any illness.

Varieties

Now they're lost. Now we all harvest white quinoa only: Salcedo INIA and Kancolla because those are easier to commercialise. Many years ago our *aynoka* was very colourful: yellow, red, grey, green, all the colours, it was beautiful! Our quinoa *aynoka* was very colourful. As buyers are more interested in white quinoa, and many institutions have worked hard with white quinoa saying "white quinoa is better" and in the end we've left our varieties and we only grow now white quinoa. Little by little, the price of coloured quinoas such as Qoito and Pasankalla are increasing.

There are quinoas that are much nicer!! I remember the ones my mum used to grow, especially for quispiño and tajte. They were delicious! It was a yellow quinoa; the panicles were red, but the grain is yellow. We called it vilakayunqeyo, but I think now people call it vituya, and there are hembra vituya, macho vituya, orqo vituya. My mum had those and they were beautiful! I still remember its great taste!

In the past, the different varieties were associated to special dishes. For pesque there was another quinoa variety, we called it cohiro, but now there are new names, I don't know. We had this variety that was exclusively for pesque, for a delicious pesque (emphasis on the fact that it has been lost), with very special grains. Nowadays people prepare pesque with any variety, and sometimes those are not the same!

For taqte (toqtochi) we used the Qoito variety. That, plus our potatoes and chuño was the best meal we could have. For mazamorra we used another variety as well. Our quinoa use has changed a lot. Nowadays people use any variety for any dish. There was a nice varieties management.

These days I only see white quinoa. I rarely see coloured varieties.

Regarding the seeds, in the past, before the harvest, we would first choose the largest panicles with bigger grains and keep them apart to use them as seeds for the next season, but nowadays we don't make any selection, we mix everything. We are now lazy.

I want to talk about something that is very important. In the *aynokas* we knew which area would give us sweet potatoes or bitter potatoes. The type of soil determined which variety we had to plant, we had that knowledge also for quinoa. For example it's difficult to grow the Qoito variety right here; people had to go to colder areas. But now people plant white quinoa anywhere. That's the problem. We have lost our traditional knowledge. Our grandparents were experts on that, they knew the soil very well for each variety. They knew if the soil was too humid, too cold, sandy, etc.

Rituals

In each *aynoka* there was a special place to make our ceremonies, but everything has disappeared now. For example, look at that small hill (pointing), in that place we used to do our offerings for the land; the ceremony was beautiful, but it wasn't simple: a special person, a wise person had to do it, the one who's successful on his farm. For example, if someone does the land offering for this season and next year we see that he has good results, then the same person must keep on doing the ceremonies in each season because it means the *Pachamama (mother earth)* is accepting that person; if there's no frost or hail, our crops will grow without problems because of this person. But those *Yatiris* (wise men) don't exist anymore. Also, as we now use tractors, those special places where we used to do our ceremonies are gone. In the past those placed were sacred and respected by all of us. As time passes by things change; we had such beautiful traditions and knowledge that were part of our lives, but now we've lost everything. No one cares. And even when some of us who know more talk about them, people say: "hey! What are you talking about? Those are old stories! Let's try something new!" many of them don't understand anything, but some of us still know that our traditional knowledge was the best technology and it was very well-implemented and it took into account all the characteristics of our land. We respected nature and that's why there were no illnesses, no plagues. Also, in the past, we tried to reduce the effects of hail. A well-organised community can easily control hails' effects. Even frosts' effects can be controlled. Of course, if there were continuous frosts we wouldn't be able to control them. I remember that when I was young, I saw what the community was doing to control hails and frosts. It was well-organised, so it was easy. Everyone was very active in many communities in this area. This happened in February, right after Candelaria. Our potatoes *aynoka* of 80 ha was perfect, with beautiful flowers, but we knew the frost was about to start, so people came out from each house, all of them. Nowadays we know that frosts start EN LA MADRUGADA (4-5am), but in those days we used to stay on the *aynokas* all night long making fires. During that week we didn't sleep because all of us were taking care of the *aynoka*. Only now we know we could have slept all the night and then wake up early. We were there with our woods and our chakalladas (typical dance), taking care of our *aynoka*. In the morning we saw that the frost didn't have any effects on our potatoes; they were perfectly fine, and we did that for a week! Only some leaves were burnt, but we managed to save our potatoes.

For hail we would also take action. Whenever we had it, anyone could let the community know by using a pututo and we would all run to try to do something. It was harder to control hails, but now it's easier with fireworks, but there's a specific moment in which you have to do it.

Nowadays people don't act as a community. We have become too individualistic. There's selfishness and envy. I think it's because of education. We were not taught about our traditional knowledge. It's only in the last few years that I noticed that education has changed a bit; they're teaching kids about the reality of communities. If we had had this change in education before, we wouldn't have lost our traditional knowledge.

The education system had always been focused on neglecting our knowledge and on admiring foreign things. Teachers would tell us that our knowledge was only a legend; (NOS HAN TRANSTORNADO LA CABEZA). Because of the education system we felt we were worthless, that our grandparents' knowledge was useless. Only the ones with money know. The education was just like that. That's why we are now individualistic and even families are not as close as they used to be. Also we envy each other but it shouldn't be like that. If we want to develop this area, we have to work as a group, we won't achieve anything individually. LA EDUCACIÓN ES LO QUE NOS HA FREGADO. Education has taught us silly things.

But, as I was saying, there has been a favourable change 2 or 3 years ago. Now our children show some concern. They ask about bio-indicators: "how do you know we will have a bad year?" They also ask about the varieties of the crops, about our *aynokas*, the history of the community, why we have a community, etc. Teachers nowadays work on those topics. Kids now show concern about their origin. They ask "who am I?", "why do I have this name?", "what's our origin?", "what's the history of our community?", "why do we have such a variety of dances?", etc. These details will help for sure.

For example, I admire Bolivia. They haven't lost their traditions at all. What's more, they're trying to recover their traditional knowledge. I think that can also help us because I feel that somehow Bolivia is having some influence here, in terms of INTERCULTURALIDAD, bilingual education and so on. We can also recover our knowledge and put it into practice.

Annex 5: Sample menus

Ana's household

	Wed	Thu	Fri	Sat
Breakfast: 6:30	"Caldito": Soup including *chuño* and oregano plus - A small piece of alpaca meat - Barley - Potatoes Eucalyptus tea	"Caldito": Soup including chuño and oregano plus - A small piece of alpaca meat - Carrots - Mote (a type of maize) - Potatoes Coffee with sugar	"Caldito": Soup including chuño and oregano plus - A small piece of alpaca meat - Rice Paico tea	"Caldito": Soup including chuño and oregano plus - A small piece of chicken - Quinoa - Carrots - Pumpkin
Lunch: 12:00	Pesque Eucalyptus tea	"Segundito": Olluco with potatoes, egg and rice. Garlic, onion, tomatoes and some spices also. Paico tea	"Segundito": Chuño with fried potatoes and rice. Garlic and onion also. Quinoa juice	Pesque Eucalyptus tea
Snack	Cookies	Fried bread	Bananas	Apples
Dinner: 18:30	Lunch and breakfast leftovers Paico tea	Lunch and breakfast leftovers Eucalyptus tea	Lunch and breakfast leftovers Paico tea	

Laura's household

	Thu	Fri	Sat	Sun
Breakfast: 6:00	Mazamorra Muña Tea "Caldito": Soup including: ○ Broccoli ○ Onion ○ Tomatoes ○ Potatoes ○ Celery ○ Carrots ○ Chuño ○ A small piece of chicken	Fasting	Mazamorra Muña Tea "Caldito": Soup including: ○ Onion ○ Tomatoes ○ Potatoes ○ Celery ○ Carrots ○ Chuño ○ A small piece of chicken	Muña Tea "Caldito": Soup including: ○ Onion ○ Izaño ○ Tomatoes ○ Potatoes ○ Celery ○ Carrots ○ Chuño ○ A small piece of chicken
Lunch: 12:00	Chaco Potatoes (watia) Cheese	- 3 different types of soup - Pesque - Quispiño - Quinoa graneada - Quinoa mazamorra - Alpaca meat - Onions Salad	"Caldito": Soup including: ○ Garlic ○ Onion ○ Tomatoes ○ Potatoes ○ Celery ○ HABAS ○ Eggs "Segundito": Main dish including:	

			○ Rice ○ Garlic ○ Cauliflower ○ Oca ○ Potatoes ○ Tomatoes ○ Spices Onions Salad Muña tea	
Snack	Mandarins Cookies		Mandarins Bread	
Dinner: 18:30	Muña tea Caldito": Soup including: ○ Izaño ○ Broccoli ○ Oca ○ Tomatoes ○ Potatoes ○ Celery ○ Carrots ○ A small piece of chicken	Leftovers from lunch	Muña tea Caldito": Soup including: ○ Izaño ○ Oca ○ Tomatoes ○ Potatoes ○ Celery ○ Carrots ○ A small piece of chicken	

Lina's household

	Mon	Tue	Wed	Thu
Breakfast: 6:00	Muña Tea "Caldito": Soup including: ○ Onion ○ Tomatoes ○ Potatoes ○ Celery ○ Carrot	Eucalyptus Tea "Caldito": Soup including: - Chuño - Onion - Carrots - Quinoa - Potatoes - Pumpkin - Rice	Muña Tea "Caldito": Soup including or "chuño" - Oats - Carrots - A small piece of alpaca meat	Tea "Caldito": Soup including or "chuño" - Chuño - Carrots - A small piece of alpaca meat
Snack: 11:00	Grapes	Grapes	Peanuts	
Lunch: 12:00	Toqtochi Potatoes Muña Tea	Oca Toqtochi Eucalyptus Tea	Chuño Toqtochi Muña Tea	
Dinner: 18:30	Toqtochi Muña Tea	Toqtochi Eucalyptus Tea	Toqtochi Muña Tea	

Annex 6: Activities required to consume quinoa

This is the process quinoa goes through when a household wants to consume a small amount. In this case, no *huajtana* or *jaucaña* were used, but only hands (step 2). The rest of the steps are similar to the ones already described.