Wageningen University & Research Center
Department of Social Sciences
Management Studies / Business Administration

MST-80433 Thesis Management Studies

THE QUINOA INDUSTRY

Opportunities and constraints to increase value adding activities in Bolivia

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ABSTRACT

Quinoa is a native grain from the Andes region. Bolivia is the world's 1st exporter of the Inca grain, but approximately only 3% are exported as processed goods, thus, the country loses a share of the revenues that are in the processing stages. The main goal of this research is t*o provide recommendations to the Bolivian SMEs to upgrade the quinoa value chain, by analyzing the end market opportunities, the enabling business environment, the governance structures and the costs and benefits.* To reach this objective, the research strategy was based on a literature review and an empirical research. The former comprised the following theories: upgrading in value chains, governance mechanisms and cost benefit analysis. The empirical stage included a desk research to characterize the quinoa value chain and to describe the macro environment in which the SMEs operate. Afterwards, based on the theories questionnaires were elaborated and answered by the different channel members in the quinoa value chain.

The Bolivian quinoa value chain is organized as follows: producers, brokers, farmer associations, Bolivian exporters and processors, overseas processors and wholesalers. The analysis revealed that the end market opportunities are encouraging, consumers are growing more concerned about health and the environment, which propels quinoas main market, the organic sector. Processors and wholesalers in Europe and North America see high potential, and are willing to support upgrading initiatives. The enabling business environment is characterized by low government support, but it is slowly growing. International free trade agreements exist, which are favorable. Inter-firm cooperation is not strong in the horizontal linkages between the Bolivian SMEs; the focus is on improving the primary sector. The, vertical linkages, on the other hand are characterized by long-term relationships.

The research shows that there is and will continue to be a growing demand for quinoa products. The recommendations for SMEs that wish to upgrade are to concentrate in the organic segment, diversifying the current assortment of packed quinoa grain in the market, by offering different sizes, varieties, mixes, etc. SMEs should exploit the long relationships fostered with the lead firms, as they are willing to provide assistance (technical, financial and training) for new products. With other firms, tying agreement clauses are an option; this way they can continue to sell grain but also secure the sale of other products they manufacture. The Chamber of quinoa should work to unify the sector and pressure the government to provide more support, in exchange for the sector raising employment over time.

Key words: Quinoa, value chain, upgrading

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CHAPTER 1 INTRODUCTION

1.1. Quinoa

Bolivia is a landlocked country located in the center of South America. It has a population of close to 10,500,000 people (INE, 2010), 59% are moderately poor and 32.7% are extremely poor (Prensa Latina, 2010). A large percentage of the latter live in the Altiplano, this region presents very extreme climatic and living conditions.

The Altiplano is an ecosystem which is located between 3.600 and 6.000 meters of altitude, it receives only 200 to 400 mm of annual rainfall (Cabolqui, 2009), has extreme temperatures and low fertility soils, consequently few crops are apt to grow there. One of the few crops that can be grown on the Altiplano is quinoa (*chenopodium quinoa*). This grain is native to the Andes region of Bolivia, Peru, Chile and Ecuador. Quinoa means "mother grain" in the Inca language, and it has been consumed for over 5,000 years. The main growing areas of quinoa in Bolivia today are shown in Figure 1a, the plant and grain can be observed in figures 1b and 1c respectively.

Figure 1 Quinoa

a. Quinoa growing region

b. Quinoa plant

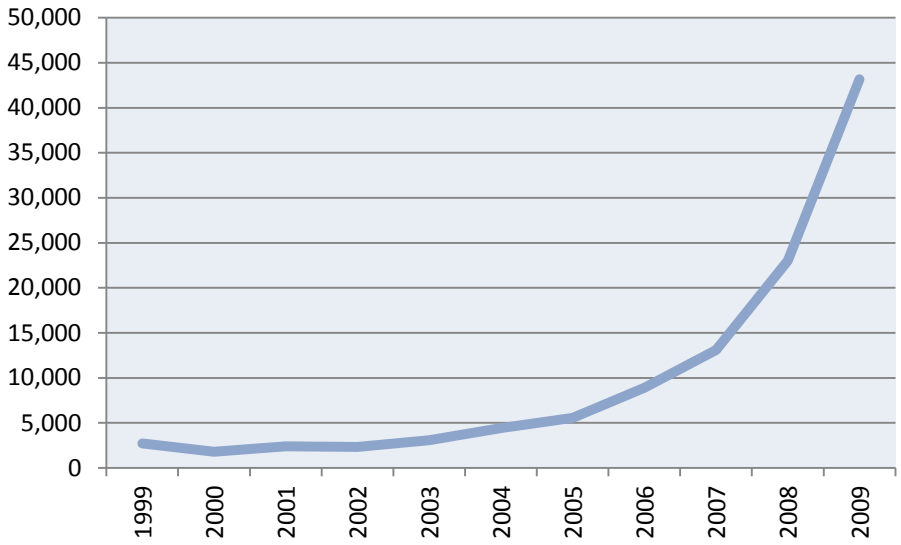
c. Quinoa grain

Approximately 80% of the 70 thousand farmer units that produce quinoa in the Northern Altiplano are small scaled farmers, many of them subsistence (Brenes et al, 2001), they grow quinoa in an irregular way and in small parcels of land, of around 1/3 of a hectare. Only 13 thousand produce permanently to sell in the markets, this represents only 19% (Brenes et al, 2001). By contrast, the southern Altiplano region has around 15 thousand producers, whose average production area is between 3 to 10 hectares, with 60% of their harvest going to the market (PROINPA, 2004 cited in Raynolds et al, 2007). The majority of quinoa exports come from this region, generally with organic certification and representing 9 to 17 % of Bolivia's total volume (Raynolds et al, 2007).

For the farmers in the Northern Altiplano region the crop is especially beneficial. It has low production costs, and does not require complex infrastructure for the washing, drying and storage processes; it needs low labor and does not require a lot of water; additionally the stems and remainings of the plant can be used for fuel and animal feed (Brenes et al, 2001).

It is only from the 1990s that the international markets have taken interest in quinoa, because of its' high nutritional value: it is high in protein, supplying a balanced composition of the essential amino acids that makes it comparable to casein (milk protein) (FAO, 1995). It is in this decade that exports have really grown, as well as the lands under cultivation. The main markets today are: U.S.A., Germany, France and the Netherlands; these countries account for approximately 80% of the exports. As can be observed in figure 2 quinoa exports have increased considerably in the past ten years. As a result of this rise in volumes, prices for quinoa have also increased, today small and medium sized farmers get a better price and their living conditions have improved.

Figure 2 Evolution of quinoa exports
(FOB sales in thousands of $us)



Source: INE, 2010

Approximately 90% of the official quinoa exports are organic (Lanza et al, 2006), an informal market to Peru also exists, where it is sold in the local markets and also repacked or processed and exported as Peruvian product. According to Bolivia quinoa expert See Wan Lee, roughly 3% of quinoa exports are processed products; most suffer only simple transformation processes in the form of flakes and insufflated quinoa. An even smaller percentage is transformed into more complex products like pastas and snacks.

Because of the continued growth that the exports are experiencing and quinoas unique characteristics the chain has the potential to become and remain competitive in global markets. The creation and strengthening of firms in the sector can bring many benefits to the country, as SMEs are considered to be an engine for growth. The benefits of a vibrant SME sector include: the creation of employment opportunities; the strengthening of industrial linkages; the promotion of flexibility and innovation; and, the generation of export revenues (Harvie and Lee, 2001; Lerner, 2002; Mensah,1996).

1.2. Problem definition

Quinoa consumption is growing considerably in the more developed countries, where there is an increasing interest for healthy and environmentally friendly products from conscious consumers. Quinoa adapts well to these markets, and currently Bolivia is the leading country in providing the world with this Andean cereal.

However, Bolivia is mainly a raw material supplier, as mentioned before only 3% of quinoa production is being exported processed. Currently value adding takes place overseas, mainly by European and North American processing companies. Thus, Bolivia loses a large share of the value which is added during the processing stages, and the profits remain in the developed countries.

These are the reasons why it is necessary to understand the opportunities and constraints that exist to upgrade the quinoa chain. By understanding them, and taking advantage of the existing situation of export leaders, more value adding activities can take place in Bolivia.

To identify the upgrading opportunities and constraints I will use the value chain framework, the USAID developed and uses this approach to set upgrading strategies for SMEs. The framework delimits the scope of analyses to the following factors affecting value chain competitiveness: end market opportunities, enabling business environment and inter-firm cooperation through vertical and horizontal linkages (Kula et al, 2006). With this in mind, the objective and research questions are formulated below.

1.3. Research objective

To provide recommendations to the Bolivian SMEs to upgrade the quinoa value chain, by analyzing the end market opportunities, the enabling business environment, the governance structures and the costs and benefits.

1.4. Research questions

General research question

What are the conditions present in the structure of the Bolivian value chain that allow and constraint SMEs to upgrade?

Specific research questions

1. How are the channel members in the quinoa value chain organized?
2. What are the end market opportunities for quinoa products?
3. What are the characteristics of the business environment in which SMEs operate?
4. What are the current governance structures in the quinoa value chain?
5. What are the costs and benefits of upgrading?

1.5. Structure of the report

The report is divided into 6 chapters: Introduction, literature review, methodology, results and discussion and recommendations.

1. Introduction: This chapter provides an introduction to the quinoa chain, the problem statement, research objective, research questions, and definition of concepts.

2. Literature review: Three theories are reviewed, these are: upgrading in the value chain, governance mechanisms (transaction cost economics) and cost benefit analysis. The literature is assessed and relevant concepts are identified. A theoretical framework is drawn and serves as the basis for the analysis.

3. Methodology: The research strategy is described in this chapter. It includes a desk research and a case study of the quinoa value chain, where the units of study are the channel members (farmer associations, Bolivian SMEs that export processed good, European and North American processing firms and wholesalers). The data was collected from the research units through questionnaires and interviews.

4. Results and Discussions: The analysis of the results is described in this chapter, information from the desk research and the answers from the questionnaires are used to evaluate if the conditions for upgrading exist.

5. Recommendations: On the basis of the results and discussions recommendations are given to the Bolivian SMEs who wish to upgrade.

1.6. Definition of concepts

Important concepts for this research are defined in this section:

- *Quinoa*: Native plant of the Andes region, grown for its edible seeds
- *Processed products/value added products*: Products obtained from quinoa, except packed quinoa grain
- *Upgrading*: Innovating to increase value added
- *European market*: This research focuses on France, The Netherlands and Germany, as they are among the top importers of Bolivian quinoa

CHAPTER 2 QUINOA VALUE CHAIN

The objective of the present chapter is to give an overview of the quinoa value chain. The major importing countries of Bolivian quinoa grain are identified; the current distribution channel through which quinoa is commercialized will be explained, emphasizing the channel for industrialized quinoa. Also, a description of the products that are currently manufactured in Bolivia is given.

2.1. Quinoa characteristics and main markets

Quinoa is the native cereal of the Andes; it was the staple food of the Inca civilization and has been consumed for thousands of years. The Altiplano regions and high valleys of Bolivia have the optimum conditions for the cultivation of the crop. The grain has unique characteristics because of its high protein content, which varies between 13 and 20% depending on the variety; it exceeds other grains like corn, rice and oats, which range from 7 to 11% (IBCE, 2010). Additionally, it is rich in minerals and vitamins and has a balanced composition of essential amino acids, which is superior to wheat, barley and soy, and can be compared to that of milk protein (Risi, 1993).

In the 1980s, studies by the FAO, the American Academy of Sciences, and the National Administration of Space and Aeronautics (NASA) classified quinoa as a "complete" food important for food safety; NASA later adopted quinoa in its' food program increasing the grains positive image (Raynolds et al, 2007). Later local public research institutions began to publicize the multiple properties of quinoa, not only nutritional but also health promoting, since it's free of fats and gluten (Raynolds et al, 2007).

Bolivian quinoa mainly began being commercialized as organic and fair trade thanks to the efforts of GEPA, a German company specialized in distributing fair trade products. In 1989 GEPA signed a contract with ANAPQUI (National association of quinoa producers), and stimulated the association to combine social and ecological quality criteria, that is, to produce organic quinoa to increase exports to the European solidarity market (Laguna, 2002 in Raynolds, 2007). All these "qualifications": highly nutritious, organic and gluten free, made quinoa a perfect fit for the new market trends, whose consumers have concerns about social questions, the preservation of the environment and health (Caceres, 2005; Fonte, 2002 cited in Raynolds, 2007).

Through these initiatives is that quinoa consolidated itself in organic and the fair trade markets, which are rapidly growing in the developed countries. Another important niche market for quinoa is the gluten-free one; exports in this area are small but offer potential for growth. Gluten is a protein found in grains like wheat, rye and barley; celiac disease is the intolerance to this protein. People who suffer from celiac disease should not eat most grain, pasta, cereal, and many processed foods. But, they can substitute wheat flour with quinoa, soy, rice or bean flour. The disease mostly affects people with European descent (especially northern Europe), so exports for these products are concentrated in the USA and Europe (NDDIC, 2008).

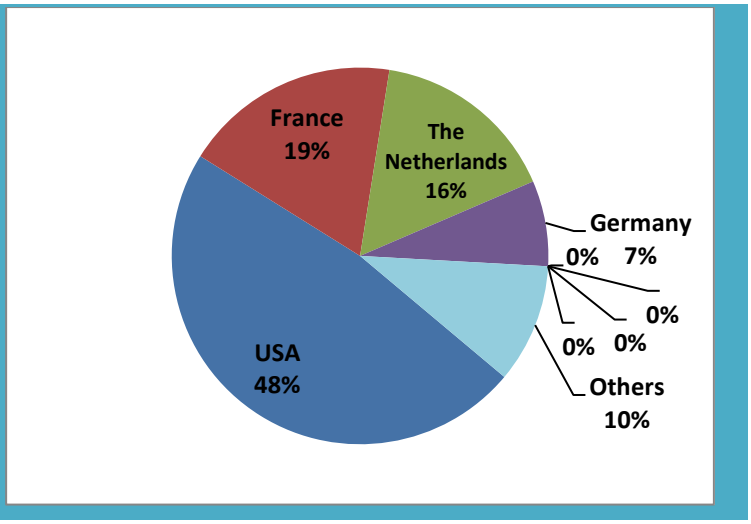
2.2. Major importing countries

Bolivia generates 46% of the world production, followed by Peru with 30% and the USA with 10% (Los Tiempos, 2011). For 2009 Bolivia reports a production volume of 29.000 TM (INE), from which 51% is exported generating a value that exceeds $us 43 million (Instituto Boliviano de Comercio Exterior - IBCE, 2010). Approximately 60% of the production is from the Real variety and the exports over the last years have been around 4.000 metric tons (IBCE, 2010). Quinoa Real gives the country a comparative advantage, as this particular variety only grows in Bolivia in the Salar region. It is the most popular because of the big size of the grain (between 1.8 mm to 2.5 mm) and higher nutrient content, these characteristics have earned it preference among buyers.

Quinoa exports in the year 2000 where around 1.400 tons, with a value of 1.8 million dollars, and in 2009 exports reached over 40 million dollars, being the main markets the USA and the European Union (Los Tiempos, 2011). Table 1, shows the main export destinations of quinoa grain for 2009. We can observe that the USA accounts for approximately 48% of total quinoa grain exports, and France, The Netherlands and Germany together account for 42%. The growth in all the countries is significant; although France and the Netherlands had the lowest growth in the years presented, they still represent very high volumes and are key importers.

Table 1 Major importing countries of Bolivian quinoa grain for 2009

Country	Value (thousands of $)	Volume (tons)	Growth 2005-2009 (%)
USA	19,381	6,517	91.98
France	7,772	2,540	78.72
The Netherlands	6,357	2,188	79.88
Germany	3,058	1,002	90.13
Canada	1,200	403	95.73
Israel	1,156	384	84.63
Brazil	1,050	359	95.20
United Kingdom	788	250	90.30



Source: IBCE, 2010

2.3. Processing industry in Bolivia

The transformation of quinoa into finished goods with added value is an incipient industry in Bolivia, few companies are dedicated to this and the assortment of the products is rather slim. As stated before, approximately only 3% of quinoa is exported with added value. The main value added products produced are:

- *Packed quinoa grain*. It is the grain obtained from the process of removing the saponin (bitter coating around the seeds); it is then packed into different sized packages for direct consumption. The grain is usually packed in boxes or polyethylene bags. The grain can be cooked, like rice or couscous.

- *Flour.* It is the product that results from the milling of quinoa grain; it is used to increase the nutritional value of pastas, breads, cookies, etc.

- *Flakes.* Product obtained through a process of lamination of the grain, the flakes can then be consumed in a manner similar to oats: for breakfast with milk or as an ingredient in energy bars and muesli.

- *Insufflated quinoa (popcorn).* It is obtained from applying high pressures to the grain; it is then used as an ingredient for muesli, cereal bars, candies, sweets, etc.

The process of removing saponin is already considered as value adding, as it can't be consumed without this process and a better price is obtained through it. Washed quinoa grain, saponin free quinoa, is at the same time the main ingredient for many other types of products, like flour, flakes and puffs. However, the more 'sophisticated' products than can be obtained, like cereal bars, candies, breakfast cereals are mainly elaborated by overseas companies.

Nine leading companies in the quinoa sector have joined and created CABOLQUI, the Bolivian chamber of Quinoa Royal and organic products exporters. It is a non-profit organization that aims to develop all the active participants in the quinoa chain and other organic products by promoting organic production, social and environmental responsibility and the development of small farmers (Cabolqui, 2009). CABOLQUI members export grain and processed goods and today they represent approximately 70% of the nation's quinoa exports (Cabolqui, 2009). The remaining 30% of the exports is represented by other smaller SMEs and by farmer associations, the main ones being ANAPQUI and CECAOT.

Six of the nine CABOLQUI members export grains and/or perform simple added value processes like flour, flakes and insufflated quinoa. More complex products, done by only three companies, are gluten free pastas, burguers, pudding and flan; although with increasing exports the volumes are small compared to the first group. Table 2 shows the companies that form CABOLQUI and the products they export, which include grain and processed goods.

Table 2 CABOLQUI members

Company	Products
Andean Valley S.A.	Pasta, burguer, pudding, flan
Coronilla S.A.	Pasta, snacks, breakfast cereals
IRUPANA Andean Organic Food S.A.	Grain
Jatary S.R.L.	Grain
LATCO INTERNATIONAL	Grain
QUINOA-BOL S.R.L.	Grain
Quinoa Foods Company	Flakes, flour
SAITE S.R.L.	Grain
SIMSA	Grain, flour, precooked flakes, breakfast cereals

Source: Cabolqui and companies websites

2.4. Distribution and commercialization

Bolivian producers and exporters of quinoa grain provide their product to importers of the EU and North America, who distribute to processors and/or packagers (IBCE, 2010). Processed products are also commercialized this way; specialized importers in the North already have positioned brands and market knowledge and have invested greatly in the promotion of the products (IBCE, 2010).

For example, CORONILLA S.A., company specialized in the production of gluten free pastas, sells their products to specialized distributors in Germany, Rapunzel and GEPA. These companies have established stores and many years of experience distributing organic, health and fair trade products.

Figure 3 illustrates the distribution channels used for the commercialization of quinoa grain and processed products. An explanation of each chain member is provided below:

Producers: Farmers located in the Altiplano and Interandean valleys of Bolivia

Broker/Agent: Purchase and consolidate orders

Farmer associations: Associations that gather, remove the saponin[1], clean[2] and select the grain of many small farmers, they usually have cleaning facilities

Exporter/Processors: SMEs that clean and pack grain and/or process them into finished goods. They are located mainly in the cities of Oruro, La Paz and Cochabamba.

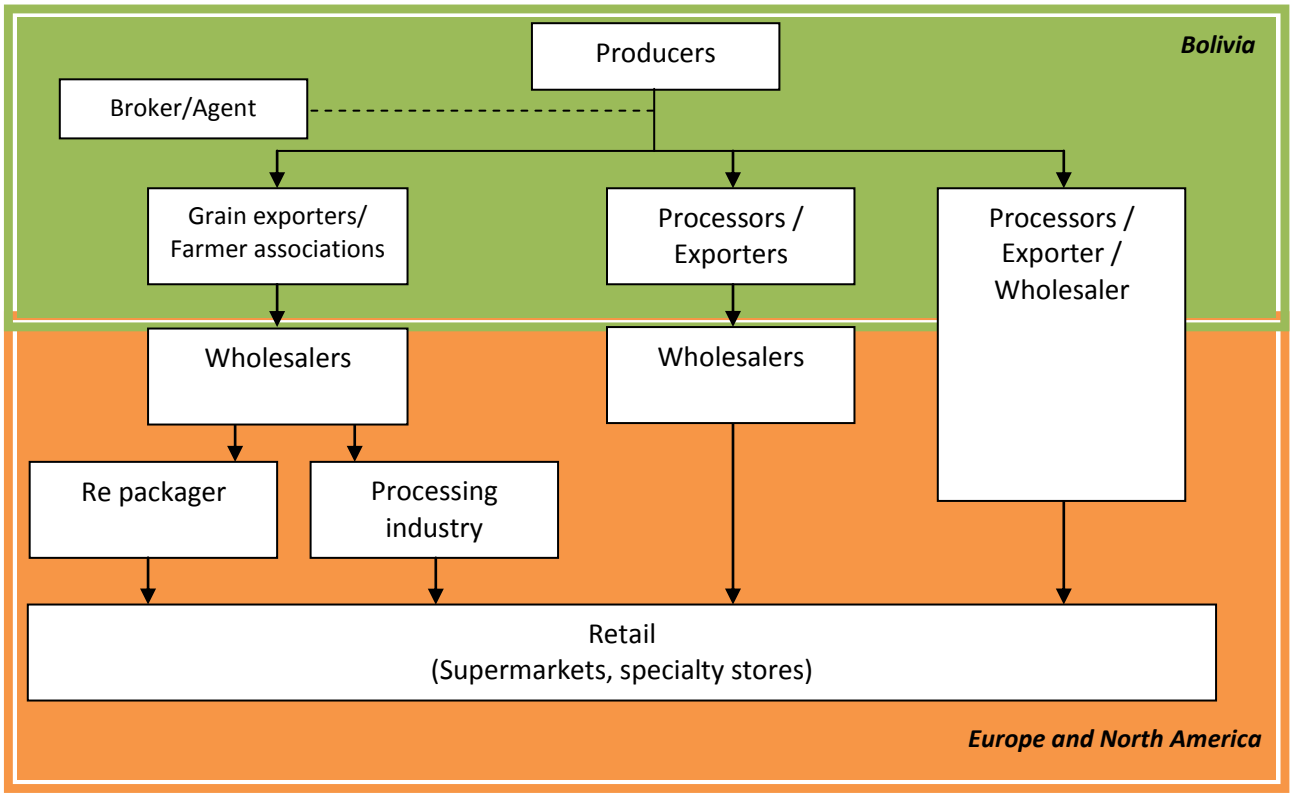
Some processors commercialize their products only in the local markets, and a fewer number transform the product and export it to wholesalers overseas, who offer the products throughout the world.

Companies that transform the products in Bolivia buy quinoa directly from the producers, often from farmers who produce only for them.

Overseas processors:	Companies located mainly in Europe and North America who produce a variety of products.
Wholesalers:	Located in Europe and the USA, they distribute products in their own markets

Vertical integration also exists in the quinoa value chain, a French company, Euronat, interested in quinoas properties began importing the grain and transforming it in Europe. It commercializes the products through the supermarket chain Carrefour. In 1996, Euronat created its Bolivian counterpart, called Jatary, which was in charge of implementing organic contracts with the producers, besides the gathering, saponin removing, cleaning and export (Laguna, 2002 in Laguna et al, 2006). Later, another French company followed by creating Quinoabol, subsidiary of Markal. Both companies stated that the reason for this was bad quality of the grains and the unpunctual deliveries of the Bolivian farmer associations (Laguna, 2002).

Figure 3 Bolivian Quinoa Distribution channels



Source: Based on Lanza et al, 2006

In most organic markets, a few specialized importers/distributors tend to be dominant in the distribution structure. The main distributors and processors in the EU and the North American market have been identified and are presented in table 3. These companies were identified through web searches of quinoa products, and through the articles published by Laguna, who has extensively studied the quinoa chain.

Laguna (2006) states that Euronat and Markal have developed a vast distribution network to organic stores in France and in Western Europe, being responsible for a large percentage of the exports to that country. An important volume imported by The Netherlands, also goes to Markal. Almost all the fair trade-organic production passes through GEPA, fair trade house that distributes products to Germany and Western Europe. In the United States, Quinoa Corporation imports 50% or more of the grain destined for this country.

Table 3 Main European and North American wholesalers and processors

Company	Country	Type
Rapunzel	Germany	Wholesaler
GEPA	Germany	Wholesaler
Gogo quinoa	Canada	Wholesaler
Windmill organics	UK	Wholesaler /processor
Quinoa Corporation	USA	Processor
Markal	France	Processor
Euronat	France	Processor

2.5. Processed and non processed quinoa prices

The price for organic quinoa in 2010 was $US 3.1/kg (Instituto Boliviano de Comercio Exterior 2010), it reached its highest in past years with $US 3.6/kg. IBCE also indicates that for the year 2009 the Price of conventional quinoa grain (2.3 $/KG) was five times higher than soy (0.4 $/kg), Bolivia's main agricultural export product. Income generated by the production of quinoa can be lower than other crops, but it's important to point out that quinoa is produced in places where other crops don't prosper.

To illustrate the difference in prices that more sophisticated products get in the markets, I randomly selected products found on web pages of companies who commercialize them. The prices per weight unit were all converted to Euros per kilogram, for comparison purposes. The differences can be observed in table 4. Spaghetti with 25% quinoa content sells for 10.56 €/Kg in the UK market, this is almost 5 times the price paid for organic quinoa.

Table 4 Quinoa products

Product	Organic quinoa	Organic quinoa flakes (100%)1	Rice quinoa spaghetti (25%)1	Organic rice cake with quinoa (12.5%)1	Quinoa dried cream soup2
Price per pack	1 Kg – $US 3.10	500 g pack – £ 3.99	250 g pack – £ 2.39	100 g pack – £ 1.09	130g pack- CA$4.99
€/Kg	2.14	8.84	10.56	12.00	27.46

[1]http://www.goodnessdirect.co.uk
[2]http://www.gogoquinoa.com

2.6. Concluding remarks

The quinoa market is characterized as a rapidly growing market; Bolivia is the leading country in production and exports of quinoa grain. This chain is characterized as being buyer driven, North American and European consumers present increasing interest towards health, the environment and fair trade, and this is where quinoa has found its market, and they offer higher incomes for the producers.

Quinoa grain and processed products are mainly distributed through wholesalers located in the Northern markets. The wholesalers are specialized in their markets, and have established brands and market knowledge. The main countries currently importing are: USA, France, Germany and The Netherlands. Also in Canada and the UK important processing firms have been identified. In often cases they dominate much of the market.

Value adding that takes place in Bolivia is mainly in the form of packed quinoa grain, flour, flakes and insufflated quinoa. These serve as ingredients for other more elaborated products. Gluten free pastas, breakfast cereals, burgers, pudding and flans are some of the products being elaborated in Bolivia; but, they represent only a small fraction of the volumes being exported. These value added products receive much higher prices in the end markets, the higher costs associated with producing these products is a factor that should be evaluated.

CHAPTER 3 LITERATURE REVIEW

This chapter provides a description of the theories used in this study. First the concept of upgrading in value chains is explained. By using the framework of analysis developed by USAID and from the experiences of other countries and in different value chains the conditions that lead to upgrading are identified. The second theory reviewed is governance mechanisms (transaction cost economics), which gives insight to the types of vertical linkages that favor upgrading for SMEs. Finally, overviews of the elements that must be taken into account to conduct a cost benefit analysis are given. After all the theories are reviewed the theoretical framework is constructed and illustrated in section 3.5.

3.1. Upgrading

The majority of the poor, throughout the developing world, earn their incomes through micro and small enterprises (Parsons, 2007). This is why it is important for SMEs to remain up to date and competitive by responding to market opportunities, this can be achieved by "upgrading" (Parsons, 2007).

Pietrobelli and Rabelloti (2004) define upgrading as: *innovating to increase value added*. Value adding can be reached by an organization by entering higher unit value market niches, entering new sectors or undertaking new functions, this shift of activities involves higher value added and higher barriers to market entry. By improving their own products and processes a firm can remain up to date in international markets (Pietrobelli and Rabelloti, 2004).

Kaplinsky & Morris (2000) and Humphrey & Schimtz (2000) identify four forms upgrading, which are described below:

- Process upgrading: Transforming inputs into outputs more efficiently, either within a firm, or as a result of a series of linked actions in the relationships between firms.
- Product upgrading: Moving into more sophisticated product lines. This can occur either within a firm, or as a result of a series of linked actions in the relationships between firms. Dunn et al (2006) define it is a qualitative improvement in the product, making it more desirable to consumers, thus being able to command a higher final price.
- Functional upgrading: Acquire new functions in the chain. Changing functional positions, by adjusting activities undertaken within a particular link, or moving to activities taking place in other links.
- Channel upgrading or Intersectoral upgrading: Moving out of the value chain, into a new value chain. This occurs when a firm applies the competence acquired in a particular function of a chain in a new sector. For example knowledge acquired in producing televisions might be used to make monitors and other computer equipment.

It is important to point out that there is often a connection between product upgrading and other types of upgrading. For example, between product and functional upgrading, the creation of direct relationships between producers and exporters facilitates the flow of information about the type and quality of products demanded in end markets (Dunn et al, 2006). This is why it is important to look into conditions and examples of all the types of upgrading. However, this research will not look into examples of channel upgrading. The use of knowledge acquired in the different functions of the quinoa chain will not be assessed for other sectors, or vice versa.

Dunn et al (2006) state that firm owners' upgrading decisions can be considered a dynamic response to the structure of firms in a given value chain. The structure is characterized by the following elements: end market opportunities, enabling business environment and inter-firm cooperation through vertical and horizontal linkages (Kula et al, 2006). This framework of analysis is used by USAID to set upgrading strategies for SMEs. The elements of the framework will be discussed in this section and experiences from other countries studied.

Successful experiences of upgrading are given by Turkey and East Asian countries in the apparel value chain. These economies were first merely assembling garment with imported inputs. Then they were able to move to full package supplying, which is a form of subcontracting where a supplying firm makes products specified by the buyers who own brand names and distribute the products. Today some very innovative firms have even moved to original brand name manufacturing, in which they design and sale their own brand products at national and international levels.

Because of the success of these upgrading experiences, most literature refers to these cases. These economies experienced mainly functional upgrading, as they shifted positions in the value chain. This research looks into an agro industry chain, where not many studies have been carried out. The empirical findings regarding these types of chains in literature make reference to small upgrades in product or process, such as acquiring certifications, no literature has been found on functional upgrading from raw materials suppliers to processing new products. Nevertheless, the experiences of other chains will be used to see which are applicable to agro business chains such as the quinoa chain, where the aim is to go from selling raw materials to selling processed goods, with higher value added.

3.1.1. End market opportunities

When end market opportunities are strong, firm owners innovate in response to the incentives provided by higher profits and expectations of continued future sales (Dunn et al, 2006). In this sense, the economic environment in which a firm operates affects its level of success, because it affects capital availability and cost and demand (Thompson, 2002). When the markets are of international nature the firms also need to consider the state of the trading economy in the short and long terms, such as long-term prospects for the economy Gross Domestic Product (GDP) per capita, as economic change can have a major impact on firms' behavior.

In the case of the quinoa chain, the main markets are in the Northern hemisphere, mainly USA, France, Netherlands and Germany. In these countries the Inca grain is commercialized through organic and fair

trade channels. These markets are growing as lifestyles of the consumers are changing, as they are more concerned about social factors, health and the environment. Understanding the trends, in terms of growth and demand, in these markets will help understand the potential of the industry.

Below, the case of the wine value chain in South Africa and other findings from Dunn et al. In these cases the end market opportunities allowed the chains to upgrade.

Wine value chain in South Africa (Ponte and Ewert, 2009)

The premise of this article is a broader concept of upgrading, which includes any trajectory or strategy that is likely to yield a positive impact on developing country firms. These trajectories could be volumes and economies of scales, rather than increasing product complexity. Below the ways in which South Africa upgraded its product is explained:

- Varied portfolio, not necessarily a large number but rather products with different specifications For South Africa it meant wider range of prices, quality, alcohol content, varietals

- Certifications, sometimes they are required by some markets and obtaining them is considered process upgrading

- Economies of scale, can be obtained from simpler sources such as aggregating orders to increase the volume of sales, for example creating a single export marketing agency for a variety of wine producers

Through the wine upgrading experience of South Africa, we get clear examples of product upgrading. It is important to point out that the type of product upgrading in South Africa was not brand new products, but rather improving existing ones and how they are offered to satisfy consumer needs. This a form in which Bolivia can also upgrade, it could offer products with different specifications than it currently does, rather than move into producing brand new products.

SME upgrading: Lessons from different value chains (Dunn et al, 2006)

This publication summarized the findings of nine value chains, in different geographical locations and in the agricultural and handicrafts related sectors. The findings provided generalized conditions for each type of upgrading.

Product upgrading is motivated by changes in end markets, for example consumers of coffee are becoming more aware of its origins and social and environmental issues. This condition has lead Mexican growers to pursue organic and fair trade certifications. Another example of meeting consumer needs is from the Guatemala woven textiles handicrafts. The textiles were produced in alternative designs, colors and textures based on consumer trends in the end markets.

Because product upgrading is in response to changes in end markets, it means that the pressure to satisfy the new consumer needs is applied to all firms in the value chain. Firms that buy from the SMEs

can then offer price premiums for improved products, and are also motivated to provide them with embedded services. These non price incentives reduce the costs and risks form the SMEs.

As Laguna (2002) states the quinoa value chain is a buyer-driven one. Because of its unique nutritional properties consumers in the northern markets became interested; the volumes exported to these markets are continually growing. It is important for the Bolivian SMEs to understand the changes in these markets and work together with their buyers, to be able to meet consumer needs in the end markets, and to upgrade the chain.

Some of the current buyers of Bolivian quinoa are processors themselves, which can lead to a conflict of interests. The local producers could face the constraint that their upgrading efforts can encroach on their buyers' core competence. According to Dolan et al (1999, cited in Humphrey & Schmitz, 2002) there are less strategic producer services that local firms can take over, such as bar-coding, packaging, certification of quality and a range of logistic functions. However, the aim of this study is to identify if the conditions exist for product upgrading to take place, not the absorption of other services. This is why it is important to see if the processors are willing to move production, sell products processed in Bolivia under their own brands, or also become distributors of Bolivian processed products.

3.1.2. Business enabling environment

Kula et al (2006) mention that the business enabling environment consists of international agreements and national policies, which have documented impact of small firms, their industries and their ability to compete.

National policies, developed by the government are an important factor for upgrading, because although individuals develop businesses, as a result of their creativity and commitment; the conditions that enable and/or constrain the process are affected by the wider context, over which the state has major influence (Smallbone & Welter, 2001). The framework for private sector development to become embedded and sustaining is created by the state (Lall, 2003).

Smallbone & Welter (2001) mention that the most obvious way the state can influence SME development is through direct support policies and programs; and also, through the development of business support infrastructure, banks and other financial intermediaries. To sustain industrial growth sophisticated capabilities are also needed, such as specialized education and technology support (Lall, 2003). These capabilities need to be developed in subsequent stages of extraction, because today raw natural resources are no longer sufficient to sustain industrial growth, although they give the country a competitive advantage (Lall, 2003).

Another political factor to consider that is relevant for the move from exporting raw materials to exporting processed goods are tariffs, which are the duties imposed on exported goods. As Linland (1998) points out, tariff escalation is one of the constraints for developing countries to be able to establish processing industries for exports, and diversify their agricultural exports. Tariff escalation refers to the fact that they are generally higher on processed goods (e.g. orange juice), than on its

corresponding commodities (e.g. orange) (Lindland, 1998). Smallbone & Welter (2001) found that SME managers in mature market economies frequently see matters such as interest rates and taxation as key factors influencing the development of their businesses. Understanding the current tariff policies for the quinoa chain, will help determine if it's a constraint or not for increasing value adding activities in Bolivia.

The experiences of Turkey, Tunisia and Morocco are discussed below. In both cases the enabling environment created by international conditions and national policies were key for them to upgrade.

Apparel value chain - Turkey (Tokatli, 2007)

Turkey has gone from being an exporter of textiles to being full-package contractors for global brand-name jeans, such as Mustang in Germany and Levi Strauss in the USA, to brand manufacturing in a short period of time. Since the late 1980s, industry characteristics, country specific contingencies and international conditions have come together and turned Turkey into a major exporter of jeans. The conditions that existed for Turkish firms to achieve upgrading are listed below:

- Quota free trade opportunities with Europe in 1996
- Advantage of being the world's 6th largest cotton manufacturer with a strong textile sector
- Located at the doorstep of Europe, condition that allowed it to supply with short times
- Full-package manufacturing was already widespread in the late 1980s and 1990s
- Learned from lead firms, specially German ones, through close and long-term technological and organizational cooperation
- Mavi jeans (Turkish brand) hired designers that were being employed by the lead firms

Through full package manufacturing lead firms demand and receive more from their manufacturers, and so the manufacturers find opportunities to learn and upgrade (Gereffi, 1999 cited in Tokatli, 2007). Another important finding is that EU (especially German firms) destined chains allow more diffuse learning experiences related to functional versatility than that of working with US-destined chains (Gereffi 2002; Gibbon 2000). The range of possibilities open to the suppliers of German firms are believed to be 'wide and continuous', leaving it up to local firms to 'make the most' of the relationships (Pellegrin 1999:18).

Currently Bolivia is between the top two countries of production and exports of grain quinoa, as Turkey did, it needs to take advantage of the situation. If this doesn't occur other quinoa producing countries may do so and take markets away from Bolivia.

Turkey has also developed long lasting relationships with the lead firms in the chain, from whom they learned, this is key for the upgrading of the chain. Today some Bolivian SMEs and farmer associations have long standing relationships with processors and distributors overseas, it's important to understand how they are taking advantage of this situation.

Upgrading through clustering: Apparel value chain in Morocco and Tunisia (Cammett, 2007)

Other examples in the apparel supply chain are Morocco and Tunisia. Unlike the Turkish supply chain these countries upgraded through clustering. Since the 1980s these two countries have been active in the promotion of upgrading and industrial clustering, which allowed them to rank among the top ten exporters to the EU. In Tunisia state initiative has played an important role, but in Morocco it was the private sector that undertook its own initiatives, pushing the government to private support afterwards. Most enterprises in these two countries are linked to the global apparel supply chain as subcontractors for multinational retailers or buyers, which prioritize speed to market at competitive prices. The policies developed to enable a positive environment for upgrading are listed below:

- Creation and promotion of tech parks and industrial zones
- Tax incentives
- Credit programs
- Creation of vocational and technical training
- Trade facilitation by simplifying trade procedures and document processing
- Creation of agencies which provide technical support and market information to investors, also provide tailored consultations on textiles
- Created a fund to subsidize loans to new enterprises
- Institutions that carry out applied research in the textile and apparel industries

In Tunisia the state was responsible for producing the technical, vocational and policy related requirements. On the other hand Morocco was characterized by private initiative and public-private collaboration; however, it has been less successful. These comparative findings suggest that state initiative and commitment is critical for pursuing industrial upgrading and clustering in developing countries, particularly in the initial stages of these processes.

This value chain is important for the Bolivian case as it gives a clear example of the enabling environment that needs to be created for the chain to upgrade. The state is mainly responsible for creating the conditions in the country where firms can grow, but this does not mean that the private sector cannot take its own initiative, as it did in Morocco.

3.1.3. Inter-firm cooperation

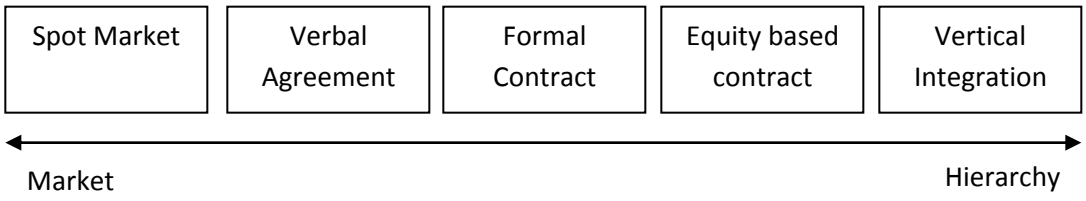
Inter firm cooperation is given by the vertical and horizontal linkages between the different members of the chain. The first are defined as the linkages among firms between input or raw material supply and final market distribution. In this research the vertical linkages studied are the ones between SMEs and lead firms in the final markets. This will be analyzed through governance mechanisms (transaction cost economics) and will be covered in the next section.

Horizontal linkages are the ones between channel members in the same level of the chain. Horizontal linkages among SMEs can take the form of informal or formal groupings; the key to gaining value from horizontal cooperation is recognizing joint constraints that require collective action (Kula et al, 2006).

3.2. Governance structures

Governance structures refer to the manner in which transactions are organized within the chain; the dominant theory for analyzing these choices has been Transaction Cost Economics (TCE) (Wever et al, 2010). TCE theory places governance structures on a continuum, which can be observed in Figure 4. Spot market and vertical integration are the end points of the continuum, with several intermediate or hybrid arrangement in between.

Figure 4 Typology of Governance Structures



Source: Raynaud et al, 2005

Wever et al (2010) described the different forms of governance structures as follows:

- Spot market. A contract (invoice) for instant exchange of goods or services
- Verbal agreement. Exchanges not formalized into written, legally enforceable contracts.
- Formal contract. Legal enforceable, written contracts are used to govern the transaction.
- Equity-based contract. One of the firms is stockholder of its partner, but less than 50%.
- Vertical integration. Two or more successive stages in production and distribution are owned by a single actor

It is assumed that Bolivian SMEs coordinate their activities with the lead firms through hybrid forms of governance structures, more specifically verbal agreements and formal contracts. As stated in Chapter 2 vertical integration also exists in the chain, but companies in this channel may be less willing to share information. Thus, the hybrid governance structures will be further analyzed in this research, focusing on contracts and communication.

Contracts will be analyzed because they can encourage SMEs to invest, as they can offer a stable cash flow for a long period of time and embedded services. Communication will also be examined as it is the way that the firms in the producing countries can gain access to knowledge and market information, which is an important condition for upgrading.

3.2.1. Contracts

According to Bogetoft and Olesen (2004) contracts serve two fundamental purposes: coordinate production and motivate the parties, giving them private interest in making coordinated decisions that maximize the integrated profit. An efficient contract minimized costs of planning, monitoring and motivating productions (i.e. transaction costs); basically it optimizes coordination and motivation (Bogetoft and Olesen, 2004). In other words, contracts aim to resolve three problems: coordination, motivation and transaction costs, and they will be detailed below.

Coordination This is probably one of the most important aspects of contracts; the objective is to ensure that the right products are produced at the right time and place. To make sure that both parties are satisfied the contract should specific how, what, where, how much and at what price.

Motivation Ensuring that the contracting parties have individual incentives to take socially desirable decisions. The party who has invested in specific assets is vulnerable to termination of the contract, leaving the party who has invested in specific assets in a weak bargaining position (Bogetoft and Olesen, 2004). One way to overcome this is through long term contracts, as the terms are settled before the parties make investments; it also reduces risks and guarantees a constant income.

Motivating long term concerns is one of the key issues in the case of the quinoa value chain as this aspect is important to encourage the right investments that would be required for processing new products. As Bogetoft and Olesen (2004) affirm the interests of both parties must be aligned, so that they act as planned and share information with each other; by doing this the integrated profit will be maximized.

Transaction costs Ensuring that coordination and motivation are provided at the lowest possible cost. Much literature has been written about transaction costs, Hobbs (1996) defines it as the costs of carrying out any exchange, between companies in a marketplace.

The context is very important in contract design. It determines the relative importance of the different problems identified in contract theory. For instance, coordination may be the most important factor in one relationship while motivation may be the most important issue in another. In this case, the factor with most weight is motivation. The interests of the different channel members must be aligned, in order for investments to take place in Bolivia. Coordination would come in a second stage.

There are two types of contracts formal and relational. The first is a written contract with legally enforceable promises and the second is a verbal agreement that is not legally enforceable and based on social ties (Raynaud et al, 2005). Contracts can be used to overcome economic vulnerability and power asymmetry and can generate trust between firms (Ireland, 2007). Gellynck and Molnar (2009) found that small sized manufacturers tend to prefer contractual relationships, hoping to ensure long term business opportunities; they found the following determining variables: length, contract specifications, intensity of control and focus of control.

Additionally, Dunn et al (2006) state the importance of vertical linkages as it is an important source of information and technical assistance for upgrading. In this sense contracts should also include clauses on information sharing and what other assistance the lead firms can offer the SMEs.

Contracts should also include factors of the legal environment; factors identified by Neves et al (2001) relevant to the quinoa chain are listed below:

- Exclusive dealing – Customers sell only manufacturers products or at least no products in direct competition

- Tying agreements – A buyer must purchase one good to secure another

3.2.2. Communication

Communication between SMEs and the lead firms is very important for upgrading. Transmitting the right information through the chain is important so channel members further from consumer contact, so they can get the right feedback to improve their products.

Dunn et al (2006) found that a well functioning value chain transmits market information from exporters to producers so that all firms in the value chain can benefit, some of the best information about consumer demand comes to producers through the vertical linkages that connect producers to end markets providing the most accurate information about demand, market and product information. For example in the Kenya, intermediaries were not informing the producers about consumer preferences for higher quality avocados, thus, producers were not upgrading (Dunn et al, 2006). Also, when SMEs believe they will receive higher prices for their upgraded products, they have an incentive to respond to the market information they receive.

Sharing information is key for moving into more value adding activities within the chain. The content of communication in a value chain was identified by Peng (2011), for this research they were grouped in two: product and delivery and market information. This can be observed in Table 5, where the third column describes the importance for upgrading the quinoa chain.

Table 5 Communication

Type of communication	Content of communication	Relevance to Bolivian quinoa chain
Product and delivery	- Performance feedback - Traceability - On-time delivery - Completeness of orders - Flexibility to change orders	Communicating these issues is important to improve the performance of the suppliers, and to develop trust between the two parties.
Market information	- General understanding of the market, the chain, the product and norms for information sharing - Product quality - Supply and demand forecasts - Promotions - New product development	End market information is essential to be able to identify opportunities to improve existing products, produce new ones or move into new market niches.

3.3. Cost benefit analysis

A cost benefit analysis is done to determine how well, or how poorly, a planned action will turn out. Although a cost benefit analysis can be used for almost anything, it is most commonly done on financial questions. The analysis relies on the addition of positive factors and the subtraction of negative ones to determine a net result.

This study has the aim to determine whether it is feasible for an SME to invest in upgrading. It will be carried out from the financial point of view. As Dunn et al (2006) state, before making the decision to upgrade SME owners consider several criteria, and while each individual owner may consider different ones, most will include the following:

Profits These are the net returns, the payments made to the firm for its products minus its costs

Risks Chances of incurring in losses not only in terms of profits, but also of assets, household consumption flows, social capital and business relationships

Sustainability This includes the implications of the decision for future income flows, continued market access, long run opportunities, long run relationships and future economic security

Through the cost benefit analysis these research will be able to address this decision making criteria for upgrading.

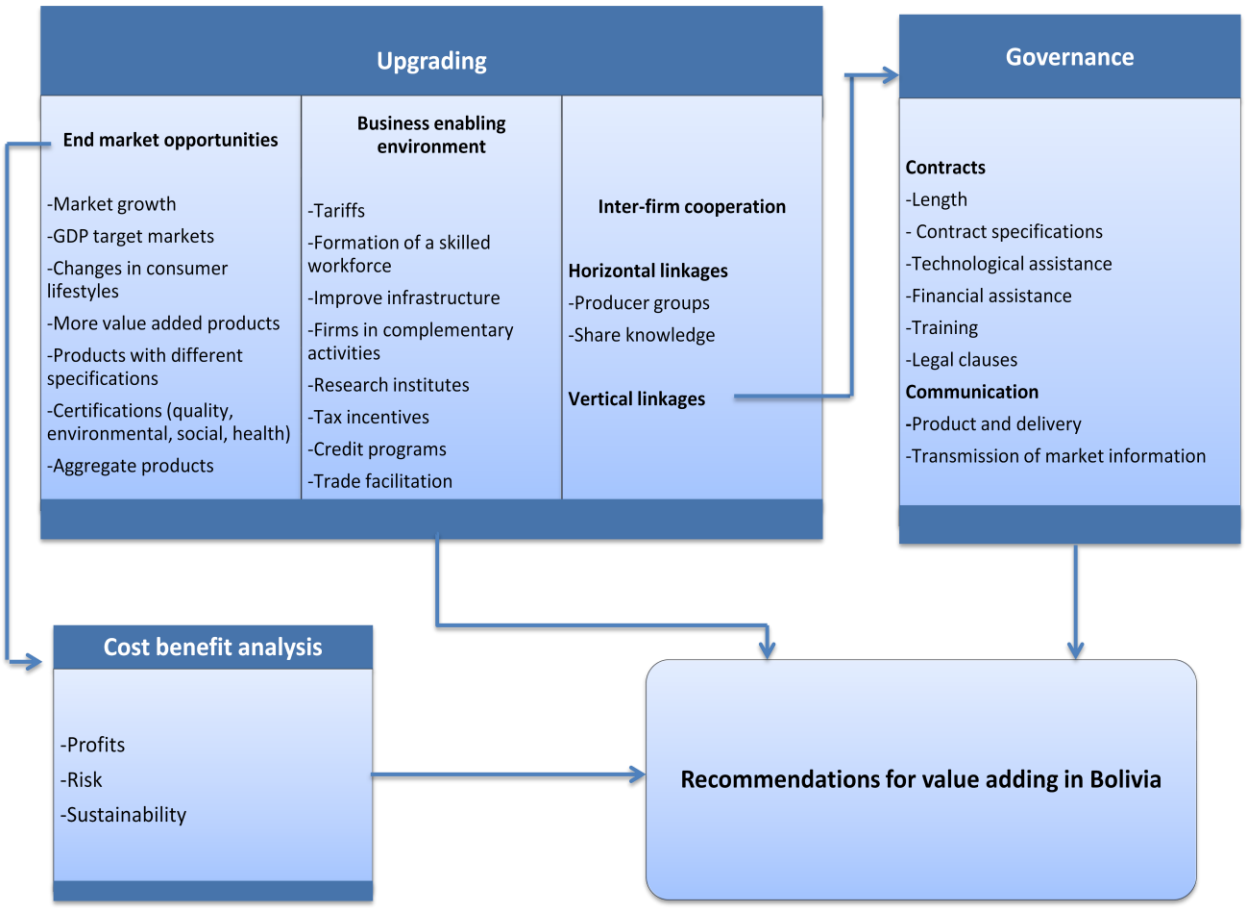
3.4. Theoretical framework

On the basis of the theories reviewed the theoretical framework is constructed. The objective of the research is to provide recommendations to SMEs for upgrading their products in the quinoa value chain; this will be done by gaining knowledge on the conditions that promote upgrading.

As Dunn et al (2006) state that firms owners' upgrading decisions can be considered a dynamic response to the structure of and behavior of firms in a given value chain, which are characterized as: the end market opportunities, business enabling environment and the governance structures that exist. The last factor considered is the cost and benefits associated with upgrading. The relationship between these theories and the elements identified through the literature review, which constitute each one, can be seen in Figure 4.

The theoretical framework is the foundation for the empirical research, which will be carried out through a combination of desk research, questionnaires and interviews.

Figure 5 Theoretical framework



3.5. Concluding remarks

Three main theories were reviewed in this chapter, in order to construct a theoretical framework that will serve to carry out the empirical part of the research. The first Upgrading in value chains, other countries have innovated and upgraded their products in different ways. The experiences of these countries were reviewed and the conditions they needed for upgrading to occur will be analyzed for the Bolivian case. The second theory is governance mechanisms (transaction cost economics), how suppliers are linked with the importers and special focus is given to types of contracts and communication. Finally, cost – benefit analysis is reviewed to assess the viability of producing value added products.

CHAPTER 4 METHODOLOGY

The literature reviewed in the previous chapter served as basis to construct the theoretical framework (Figure 5), which shows the relation between the concepts and how they aid in answering the general research question. This is fundamental for the empirical part of the present research, as the information that needed to be lifted to portray the context of the quinoa value chain and the questions that needed to be answered by the channel members were derived from it.

The present chapter further explains how the empirical research was carried out. The first section describes the desk research carried out for Chapter 2 and 3. Section 4.2 defines the case which is studied and finally Section 4.3 describes how the questionnaires were elaborated from the theoretical framework and how the answers were analyzed. The results of the analysis are shown in Chapter 5.

4.1. Desk research

First a general overview of the quinoa value chain is given, based on past market researches, statistical information from Bolivian organizations, websites of companies and other articles on the quinoa chain. This allowed an understanding of the quinoa value chain, from production to distribution and commercialization, both as raw material and as processed good. After, scientific articles and books were consulted in order to gain insight into the theories relevant for this research. These theories are: upgrading in value chains, governance structures (TCE) and cost-benefit analysis. From the theories the theoretical framework was elaborated, which is the basis for the empirical part of the research, as it shows the different aspects that need to be studied to answer the general research question.

The desk research was also used to further analyze the elements of the value chain framework, specifically the end market opportunities and enabling business environment. For the end market opportunities the trends and growth of the organic, gluten free and fair trade markets and the GDPs of the European countries that are part of this research, and North America were analyzed. Government policies and international agreements aimed at the development of the quinoa sector were also reviewed. For this purpose scientific journals, news paper articles, online magazines and other webpages were consulted.

4.2. Case study

Verschuren and Doorewaard (2005) characterize a case study as a qualitative research strategy, in which profound insight is achieved into one or several objects or processes by interviewing or observing one or a small number of research units.

For this research the case studied is the quinoa value chain, and the research units are the different channel members: farmer associations, grain exporters, processed goods exporters, overseas processors and wholesalers, and supermarkets. The methods of data collection employed were questionnaires and interviews.

4.3. Operationalization

The information was obtained from the data sources mainly through questionnaires, where the questions are derived from the theoretical framework, which is the underpinning for the empirical research.

Two questionnaires were elaborated, one for the Bolivian companies, which can be found in Appendix 1 and one for the overseas wholesalers and processors, which can be found in Appendix 2. The first were asked to respond to questions on the context in which they operate (government support and horizontal linkages) and vertical linkages. The latter were asked about upgrading opportunities and vertical linkages. The questions were divided into different sections, based on the different aspects that needed to be evaluated according to the theoretical framework:

1. General questions
2. Upgrading opportunities
3. Context in which Bolivian SMEs operate
4. Vertical linkages

In the general questions section respondents were asked to fill in the company name, state the main products that the companies exported or imported, and write down the main countries they traded with.

For the upgrading opportunities the companies were asked about demands of quinoa products in their markets, as strong demands are crucial for upgrading. Wholesalers were enquired about their current satisfaction with Bolivian products, as learned from the South African value chain this can often lead to upgrading opportunities. Processors were asked the circumstances under which they would sell more value added Bolivian products, as to not infringe on their core competences.

Questions related to horizontal linkages were aimed at understanding the kind of information they share: processes, products, end markets, prices and quality. To evaluate the business enabling environment in which the SMEs operate, the Bolivian channel members' questionnaires contained inquiries about the government support that they perceive in terms of: formation of skilled workforce, improved infrastructure, promoting the creation of firms in complementary areas, research institutions, tax incentives, credit programs, trade facilitation. These were all found to be crucial for the upgrading of the Tunisian and Moroccan textile chains.

For the vertical linkages the length of the contracts established, the information that is transmitted and the types of assistance provided and/or expected were used to evaluate the motivation for upgrading. The questions regarding communication were based on product and delivery and the transmission of market information, as seen in table 5.

For the cost-benefit analysis a Bolivian expert was contacted. Through her understanding of the Bolivian market she was able to provide guidelines to determine costs and profits of quinoa goods. This is aimed

at showing other companies the kind of earning they could accomplish. This analysis is accompanied by an explanation of the conditions and limitations which the cost-benefit analysis is subject to.

To get a good overview of the case, questionnaires were sent out to companies involved in different stages of the chain. In Bolivia the channel members contacted were farmer associations and privately owned firms who export grain, and enterprises that currently export processed goods. In Europe and North America wholesalers and processors were contacted.

Through INFOQUINUA (webpage dedicated to bringing updated information on quinoa related topics) a list of all the exporting Bolivian companies was obtained, and all who had contact information available were contacted. The companies were contacted with the help of PROINPA foundation, which carries out research in Andean products. The list is made up of 36 companies, the companies that answered the questionnaire were 10, representing 28% of the sector. This response rate gives us a good overall picture of the situation of the Bolivian sector.

Companies in the northern hemisphere were identified mainly through web searches of quinoa products, and if they were made reference to in articles related with the chain. In total 8 companies were identified as being the dominant players in these markets, but only 3 positive responses were obtained. In North America 2 (1 USA and 1 Canadian) companies provided their points of view, both of them are top quinoa processors and distributors in their markets. Both companies stated that they believe their answers are representative of the sector. Furthermore, the US enterprise contacted has worked with Bolivian farmer associations for over 20 years. In Europe only 1 response was obtained from a German distributor, which has worked with a Bolivian farmer association also for more than 20 years.

To support the End market opportunities, questionnaires were sent to 4 Dutch and 1 French supermarket that are currently selling quinoa products. Responses from them were negative, as they were not willing to participate in the study. However, a short interview with a store manager from a branch of one of the Dutch supermarkets was obtained.

Table 6 summarizes the number of respondents from each type of channel member that participated in the research, and the method of data collection employed. Nine of the firms contacted export to the USA, Netherlands or Germany, in some cases to more than one. One respondent exports grain to Brazil.

Table 6 Respondents

Channel Member	Number of respondents	Method of Data Collection
Farmer associations	2	Questionnaire
Exporters of grains	7	Questionnaire
Exporters of processed goods	1	Questionnaire
Wholesaler/Processor	3	Questionnaire
Dutch supermarket	1	Interview
Bolivian costs expert	1	Interview

After the answered questionnaires were received an analysis took place. The analysis followed was in a series of 5 steps, which is described below:

1. Classify responses under the main categories and link of the chain
2. Look for similarities in the responses
3. Look for differences in the responses
4. Transcribe the findings
5. Discuss the results in relation with theories

4.4. Concluding remarks

This research is a case study, in which the case is the Bolivian quinoa value chain and different channel members are the embedded units of analysis. It was focused on evaluating if the conditions for upgrading the chain exist or not, through an extensive desk research and contacting the research units. The data from the channel members was collected mainly through questionnaires, which evaluated the upgrading opportunities: end market opportunities, enabling business environment and inter-firm cooperation.

Chapter 5 RESULTS AND DISCUSSION

To determine if the conditions for upgrading the Bolivian quinoa value chain exist, so that more value added activities take place in the country instead of in overseas processing firms, questionnaires have been send out to different channel members. The channel members are the research units, and in order to get an overview of the entire chain, different links of the chain have been contacted. Bolivian farmer associations and enterprises that export grain, enterprises that export value added products, North American and European wholesalers and processors.

The results obtained from the questionnaires are analyzed using the theoretical framework constructed in chapter 3. There are four main factors which are analyzed and thoroughly discussed: end market opportunities, enabling business environment, inter-firm cooperation and the cost-benefit analysis. Through the analysis, complemented with the concepts from the literature review in Chapter 3, knowledge is obtained to provide with recommendations to the sector, and determine if the conditions exist or not to upgrade the chain.

5.1. End market opportunities

Today the majority of the exports go to North America and Europe, as seen in Chapter 2 approximately 48% of Bolivian exports go to North America, and around 42% is divided among Germany, France and the Netherlands. In this sense the information lifted in this section corresponds to North America and Europe. First we will analyze the GDPs of the top importer countries. Afterwards, the growth and trends of the organic, fair trade and gluten free markets will be discussed. Finally, a summary of the information collected through the questionnaires will be presented.

The main factors to analyze in this section that were determined in the literature review were the state of the trading economies through the Gross Domestic Product per capita, and the developments in the organic, fair trade and gluten free markets. These are known to be the main markets for Bolivian quinoa.

Table 7 shows the purchasing power of the population. The income per capita is high; the large population in these countries indicates a big market for food products. Additionally, the active population percentage is also high.

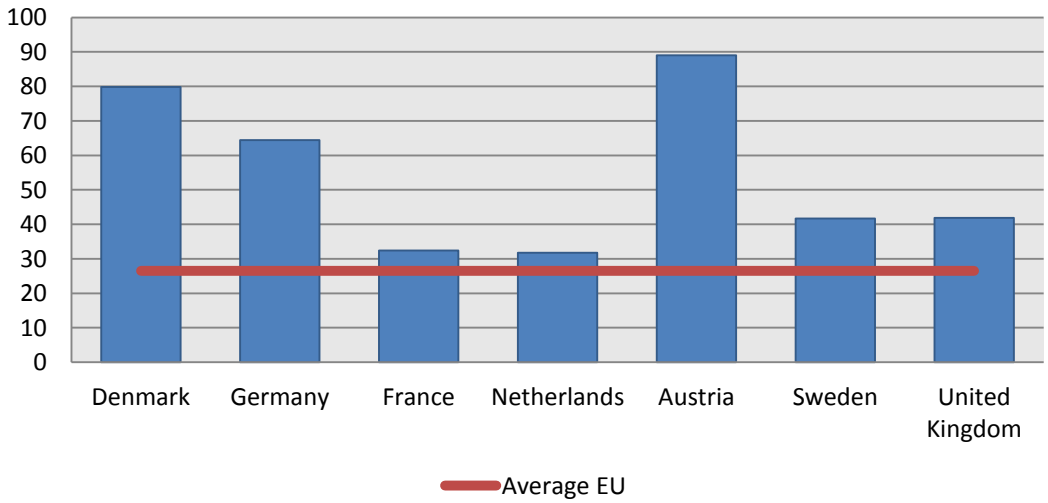
Table 7 Population and GDP per capita of the main quinoa importers

Country	Population (millions)	% population between the ages of 15-64	GDP per capita (€)
France	65.0	65.1	29,187
The Netherlands	16.6	67.8	30,862
Germany	81.7	67.0	30,579
USA	308.7		33,718
Canada	34.6		27,951

Source: Eurostat (2011), International monetary fund (2010)

Although organic food sales are still a small percentage of total food sales, the market is growing. For the years 2006/2007 organic food expenses in the EU-15 reached €14.4 billion, of which more than 80% was in four Member States only: Germany, the United Kingdom, France and Italy (European Commission Agriculture and Rural Development, 2010). Figure 6 illustrates the consumption per capita of selected European countries (a full list can be observed in Appendix 3), some countries information correspond to 2006 and others to 2007. We can see that Germany, The Netherlands and France, prime importers of Bolivian quinoa, all spend more than average on organic products (the red line represents the EU average) . This is a good indicator that there are markets for more organic products, like quinoa and its derivatives. Other countries that would be interesting to observe are Denmark, Sweden, the United Kingdom and Austria, as they have a well above average of spending on organic products.

Figure 6 Organic food expenses in the EU per capita € (2006-2007)



Source: European Commission Agriculture and Rural Development, 2010

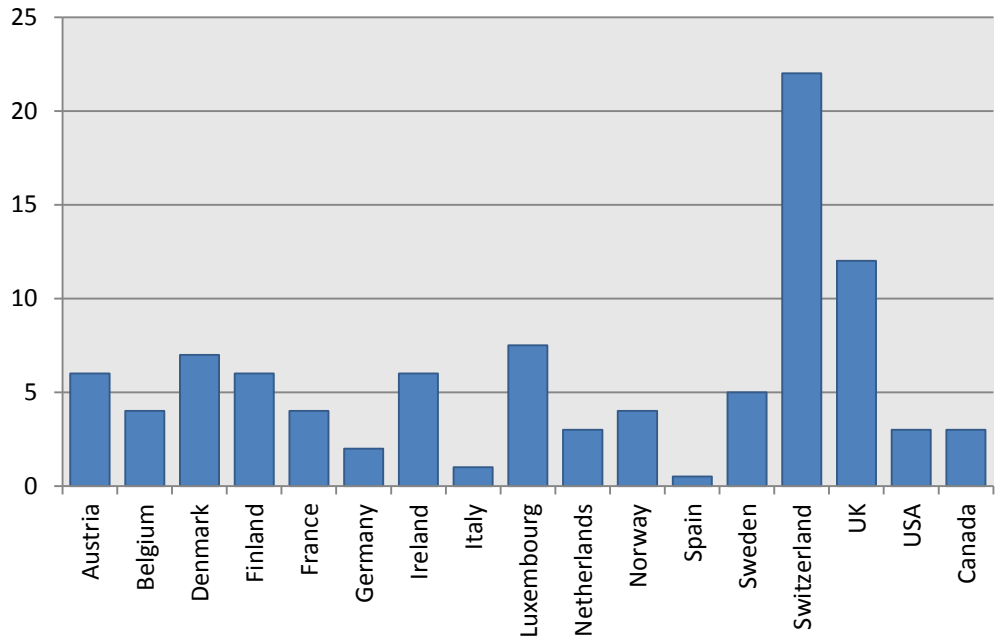
As for the US market, the Organic Trade Association says that while organic foods comprised less than 3 percent of total food sales in 2006, annual percentage sales growth in the past decade has been in the high teens into the twenties (Sewell, 2009). Data of the same organization also says that goods specifically labeled organic rose 17% to $24.6 billion in 2008 (Katz, 2009).

A sector that is worth mentioning is the organic baby foods, which has jumped nearly 18% in the periods of 2004 and 2005, and is still growing, according to the marketing information company ACNielsen (USA Today, 2005). Approximately 91% of the total sales were in strained baby food for 2005, and the rest pretty evenly divided between baby cereal and biscuits, baby drinks and others. Beyond baby food, dairy and produce, snacks are also a rapidly growing segment of organic food (USA Today, 2005). One venture in this area has recently been done by a Bolivian entrepreneurial, who has developed strained baby food based on quinoa, amaranth (another Inca grain) and diverse vegetables. This product has won two contests, and the earnings from them are being destined to invest in a processing plant (Oblitas, 2009).

Another important market for quinoa products is the Fair Trade one, which is now discussed. From 2005 to 2009 the Fair trade market has gone from €756 million to €3.400 million, more than quadrupling sales (Densley, 2010). Figure 7 shows the consumption per capita for the year 2007 for the European Union and North America. It can be observed that Switzerland and the UK are the two countries leading by far the consumption of Fair Trade products. All the countries that form part of this study (Germany, France, The Netherlands, USA and Canada) have very low levels of expenditure on these products.

Information for 2008 indicates that in Europe €1.5 billion was sold and €810 million were being spent in North America and Canada.

Figure 7 Fair trade consumption per capita €/year for 2007



Source: (Fair trade foundation, EFTA, WFTO in Densley, 2010)

The following figures are taken from the article by Densley (2010), and were collected by the author from the Fair trade foundation, EFTA and WFTO. The biggest fair trade importers in Europe are Agrofair Europe in The Netherlands, with a turnover of €62.1 million for 2007 and GEPA in Germany with a turnover of €48.9 million. Cafedirect LTD in the UK and CTM Altromercato in Italy follow with approximately €30 million each and Traidcraft PLC, also in the UK is the fifth biggest with €24.6 million. By looking at the web pages of each of these importers the kinds of products they offer were found. The offer of products of Agrofair is tropical fruit, mainly bananas. GEPA offers a wider variety of products; it has around 300 food products including coffee, tea, chocolate, grains and pasta, beverages, etc. and over 1000 handicrafts articles. From the food products, 75 are also organic (GEPA, 2011). GEPA sells quinoa grain and pasta made with quinoa. Cafedirect LTD, as its name suggests sells different kinds of coffee, tea and also chocolate. Traidcraft commercializes food products as well as clothing. Among its

food products they offer a small assortment of quinoa pasta, which as stated in the webpage is made in Italy.

An important factor to mention is that, although the Netherlands imports large volumes, it is mainly a transit country. A large portion of their imports are exported again, mainly to other European countries, especially Germany.

The third market for quinoa products is the gluten free one; currently the grain as well as pastas manufactured in the country is being exported for this market in North America as well as Europe. According to the medical director of the University of Maryland Center for Celiac Research in Baltimore, there are around 110,000 Americans diagnosed with celiac disease, but if everyone would be diagnosed there would be 3 million (University of Maryland, 2011). Besides people with gluten intolerance, many people are taking on a gluten free diet, mainly because this way they consume fewer fast and processed foods, which tend to contain gluten. This trend has produced more gluten-free versions of foods the truly intolerant would otherwise have to give up.

In the Netherlands the number of people with celiac disease is increasing dramatically, it is estimated that about 160,000 have the disease, but most of them have not been diagnosed yet (Dutch celiac association, 2011). In visits to three Dutch supermarket chains, it was observed that the area dedicated to gluten free products was as large, if not larger, than the areas for fair trade products. The assortment of products wasn't narrow, but all three supermarkets carry the same brand, Damhert. The complete line of gluten free products that this company offered was seen on its webpage, and they do not offer products which contain quinoa.

Below is a summary of the questionnaires that were answered by the companies, regarding the end market opportunities for quinoa products with more value added. One German, one US and one Canadian firm have responded the questionnaire.

In Germany the growth of quinoa products has been of 250.000 Euros a year for the last 5 years, according to the distributor contacted. The company mentions that it is satisfied with the current products they import, which is mainly quinoa grain, in terms of compliance of standards, quality and volume. However, they are not interested in new products with more value added, or any specific product derived from quinoa. When asked why they are not interested in new products, they mention that they see the most potential for grains and are interested in new suppliers for this product, to cover the growing demand.

The US firm that answered the questionnaire processes and commercializes quinoa flakes, flour, red quinoa, spaghettis and polenta, all processed in the USA. There is willingness from their part to distribute more products with added value from Bolivia, as the firm sees the potential for them, which currently they commercialize as organic and gluten-free. It is looking for variations of the same products that they produce: flavors, prices and/or qualities. The company did not specify the market growth they have experienced in the past 5 years, but the exports to this country grew 50% in volume from 2009 to 2010 (IBCE, 2010). This US firm is responsible for a big percentage of quinoa exports to that country, so

it is safe to infer that the products they produce have experienced much growth, although the exact percentage for each product is unknown.

The company contacted in Canada indicated that the market for quinoa products is growing at a rate of 25% per year, although the sales are not in large volumes, the percentage of growth is very high and could offer room for exporting more products. However, the company is not interested in acquiring more value added products. The assortment of quinoa products they offer are packed quinoa grain, pasta, puffs, flakes, cookies, breakfast cereals and soups. The first 4 products listed are imported from a processor in Bolivia; the company indicated that they are satisfied with these products. It was pointed out that the other three products (cookies, breakfast cereals and soup) are from a different supplier; but, this indicates that there is a market for these products that are currently not being produced in Bolivia.

In The Netherlands, a short interview with a store manager from an Organic Supermarket took place. The manager said that the star product is packed quinoa grain in plastic bags, which come in 500 grams; the grain is imported from Bolivia and packed in their own facilities. The chain also commercializes quinoa grain in boxes which are certified as Fair trade, the sales of this variety are less, as consumers are discouraged by the higher price. The store also carries other quinoa products, such as crackers and instant soup, but the sales are much lower than the quinoa grain. These higher value added products are sourced from France. In this particular store, the sales are approximately 80 packs of 250 grams a month. Assuming that the sales in all the branch stores are the same (50 stores in the country), this translates into 4,000 packs a month or 1.000 Kg.

5.2. Business enabling environment

In this section the points are discussed, the international trade agreements, national policies and initiatives, and the perception of the Bolivian SMEs on government support.

Bolivia has preferential tariff treatment with the European Union, through the "Generalized System of Preferences". This scheme ensures that exporters from developing countries pay lower duties on some or all of what they sell to the EU. Within this scheme Bolivia has been identified as one of 49 countries which are ‘least developed’ by the United Nations, which signifies that there is total duty free access to the EU market. This is aimed at helping the most vulnerable developing countries (landlocked countries, low income countries, etc) play a larger role in international trade.

Additionally, Bolivia is part of a special regime, along with other Andean countries that has an objective to support the beneficiary countries in their fight against illegal productions, offering opportunities for crop substitution and enhancing their economic and social development.

The Andean country had a similar agreement with the USA, the ATPDEA (Andean trade promotion and drug eradication act). This agreement was signed with the Bolivia, Ecuador, Colombia and Peru, and its main objective was to eradicate coca, by having farmers move into alternative crops. Through this agreement, Bolivian products entered the US market quota free. Three years ago the ATPDEA for Bolivia

was suspended, for lack of collaboration in the fight against drug trafficking. This has affected many exporting sectors in Bolivia, but the quinoa exports have continued to grow. Currently, there is a new agreement being elaborated, that contemplates commerce, but it has not been finalized yet.

The Bolivian government also offers two kinds of tax incentives for exporting companies. The first is the refund of the Value Added Tax (IVA) and the Transaction tax (IT) incorporated into de costs of export merchandise, this represent 13% and 3% respectively. The refund of theses taxes is subject to forms and conditions established by law.

The other tax incentive is the Régimen de de Admisión Temporal para Perfeccionamiento Activo (RITEX, Regime for temporary admission of asset perfecting). This regime allows intermediate raw materials to enter national territory with the suspension of import taxes, as long as they are incorporated in the manufacture of products destined for export (Embassy of Brazil in Bolivia, 1999). For the quinoa products, this is relevant for packaging materials; these are often imported from neighboring countries as they have better quality.

In the beginning of 2011 the president of Bolivia announced the Program for Credit for the Organic Quinoa sector in the regions of Oruro and Potosi, which intends to reach 14.000 families producers of the grain. The president of ANAPQUI was thankful for the initiative, as he believes that the credit will help improve the production system and will increase quinoa exports (Bolivian Ministry of economy and public finance, 2011).

According to the information given by the president small producers, can benefit from credits of Bs21.000 (€2.177); medium sized producers Bs21.000 to Bs70.000 (€2.177 to €7.270); and organized enterprises already consolidated in production or associations in process of formation can receive Bs70.000 to Bs350.000 (€7.270 to €36.299).

Another initiative of the Bolivia government is the petition to the United Nations to declare 2013 International Year of Quinoa to the Food and Agricultural Organization (FAO). It has recently been announced by the United Press International that the petition has been approved. The objective of this initiative is to promote the many benefits of the Inca grain and its potential use in the fight against world hunger and malnutrition, contributing to the global strategy of food security (FAO, 2011).

The year 2013 will be a very important year for Bolivia, and other Andean countries cultivating the grain. Throughout this year there will be conferences, gastronomic festivals, exhibitions, trade fairs, diffusion of information to the world about quinoa and support to research activities for the sector.

Now we will discuss how the SMEs perceive the government support. To evaluate this the Bolivian companies were asked to select the ways in which the government supports them from the following list: financial support, technological support, credit programs, creation and promotion of industrial zones, trade facilitation, formation of high skilled workforce, improvement of infrastructure, promotion of creation of enterprises in complementary areas.

All the respondents coincided that the government support towards the development of the sector is very low to nonexistent. However, there are some differences between the responses of the channel members.

Both farmer associations perceive that the government supports them through research in the sector, and through the improvement of infrastructure. The Bolivian government provides support mostly in the primary production of quinoa, there is very low support to promote and develop the transforming sector. Research is done on improving varieties, pest control, cultivation methods, etc. The SME currently exporting processed goods explicitly stated that the government provides no support to the manufacturing sector.

From the 7 grain exporters, 2 agreed that government provides support through research in the sector. One respondent mentioned that the government supports the industry by providing market information to investors; this is mainly done through www.infoquinua.bo. The webpage provides information on production, products, markets and publications on Quinoa Real.

The SMEs were also asked about the ways they feel the government should support them. One respondent stated that the government needs to immediately help by facilitating the export process by creating less bureaucratic procedures from the entities that issue certificates for export. Another priority point this respondent sees, is to provide financial support to be able to invest in modern technology.

A negative aspect brought up by one of the respondents is that there is very low governmental control over contraband quinoa grain, which goes mainly to Peru. The volume going to Peru is considerable, which means that this grain could be used by the transforming industries or exporting to higher value markets.

One of the lead firms mentioned that they see in Bolivia high political instability, unskilled workforce for the processing industry, few supporting industries and insufficient technology for processing. These are all reasons why they believe it is hard for the Bolivian quinoa industry to upgrade and for why they are discouraged to invest in processing in the country.

5.3. Inter-firm cooperation

In this section the results for inter-firm cooperation, based on horizontal and vertical linkages are presented. All the information obtained for this section is from the responses of the questionnaires.

5.3.1. Horizontal linkages

Two of the respondents belong to CABOLQUI. This chamber was created to support the first link of the chain, which is primary production, with projects to sustain production mainly. In this sense, the companies that form this chamber support primary production by providing them with inputs, such as organic pesticides. This way the companies ensure that they get the quality they require, and farmers ensure the sale of their harvest. The respondents also indicate that they share information on products, prices and statistical information.

Grain exporters who answered the questionnaires also indicate that they aggregate volumes with other firms in order to meet customer requirements. In this sense, there is cooperation among the exporters of the Inca grain.

5.3.2. Vertical linkages

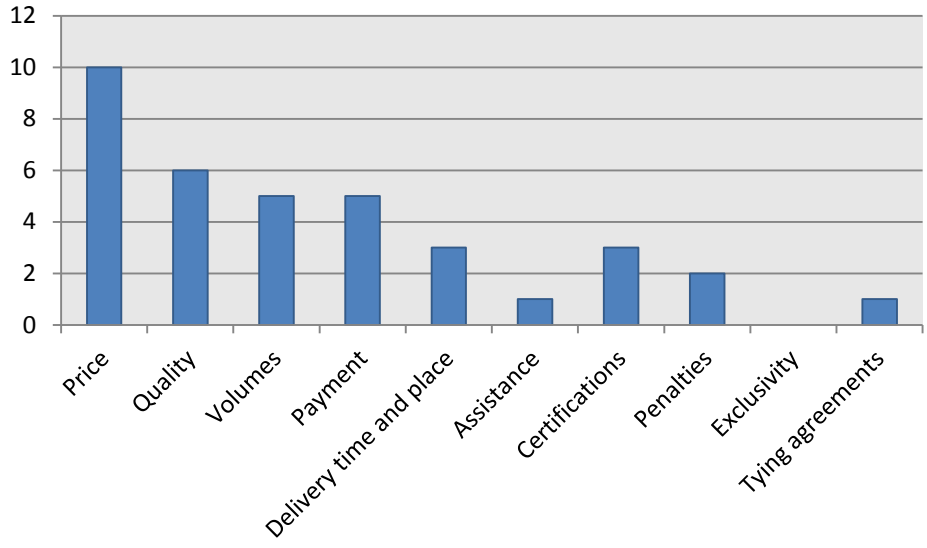
The main reasons why enterprises don't invest in increasing the value added of their products is low access to market information, this means they have very low market information of processed quinoa products, their prices, qualities and quantities demanded in the European and North American markets.

Bolivia

All but one of the respondents answered that they use written arrangements to coordinate their transactions. The duration of their arrangements is for one order or one year, this is the case for the current contracts they have and for the contracts with new clients. The company which has a verbal agreement with its client indicates that they have a long term relationship of several years.

Figure 8 shows the terms that are agreed on in the contracts. All of the respondents indicated that they agree on prices in the contracts. Quality, volumes and forms of payment are terms that 50% to 60% of the Bolivian SMEs have in their contracts with the lead firms. The only firm which states the forms of assistance and tying agreements is a farmer association.

Figure 8 Contracts



As for assistance, both farmer associations mention that they receive financial and technological assistance from the lead firms. From the other respondents, only one grain exporter indicated that it occasionally receives financial assistance.

One grain exporter states that another term that should be indicated in the contracts is to inform in the products the origin of the raw materials.

USA

The US firms has a verbal agreement governance structure, this firm has developed a long standing relationship with a Bolivian farmer association. The president of the company, who answered the questionnaire, stated that he sees contracts as meaningless and that it is the people with who you work with that will make a partnership work or fall. Currently the company shares competencies with the Bolivian exporter, but they also specify processes and control mechanisms.

Currently they offer financial and technical assistance to their suppliers, and they also stated that they would be willing to offer these two kinds of assistance and training to their supplier if they were developing new products to distribute under their brand.

In the current way they perform business they inform their suppliers of supply and demand forecasts, quality and certificate requirements, complaints from consumers and performance.

They are interested in distributing products processed in Bolivia under their own brand, through cooperation and/or specifying products, processes and control mechanisms. Vertical integration is also a possibility, but they mention many constraints for this, for example the high investment costs.

Germany

They have written arrangement with their suppliers, usually the length is of one year. But, in the case of the Bolivian company they currently import from, they have a relationship of more than 20 years, so trust has been developed. They have a semi-hierarchical relationship as they specify products, processes and control mechanisms.

The contracts specify price, volume, quality, certifications and pre-agreed delivery time and delivery place. In the contracts they also specify the kind of assistance they will bring to their supplier, which is mainly financial and they offer early payments. They are also willing to provide financial assistance in the case of the Bolivian suppliers developing new products for their market.

As for the transmission of market information, they inform their suppliers about supply and demand forecasts, quality and certificate requirements and any complaint from consumers. However, they do not provide information on retail prices or new product developments in their markets, which is crucial for product upgrading.

Canada

They use written arrangements with their suppliers; in the case of their current suppliers they have already established long term relationships. They operate under a network type of governance structure, sharing competencies with the firms in Bolivia. In the contracts they indicate prices, volumes,

certificate requirements and pre-agreed delivery time and places. They do not offer any type of assistance to their suppliers, and as stated before are not interested in new products development.

The market information they transmit to their suppliers is about quality requirements, new certificates development and complaints from consumers.

5.4. Cost Benefit

For the cost benefit analysis a Bolivian expert was consulted. A product that is currently being sold in Bolivian supermarkets and in the international markets was selected. This is Spaghetti in a 227 gram package. In Bolivia this is sold in supermarkets at a price of € 1.18, and in Canada it is offered at € 2.49.

Through the knowledge of the Bolivian market by the expert the profits and costs were determined for the Spaghetti sold in Bolivia. The same cost structure was then used to determine the costs and profits for the same product, sold in Canada.

The comparison of the costs can be observed in table 8. Spaghetti sold in Bolivia has a profit margin of € 0.13, when products are exported they are exempted of taxes, reasons for which the margin almost doubles for the exported product. The wholesalers margin was assumed as the difference between the market price and the calculated selling price of the Bolivian producer.

Table 8 Comparison of profits for pasta

Sell local market			**Sell export market (Canada)**	
	Bs.	€		€
Raw materials	1.35	0.14	Raw materials	0.14
Direct labor	0.60	0.06	Direct labor	0.06
Indirect costs	1.05	0.11	Indirect costs	0.11
Commercialization expenses	2.46	0.26	Commercialization expenses	0.26
Total cost	5.46	0.57	Total cost	0.57
Profit margin (22%)	**1.20**	**0.13**	**Profit margin (38%)**	**0.26**
IVA (13%)	1.03	0.11		
IT (3%)	0.24	0.02		
Sale price	7.91	0.82	Sale price	0.83
Supermarket margin (30%)	3.39	0.35	Wholesaler margin (66%)	1.64
Supermarket price	11.30	1.18	Wholesaler price	2.49

Following the same cost structure as determined for the spaghetti, a comparison between grain and packed grain was realized. The price for organic quinoa grain for 2010 was used, and for the packed quinoa grain the price from a Dutch supermarket. The profit margin for the latter doubles the first. The comparison of these calculations can be observed in Table 8. This seems very attractive for the SMEs who wish to upgrade. However, it can also be deduced that by packing the products in Bolivia the farmers would get lower prices for their harvest.

Table 9 Comparison profits grain vs packed grain

Grain	**1 Kg**	**250 g**	**Packed grain (250 g) (The Netherlands)**	
	€	€		€
Raw materials	0.41	0.10	Raw materials	0.20
Direct labor	0.18	0.05	Direct labor	0.09
Indirect costs	0.32	0.08	Indirect costs	0.16
Commercialization expenses	0.75	0.19	Commercialization expenses	0.36
Total cost	1.67	0.42	Total cost	0.81
Profit margin (38%)	0.63	0.16	Profit margin (38%)	0.31
Sale price	2.31	0.58	Sale price	1.12
			Wholesaler margin (66%)	2.17
			Wholesaler price	3.29

It can be clearly seen that exporting and adding value to the products offers higher returns for the enterprises in Bolivia. Other factors that SMEs owner take into account as stated by Dunn et al (2006), are the risks and sustainability of the upgrading decisions. The risk in incurring in economic losses seems to be low, as there is much growth potential in the value chain. However, there is a risk that the channel members in the primary links of the chain will get less for their produce, as SMEs can attempt to drop down costs to be more competitive in the markets.

The benefits from upgrading can be considered to be sustainable in time. Bolivia has the advantage that only a handful of countries in the world have the climatic conditions needed for the cultivation of this crop. It is also the only country where the Real Quinoa variety grows. This, along the fact that the organic and fair trade movements are growing, offers the country long run opportunities. Additionally, it has already fostered long term relationships with lead firms that are well positioned in the international markets. These firms are willing to provide assistance for new products coming from Bolivia, which only add to the pluses for diversifying the chain.

5.5. Discussion

Many similar conditions are present today in Bolivia, which in its time aided the Turkish apparel value chain to upgrade. Bolivia is the top producer of quinoa, additionally the internal market is small, thus there is a large surplus to export. It has quota free access to the European market, it has long established relationships with lead firms in the consumer markets. One company also exports through the full package manufacturing model.

As gathered from the desk research and questionnaires there is very little government support for the chain, specially the manufacturing sector. State initiative is critical for pursuing upgrading in the initial stages (Cammet, 2007). The government is responsible for providing a favorable environment through policies, to name a few: creation of tech parks, tax incentives, creation of vocational and technical training. Some initiatives have been started however, like the credit program for quinoa organic producers. Another important initiative that the government has just realized, is the naming of 2013 as the International Year of the Quinoa, declared by the FAO, which will help diffuse the benefits of this grain, and attract new markets and investors.

As the quinoa value chain is a buyer driven one, the changes in the end markets are what determines the opportunities for upgrading. In this sense, the economic and social aspects of the European North American markets were analyzed. The GDPs of these countries are stable and offer high purchasing power, and the sales of the organic, fair trade and gluten free markets are constantly growing. These criteria were identified as having high impact on the chain, through literature review. The lead firms also confirmed the growth of sales of quinoa products in their markets.

Opportunities for product upgrading come through diversifying the current assortment of products. In this sense the wholesalers and producers were asked about their satisfaction with current products, to find opportunities to vary the portfolio of exporting SMEs. If Bolivian companies upgrade their products, it could lead to a conflict of interests with the current overseas processors, as brought up by Humphrey and Schmitz (2002). This is why processors were asked whether they are willing to distribute Bolivian products under their own brand, only import products or product lines that they do not process themselves.

The Bolivian enterprises responded that the contractual agreements they sustain with the lead firms include the type of assistance they will receive. One of the legal factors identified that could be included in the contracts are tying agreements, but currently only one farmer association is including it, this could be beneficial to start exporting a diversified portfolio. Because Bolivia is the top producer of quinoa, and only a handful of countries in the world produce this grain I think it is in a position to negotiate this. Through tying agreements the buyer must purchase one good to secure another, this way new products could be tied to the export of grain.

Chapter 6 CONCLUSIONS AND RECOMMENDATIONS

The present chapter aims at answering the general research question, which is: What are the conditions present in the structure of the Bolivian value chain that allow and constraint SMEs to upgrade? This will be achieved by answering the specific research questions that were formulated in chapter 1, and form part of section 6.1.

Section 6.2 provides the recommendations for the sector, which is the main objective of the thesis: *To provide recommendations to the Bolivian SMEs to upgrade the quinoa value chain, by analyzing the end market opportunities, the enabling business environment, the governance structures and the costs and benefits.*

Finally, in section 6.3 the limits of the research and recommendations for future research to be carried out will be discussed.

6.1. Conclusions

1. How are the channel members in the quinoa value chain organized?

   The Bolivian quinoa value chain is organized as follows: producers, brokers, farmer associations, Bolivian exporters and processors, overseas processors and wholesalers.

   Small scaled farmers located in the Altiplano and Interandean valleys of Bolivia, cultivate quinoa and sell their produce to the farmer associations they belong to or have agreements with private SMEs who buy the grain from them.

   The farmer associations group many small scaled farmers, they have facilities to remove saponin and clean the grains. The associations export the grain to overseas processors or grain importers.

   Most Bolivian exporters and processors buy the grain and add value by packaging it into boxes or bags of different sizes, and export them to wholesalers overseas. Others also sell their products locally.

   Overseas processors buy quinoa usually from farmer associations and process it in facilities in their own countries. The wholesalers buy directly from Bolivian companies or from European or North American re-packers or other processors.

2. What are the end market opportunities for quinoa products?

   The economic and social factors taken into account were the GDPs of the countries studied and the growth of the markets quinoa currently competes in. The income per capita in Germany, The Netherlands, France, USA and Canada are high, which indicates a large purchasing power. The active populations are also large which indicate big markets for food products.

   A closer look at the organic, fair trade and gluten free markets was taken. The biggest market of the three studied, is the organic market. A high per capita expenditure exists in North America and Europe. Fair trade is much smaller market, and most food products commercialized through this channel are fresh produce. Another factor mentioned in this market is that products commercialized through it are usually more expensive, which discourages buyers. The Gluten free market is also not as big as the organic one, but it is a growing sector as more people are diagnosed with celiac disease and there is a growing number of consumers who switch to gluten free diets because of health reasons. It is also important to mention that gluten free and organic usually go hand in hand, and products can be commercialized as both.

   End market opportunities exist in Germany, Canada and more so in the USA. Respondents (overseas wholesalers and producers) in these countries have indicated that there is a constant steady growth in sales of quinoa grain and its derivative products.

   In Germany the main interest is in grains, as the company contacted sees high potential for this product. It stated that it is also willing to assist financially to SMEs that develop new products for their markets. The Canadian firm declared that it is not interested in new products, but the market is growing rapidly so volumes in this direction can grow.

   As for the USA, it currently purchases approximately 50% of Bolivian quinoa destined for exports, and the company contacted is responsible for a large share of this. It sees a high potential for organic quinoa products and are willing to assist financially, technically and with training to Bolivian SMEs. It is also willing to distribute products processed in Bolivia under its own brand, through cooperation and/or specifying products, processes and control mechanisms. Any form of distribution would be highly beneficial for the Bolivian enterprises, as this US firm is a pioneer in its field and has established markets and knowledge.

3. What are the characteristics of the business environment in which SMEs operate?

   For the business enabling environment, tariffs and government policies have been analyzed. A common restriction for upgrading agricultural chains is tariff escalation, as tariffs on processed goods are larger than on its corresponding commodity. In the case of quinoa it is not the situation as quota free trade agreements exist with the European Union, under which all Bolivian products have free access to the market. An agreement of similar characteristics is under development with the USA.

The government policies destined to aid the sector are very low to non-existent support. The state has focused its efforts in the primary production sector, neglecting the manufacturing one. However, because of these efforts the quality in the primary sector has improved. In addition, this year a credit program has been implemented, which is aimed at small farmers, medium producers and large organizations. An important success from the government is having 2013 declared International year of Quinoa by FAO.

The perceived support from the state by the SMEs is very low. The channel members who perceive the most support are farmer associations, which state the government promotes research in the sector.

4. What are the current governance structures in the quinoa value chain?

   The current governance structures are hybrid forms, namely verbal and written agreements. Long-term relationships have been established already with companies in the USA and Germany, which are over 20 years old. This has fostered trust within the firms. The US and the German firm are both willing to provide with assistance in case of interest in producing value added products. Because market demand is rising the lead firms in these countries have incentive to provide embedded services of the firms to upgrade.

5. What are the costs and benefits of upgrading?

   Exporting value added products, like packed quinoa grain offer higher margins to enterprises in Bolivia. Because the demand for the grain is growing in the world, the risk of incurring in economic losses seems to be low. The exports of quinoa products also appear to be sustainable for a long period, few countries in the world are apt to cultivate the grain and interest for it is has been consistently growing. Long-term relationships established with lead firms in the chain, who are willing to invest in the country is a big indication that the chain will remain competitive.

6.2. Recommendations

Taking into account the current conditions in which the Bolivian SMEs develop their activities, recommendations for future upgrading initiatives are provided below:

- The main interest today is in grains, these are presented to the consumers in different sized packages. Companies that wish to upgrade should concentrate on improving this product and diversifying within this product line, rather than investing in more complicated items. There are multiple quinoa varieties, many with different colors that could be attractive for more gourmet markets. As the ready-to-eat market is also rapidly expanding pre-cooked quinoa and packages that contain vegetables could also be attractive for the end consumers.

  Some types of upgrading opportunities, such as in functional upgrading, are more limited in number and often more accessible to SMEs with certain advantages: larger enterprises; SMEs owned by people who have more resources, power and greater risk tolerance; or SMEs owned by people with the higher skill levels.

- Focus efforts in exporting organic products. This market is much larger than fair trade, and a much larger assortment of products is commercialized through it. Very often organic and gluten free go hand in hand, as is the case of the US company that commercializes its products as both. This mix is something consumers could be interested in. Additionally, in the European Union Austria and Denmark have high expense per capita on organic products. Further research should be done in these markets.

- Farmer associations should seek to move into full package manufacturing, and deliver packed quinoa grain. Interest from the US firm in this kind of arrangement has been expressed, and they are willing to provide technical and financial assistance. This kind of arrangement could be accomplished with other countries through tying agreements clauses in the contracts. If this is possible associations can continue exporting grain and also higher value added products. It is important to comply with quality, delivery times, prices and quantity so future volumes can increase.

- The associations should also work on generating information on market demands, search for and establish commercial contracts, coordinate participation in International trade fairs. They should work on unifying the sector and increasing its competitiveness through long term goals. They can also look to form alliances with universities to carry out research in product development.

- As government support is low, business associations must lead the upgrading and cluster promotion, to create a favorable environment for the SMEs. The enterprises that form Cabolqui for example, can redact policy papers to negotiate with the government. Such policy could

include fiscal incentives and concession in the price of infrastructure. In exchange the sector should raise employment over time.

- Awareness of opportunities throughout the value chain must be maintained. From the research, it was concluded that the most opportunities are in the organic markets, especially in the USA. However, not all SMEs should try to operate in this market. Diversification of market channels is important.

6.3. Limitations and future research

The main limitation of this research is the amount of respondent companies in the USA and Europe. The quinoa value chain is rather small and relatively new; the main players are few and account for most of the quinoa trade. However, even considering this the amount of respondents was very low. Fair trade companies and supermarkets responded that they get too many requests to participate in studies and share information, so they do not participate in any. The French companies and most of the US did not even respond to the mails sent, since these markets today are the biggest it could have helped understand the dynamics of the chain better. Furthermore, the companies that responded did not agree to an interview, which could have helped to gain deeper insights. Managers of these companies, which could really provide the information needed, are either very busy or mistrustful of disclosing information.

Only processors and wholesalers were contacted for this research, other channel members such as importers of grains could be included in future research too, as they also know about the end market opportunities. More in-depth studies into the horizontal linkages formed by the quinoa actors in the same levels of the chain should be carried out.

The current research found that the importers are satisfied with the products they currently import, however it could be beneficial to know the level of satisfaction. This could unfold into identifying new upgrading opportunities, in improving current product specifications to better satisfy the consumers requirements. Future research should also aim to uncover all the disincentives for SMEs to upgrade, as it can help to identify ways to reduce risks.

This research has shed light on the current opportunities and constraints for upgrading the Bolivian quinoa chain; however, markets are dynamic, they are constantly changing, so the players involved must be up to date in any changes and seize new opportunities.

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Appendix 1 Questionnaire Bolivian SMEs / Farmer Associations

GENERAL INFORMATION

Company:

Main clients:

Main products (E.g. grain, flour, pasta):

_____ _____

_____ _____

Years in the export sector:

To what countries do you export your product?

__USA ___ United Kingdom

__ Germany ___ France

__Holland ___ Others: _____

VERTICAL LINKAGES

1. How many clients do you have? _____

   Consider your most important client to answer the following questions

2. Your company commercializes its products under ___own brand ___ clients brand
3. What type of agreement do you use to commercialize your product? What is the duration of the agreement?

Type of agreement	Duration of agreement
___Written	___One order
___Verbal	___ One year
	___ Several years – how many? _____

4. What is the optimum type of agreement?__ _____
5. What is the optimum duration of the agreement?_____
6. Under which type of governance structure do you currently operate?

   ___Cooperation (share competencies with firms in Bolivia)

   ___Specifying products, processes and control mechanisms

   ___Foreign owner

HORIZONTAL LINKAGES

7. Does your company form part of any association (E.g.. Cabolqui)? YES/NO, Which?

   __ _____

8. What is the main motivation for forming part of the association?

   _____ _____

9. Please indicate the type of information shared:

___Markets	___Products
___Technology	___Prices
___Quality	___Others _____

10. Do you aggregate orders to meet volume demands? YES/NO

Contracts

11. What terms are indicated in the arrangement? (Check all that apply)

___Price	___Certification
___Volume	___Pre-agreed delivery time and delivery place
___Early payment	___Clauses that define penalties
___Assistance	

___Exclusive dealing (customer sells only your products or at least no products in direct competition)

___Tying agreements (the buyer must purchase one good to secure another)

___Other: _____

What other terms do you think should be included in the agreement?

_____

Assistance

12. What kind of assistance does your client offer you?
    ___Financial
    ___Tecnological
    ___Training
    ___Other_____

13. What other type of assistance would you expect from you client? Why?

_____

Transmission of information

14. Transmission of market information, you client informs you of (Check all that apply)
    ___Supply and demand forecasts
    ___ Retail prices
    ___ Quality requirements
    ___ Certificate requirements
    ___New product developments
    ___Opportunities and threats
    ___Complaints from consumers
    ___Performance
    ___Other:_____

15. What other transmission of information do you consider important ? Why?

_____

GOVERNMENT SUPPORT

16. How does the government support the sector?
    ___Finance
    ___Technology
    ___Tax Incentives
    ___Cerdit Programs
    ___Creation and formation of skilled workforce
    ___Facilitacion of trade
    ___ Improvement of infrastructure
    ___ Promotes the creation of enterprises in complementary activities
    ___ Promotes research in the sector
    ___Other

17. What other ways do you think the government can support the sector?

_____

18. Cuáles son las principales razones por las cuales solo exportan grano, y no invierten en agregar valor al producto? (Si es que si exportan productos con valor agregado, pase a la siguiente pregunta)

___Low demand of processed products
___Low interest of buyers in processed products
___High investment costs
___Political instability
___Unskilled workforce
___Inability to comply with standards
___Few supporting industries
___Insufficient technology for processing
___Communication/coordination risks
___Poor infrastructure
___Other (please specify):_____

19. What would encourage your firm to invest in value added products?

_____
_____
_____

Thank you for your cooperation

Appendix 2 Questionnaire Wholesalers / Processors

This study is aimed to identify the opportunities and constraints that exist in the Bolivian quinoa industry in order for more value adding activities to take place in the country.

Company:
Main Bolivian suppliers:

1. What products do you currently import?

___grain
___packed quinoa grain
___pasta
___other Please specify_____
___other Please specify_____
___other Please specify_____
___puffs
___flakes
___cookies
___breakfast cereals

END MARKET OPPORTUNITIES (PROCESSOR)

1. Would you be willing to distribute products processed in Bolivia under your brand? Yes / No (Please highlight your answer)
   If your answer is no please skip to question 5

2. Under which type of governance structure would you distribute them?
   ___Cooperation (share competencies with the firm in Bolivia)
   ___Specifying products, processes and control mechanisms
   ___Directly owning a firm in Bolivia

3. What would be the length of the contract/agreement (in the case you chose cooperation or specifying products)?
   ___One order
   ___One year
   ___Several years How many?_____

4. What products would you be willing to distribute?
   ___Same products as you currently process
   ___Variations of your own product (flavor, quality, prices)
   ___ Product lines that your company does not produce
   ___Other (please specify):_____

5. Why are you not willing to distribute products processed in Bolivia under your brand? (check all that apply)
   The following refer to conditions in Bolivia
   ___High investment costs
   ___Political instability
   ___Unskilled workforce
   ___Inability to comply with standards
   ___Few supporting industries
   ___Insufficient technology for processing
   ___Communication/coordination risks
   ___Poor infrastructure
   ___Other (please specify):_____

6. What quinoa products/product lines do you see with high potential in the US market?

_____ _____ _____
_____ _____ _____

END MARKET OPPORTUNITIES (WHOLESALERS)

2. Are you satisfied with the current products that you import? Yes / No (Please highlight your answer)
   If your answer is yes, please go to question 4

3. Why are you not satisfied with the current quinoa products that you import?
   ___Low quality
   ___Low variety
   ___Low volumes
   ___Unattractive packaging
   ___Non-compliance with delivery times
   ___Non-compliance with standards
   ___Other Please specify_____
   ___Other Please specify_____

4. Would you be interested in importing more value added products? YES/NO (Please highlight your answer)
   If your answer is no, please go to question 6

5. What kind of products would you be interested in?

Same products you currently import, but with different:

___Sizes Please specify_____
___Flavors Please specify _____
___Range of prices Please specify _____
___Qualities Please specify _____
___Other Please Specify_____

New products/product lines, please specify (e.g. cookies, pastas, muesli)

_____
_____
_____

6. Why are you not interested in products with more value added?
   ___No market for them
   ___Already have a different provider for these products
   ___Other Please specify_____
   ___Other Please specify_____

7. What quinoa products/product lines do you see with high potential in your market?

a) _____ c) _____ e) _____
b) _____ d) _____ f) _____

8. What has been the growth in sales of quinoa products in your market in the last 5 years?

_____

VERTICAL LINKAGES

9. What type of arrangement do you mostly use in buying your product? What is the duration of the arrangement?

Type of arrangement	Duration of arrangement
___Written arrangement	___One order
___Verbal arrangement	___One year
	___Several years How many?_____

10. What is the type of arrangement and length usually established with a new supplier?
    _____

11. Under which type of governance structure do you currently operate?
    ___Cooperation (share competencies with firms in Bolivia)
    ___Specifying products, processes and control mechanisms
    ___Directly owning a firm in Bolivia

Contracts

12. What terms are indicated in the arrangement? (Check all that apply)
    ___Price
    ___Volume
    ___Early payment
    ___Assistance
    ___Certification
    ___Pre-agreed delivery time and delivery place
    ___Clauses that define penalties
    ___Exclusive dealing (customer sells only your products or at least no products in direct competition)
    ___Tying agreements (the buyer must purchase one good to secure another)
    ___Other: _____

Assistance

13. What kind of assistance do you offer to your supplier?
    ___Financial
    ___Technical
    ___Training
    ___Other_____

14. What kind of assistance would you offer to the supplier if they are developing new products?
    ___Financial
    ___Technical
    ___Training
    ___Other_____

15. Transmission of market information, you inform your suppliers about (Check all that apply)
    ___Supply and demand forecasts
    ___ Retail prices
    ___ Quality requirements
    ___ Certificate requirements
    ___New product developments
    ___Opportunities and threats
    ___Complaints from consumers
    ___Performance
    ___Other:_____

16. Do you think the answers you provided are representative of the sector? Yes/No (Please highlight your answer)

Additional comments:

_____
_____
_____

Thank you for your cooperation

Appendix 3 EU Organic market expenses

Country	Year of data	Organic food expenses mio €	Share in total food expenses	Organic food expense per capita €
Belgium	2007	283	1.3	26.6
Bulgaria	2006	1	0	0.1
Czech Republic	2007	52	0.5	5
Denmark	2006	434	3.8	79.8
Germany	2007	5300	3.7	64.4
Greece	2006	60	0.2	5.4
Spain	2007	200	0.2	4.5
France	2007	2069	1.4	32.4
Italy	2007	1387	1.0	21.4
Cyprus	2006	2	0.1	1.9
Luxembourg	2006	41	3.7	86.4
Hungary	2006	20	0.2	2
Netherlands	2007	519	1.8	31.7
Austria	2007	739	4.8	89
Poland	2006	50	0.1	1.3
Portugal	2006	70	0.4	6.6
Romania	2006	2	0	0.1
Slovenia	2006	4	0.2	2
Finland	2006	65	0.6	12.3
Sweden	2006	379	2.2	41.7
United Kingdom	2007	2835	2.7	41.9
Average EU				**26.5**