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Project for the Feasibility of Creating a Producing and Exporting Company of Guava (Ecuadorian 'Guayaba') Fruit Purée to Barcelona Spain

Graduation Thesis Prior to Obtaining the Degree of

Degree in International Studies, concentration in Foreign Trade

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Abstract

The present project is based on the proposal for the design and implementation of a company responsible for preparing guava purees. The aforementioned company will target the potential market of elderly adults between ages 65 and 79 currently inhabiting Barcelona in the community of Catalonia – Spain. According to this proposal it is necessary to mention that the Ecuadorian market has prosperity in a many variety of fruits. The guava A.K.A. Ecuadorian 'guayaba' fruit has been chosen because 90% of the production of this fruit in Ecuador constitutes a surplus that, in many cases, is wasted. Therefore, the decision has been made to manufacture and export Guava products through the company GUAYAEXPORT CIA LTDA, located in San Isidro del Inca, Quito Ecuador. The aforementioned enterprise is composed of two partners signing a total of $273,475.18 in contributions. Regarding the productive goal, the idea is to cover 8% of the total unsatisfied demand. In turn, the project could be considered totally financially feasible, resulting in a Net Present Value of $51,483.40 after the first year of operation. Additionally, the project is forecasted to obtain an IRR (Internal Rate of Return) 55% higher than the MARR (Minimum Acceptable Return Rate) of 12.67% indicating that the project is feasible to be carried out. The calculated NPV results in a benefit cost ratio (BCR) equal to 4.22% greater than 1, indicating that the project should be accepted. Given the results above, it can be concluded that the implementation of GUAYAEXPORT will be completely beneficial for the company and for the Ecuadorian economy by generating exports of Ecuador's surplus products; which in the European Union are quite desirable.

Introduction

This project aims to find the feasibility of implementing a company that produces and exports guava puree to the Barcelona Spain market. To accomplish said task a series of quantitative and qualitative processes was followed to determine the start-up of the project.

Accordingly, the first chapter involves the market study of the project. This includes aspects of market segmentation from which the demand to be covered by the project is obtained. The degree of acceptance is expected to be similar to the demand calculated from surveys taken by older adults in Barcelona Spain regarding the purchase availability of a product such as the one to be offered.

Chapter II explains the technical study which includes the resources and engineering necessary to start the project activities. To carry out this investigation it was necessary to determine the amount of raw materials, machinery, labor and manufacturing overhead required. Also included in this analysis was the study of the exact location that the project will have. A comparative analysis was needed to determine if such a location is optimum compared to other possibilities of locating the company. The technical study furthermore explores the enforced import and export regulations in both the country of origin (Ecuador) and the country of destination (Spain), concurring with the import laws of the European Union.

Finally, Chapter III includes the financial analysis taking into account the total investment vs. the income that will be received periodically from the project. From such calculations it is determined that the project is feasible since the Net Present Value is greater than 1, and the IRR (Internal Rate of Return) of the project is greater than the MARR (Minimum Accepted Return Rate).

Our conclusion states that the project is feasible and its implementation requires the review of each process in the aforementioned chapters.

CHAPTER I: Market Study

1.1 Background

Guava is considered an exotic fruit, especially for the countries in North America and Europe. It is renowned for its freshness, softness and high vitamin C content.

Currently, this fruit grows in, South Asia, India, parts of the Mediterranean, Hawaii, the Philippines, the West Indies, California and Florida. It is also found in Central and South American countries such as Mexico, Costa Rica, Cuba, Puerto Rico, Venezuela, Colombia, Peru and Ecuador.

Ecuador is an agricultural country by nature whose flora and fauna are some of the most diverse in South America. One of Ecuador's highest crop production is of the guava fruit, which is characterized by having a high content of vitamins, minerals and fiber.

Given Ecuador's immense cultivation of guava, it has been considered essential to apply technical processes which have not yet been implemented by manufacturers of the country to obtain certain derived products from this fruit. Taking advantage of the great surplus that exists of guava and allowing the export of its processed products which are quite desirable in foreign markets, constitutes a substantial market that can be exploited by national production.

Although Ecuador is an agricultural country par excellence, there are currently certain foods that are not being sufficiently utilized. These foods and fruits in particular are not being consumed to their full extent for lack of well-structured and technological processes to create products derived from them. Hence, fruits like the guava are only marketed in their natural state.

Thus, a market opportunity is available for guava and its processed counterparts given its high desirability in European and North American sectors. As mentioned before the health benefits of guava which include high vitamin, mineral and fiber content particularly appeal to said markets.

"In addition the product has a lot of soluble solids, soluble pectin, and high vitamin C content. According to experts, the consumption of one guava is equal to eating five oranges daily and is also a soft and appetizing fruit."(Castro, 2010)

The main problem is that guava is determined as one of the surplus crops in the country. The reason being that only 10% is used to be commercialized, while the remaining 90% is wasted because it is easily perishable. (Castro, 2010)

Nor are there many industrialists who use guava in order to make this fruit an indispensable raw material for the production and commercialization of byproducts through technical processes.

In addition, most guava processing companies, which convert the product into derivatives such as jam, candy, juice or pulp (all of which are unique and major products made based on guava); are found in specific sectors such as the province of Santa Elena.

Because of its rapid decomposition, even guava producers do not risk acquiring machinery and equipment to treat, cultivate and market it.

Thus, in order to generate changes and innovate processes that benefit the national economy, it is crucial to create sustainable production that can be paid for by the owners' own available resources. The following must be done in a given period where the fundamental axis lies between the fresh fruit being delivered by national suppliers and the byproduct being manufactured. The finished product can then be taken to Ecuador Customs control where the export process is executed.

In the fresh fruit trade, there are two main groups of products according to their climatic zone of production: The first being temperate or seasonal fruits (citrus fruits, pome fruits, drupes, strawberries, melons, watermelons, etc.) which grow in the Northern and Southern Hemispheres between the parallels 30 and 50 degrees latitude; and which require cold at some stage of their development. The second group consists of tropical fruits, occurring between 30 degrees latitude and the Equator between areas of the Tropic of Cancer and Capricorn. These fruits, generally, do not require cold and do not have a marked seasonality of production. (Mercasa.es, 2015)

Shown below is a table of most internationally commercialized tropical fruits. In the following, guava (guayaba) can be observed among this group of fruits. Given its abundance in Ecuador and high international demand the decision has been made to export this particular fruit to the Spanish market.

Table 1: Tropical Fruits Most Internationally Commercialized

Aguacate o avocado	Mangostán
Caqui	Maracuyá, granadilla o fruta de la pasión
Carámbola	
Chirimoya	Níspero
Guanábana	Papaya
Guayaba	Piña
Litchi o rambután o mamón chino	Plátano (plantain)
Mango	Tamarindo

*English Translation

Aguacate – Avocado **Caqui** – Persimmon ***Carambola*** – Star Fruit ***Guanábana*** – Soursop ***Guayaba*** – Guava ***Litchi*** – Lychee ***Mangostán*** – Mangosteen ***Maracuyá*** – Passion Fruit ***Níspero*** – Loquat ***Pina*** – Pineapple ***Tamarindo*** - Tamarind

Source: (mercasa.es, 2015)

1.2 Current Market Analysis

Although Ecuador is an agricultural country par excellence, there are currently certain foods that are not being sufficiently utilized. These foods and fruits in particular are not being consumed to their full extent for lack of well-structured and technological processes to create products derived from them. Hence, fruits like the guava are only marketed in their natural state.

Thus, a market opportunity is available for guava and its processed counterparts given its high desirability in European and North American sectors. As mentioned before the health benefits of guava which include high vitamin, mineral and fiber content particularly appeal to said markets.

"In addition the product has a lot of soluble solids, soluble pectin, and high vitamin C content. According to experts the consumption of guava corresponds to eating five oranges daily and is also a soft and appetizing fruit."(Castro, 2010)

The main problem is that guava is determined as one of the surplus crops in the country. The reason being that only 10% is commercialized, while the remaining 90% is wasted because it is easily perishable. (Castro, 2010)

Furthermore, there are not many industrialists who use guava in order to make this fruit an indispensable raw material for the production and commercialization of byproducts through technical processes.

In addition, most guava processing companies, which convert the product into derivatives such as jam, candy, juice or pulp (all of which are unique and major products made based on guava); are only found in specific sectors such as the province of Santa Elena.

Because of its rapid decomposition, even guava producers do not risk acquiring machinery and equipment to treat, cultivate and market the fruit.

Currently, the focus of foreign trade in Ecuador is accomplished through modernization and ties developed with other countries mainly from South America. These countries have decided to join forces to achieve better benefits through gathering the necessary tools to introduce national products based on requirements of foreign markets, such as those of the European Union and North America. This alliance is known as the CAN (Andean Community of Nations) formed by "Member Countries: Bolivia, Ecuador, Peru and Colombia. Associated Countries: Argentina, Brazil, Chile, Paraguay and Uruguay. Also including Observer Country: Spain." (cancilleria.gov, 2011). Together, the CAN has formed the Andean Integration System (AIS), whose objective is "to achieve integral, more balanced and autonomous development, through Andean, South American and Spanish-American integration." (sanahuja, 2007)

“MERCOSUR (Southern Common Market) is a trade agreement amongst Argentina, Brazil, Paraguay, Uruguay, Venezuela, Chile, Colombia, Ecuador, Peru, Guyana and Suriname. The treaty is based on a Democratic Charter that does not allow membership in the bloc of non-democratic countries. MERCOSUR has established free trade areas and common tariff agreements. It also establishes various mechanisms for productive

complementation and economic, social and cultural integration along with free movement of the citizens of the bloc" (MERCOSUR, 2006).

1.3 Overview

The market study will allow verification of the actual existence of customers who intend to request the product being offered. The study will also allow segmentation to direct the project to a specific niche market.

While it is true that the consumption of exotic tropical fruits in Spain has had a growth behavior over the years, this trend can be justified thanks to the shift towards consumption of gluten-free, all natural, healthy foods. Such evidence will be verified based on the studies of primary and secondary sources presented later in this chapter.

1.4 Market

The market can be defined as a set of transactions where the exchange of goods or services takes place. The market does not necessarily make a reference to profit making by companies, but refers to a mutual agreement between parties for the generation of transactions. Examples of said parties include the people, companies, corporations, and NGOs, among other entities where the exchange of goods and services intervenes.

1.4.1 Definition of the Spanish Market

According to (PROECUADOR, 2012):

"(...) to give a practical example, the consumption of fruits like passion fruit, mango and tamarind has doubled in recent years. This increase is related to a greater use by professional cooks in their fusion of exotic fruits in their dishes. The letter also discusses the balance that the Mediterranean diet (predominantly the Spanish market) contains, where 35% of the daily diet of Spanish consumers is combined with fruits. Usually these are local fruits native to Spain and other European countries, but there is also a trend of consumption of exotic tropical fruits. This trend is related to consumer awareness that these fruits contain many vitamins and above all, vitamin C. Such exotic fruits have also become easy to acquire since they have been made available year round by different tropical countries such as Thailand, Costa Rica, Colombia, Mexico, Ecuador, etc." (pg. 22)

For this reason, the Spanish market is adopting a trend towards healthy eating. According to a conversation held with Mrs. Patricia Cueva, a 16-year Barcelona citizen of Ecuadorian nationality; indicates that around her home there are more than six or seven places where fruits of all types and their derivatives are offered. A few of these shops include:

- Carrefour
- El Día
- Mercadona (the biggest and most diverse market of Barcelona, has sections dedicated to dairy, vegetables, frozen, bakery, among others)
- Lidel (French market)
- Various Fruit Shops (coming from individuals especially of Hindu nationality, although in previous years said greengrocers were commanded by persons of Chinese nationality)

The following table represents Spanish imports of tropical fruit. The table is segmented into tariff subheadings which refer to the tropical fruits most requested within the Spanish market.

Table 2: Worldwide Tropical Fruit Import Statistics for Spanish Market 2000-2012

*values represented in Tons

ESTADÍSTICA DE IMPORTACIONES ESPAÑOLAS DE FRUTAS TROPICALES DE TODO EL MUNDO AÑOS 2000 - 2012													
Subpartida	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
080450 Guayabas, mangos y mangostan	8.90	10.65	12.63	15.92	15.36	17.16	20.91	24.34	29.37	27.25	35.50	41.44	41.32
08109020 Tamarindos, peras de marañó									1.55	2.08	1.60	1.76	1.69
080720 Papayas, frescas	1.69	1.66	2.16	3.82	6.10	6.77	8.34	12.02	14.28	11.14	12.00	12.51	10.74

Source: (Ministerio de Agricultura, Pesca y Alimentación de España, 2015)

(Ministry of Agriculture, Fisheries and Food of Spain, 2015)

Table 3: Worldwide Tropical Fruit Import Statistics for Spanish Market 2015

*Values represented in Tons

Producto / Origen	PIÑA		AGUACATE		GUAYABA, MANGO Y MANGOSTAN	
	UE	España	UE	España	UE	España
COSTA RICA	720.204	123.624	42	-	3952	25
ECUADOR	23.407	18	26	-	1.857	231
PANAMÁ	23.300	5.908	21	-	3	25
PERÚ	21	-	114.337	32.885	79.864	5.666
BRASIL	66	20	3.535	1.094	111.868	23.904
CHILE	74	2	62.588	5.234	47	-
SUDAFRICA	602	99	49.494	1.633	1.481	49
COSTA DE MARFIL	24.666	443	-	-	22.919	645
OTROS ORIGENES	44.018	1.460	113.378	15.802	78.385	3.568
TOTAL	**836.358**	**131.574**	**343.421**	**56.648**	**300.376**	**34.113**

Source: (mercasa.es, 2015)

Table 4: Worldwide Tropical Fruit Imported by Spain 2012-2015

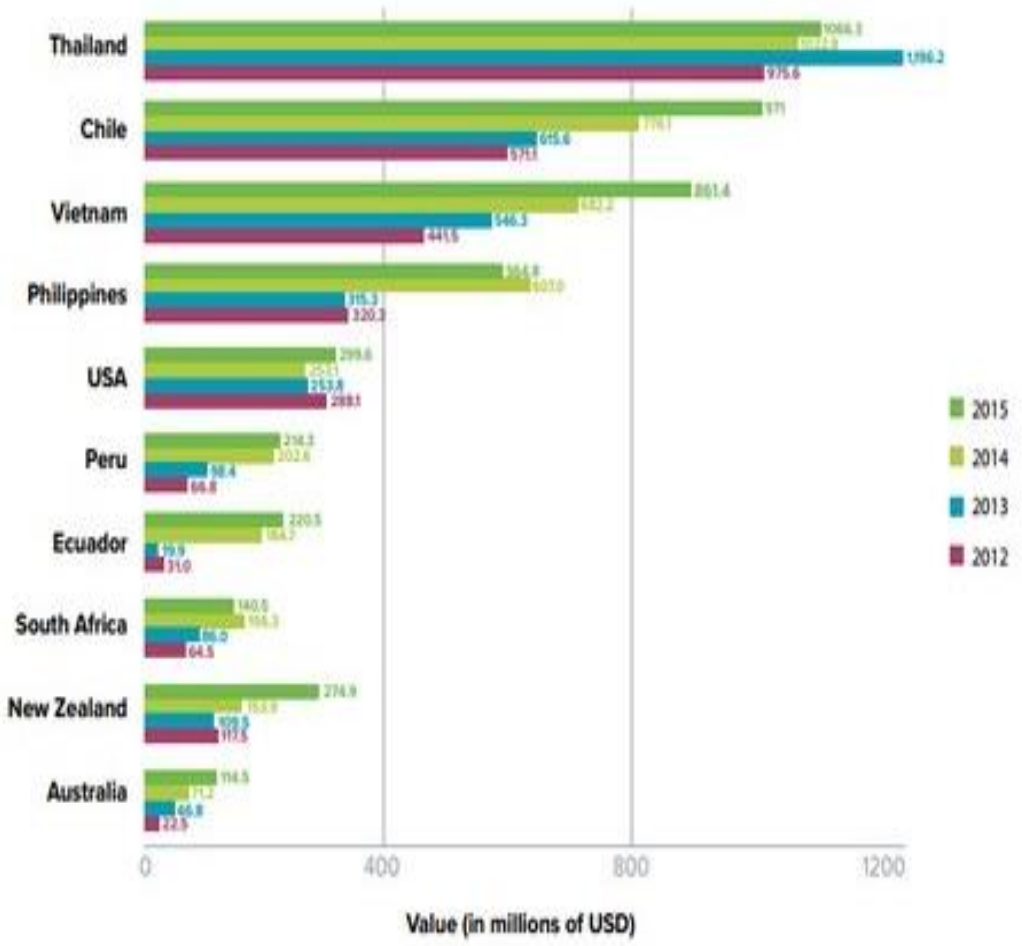


Table 2 shows the accelerated growth of tropical fruit consumption in Spain, where heading 080450 "guava, mango and mangosteen" are the fastest growing. Although growth in 2012 decreased by 0.12% in reference to 2011; sales continued to maintain gradual growth shown by table 3 representing the year 2015. This table displays a total 34,113 tons of imported tropical fruit to Spain, where Ecuador exported 231 tons to this country.

According to (PROECUADOR, 2012) there are two companies in Spain currently importing and selling tropical fruit from different countries including Ecuador.

These companies are:

- **Cultivar –** A family and independent company, leader in the Spanish market, dedicated for 3 generations to the import and distribution of fresh fruits and vegetables. In 2008 its consolidated sales reached 140 million euros with a workforce of 166 employees, handling a volume of more than 150,000 tons per year. (PROECUADOR, 2012)

- **FRUITS CMR, SA -** headquartered in Barcelona (Mercabarna), is the parent company of the CMR Group. The group is composed of subsidiaries: CMR INFINITA, located in the central market of Madrid (Mercamadrid), CMR LEÓN in León, Spain, CMR CANARIAS, In Santa Cruz de La Palma (Canary Islands), CMR FRANCE in Perpignan (France), CMR HOLLAND in Ridderkerk (Netherlands) and CMR BRASIL in Natal (Brazil). CMR Group aims at the commercialization of horticultural products and the import of fruit. (PROECUADOR, 2012)

1.5 Characteristics of the Spanish market and its trend of tropical fruit consumption

According to (Informe de consumo de alimentación en España, 2014) fine points:

> Expenditure on food amounted to 66.443 million euros, a decrease of 3.5% compared to the figure for the year 2013. This decline is the result of the decrease in consumption (-2.3%). (Informe de consumo de alimentación en España, 2014)

(PROECUADOR, 2012) Indicates:

Europe produces about 16% of fruit worldwide, exporting a quarter of its production; but in turn imports more than half of the fruit worldwide, coming from Africa and America.

The current trend in fruit consumption is marked by increased domestic consumption, attractive prices of imported products, counter-seasonal imports, and heavily established distribution channels.

Following these characteristics of fruit consumption, in 2003 there was a consumption of "4.125 million kilograms (2003) within the Spanish market, more than 90% of which being household consumption. This doesn't include consumption in hospitality, where the most significantly consumed fruits were lemons and oranges." (Ministerio de Agricultura, Pesca y Alimentación de España, 2015)

Moreover, the fruit with the highest consumption in Spain is the orange; followed by the apple, banana, melon, pear, mandarin and watermelon. This trend can be attributed to the fact that the market highly emphasizes vitamin C intake through natural fruits.

"It is also worth mentioning that since 1987 the consumption of fresh fruit in Spain fell by 7%, and that said standard continued until 1997. However, since 2000 there has been a considerable increase generated by the so-called exotic fruits, and for 1999 and 2003, fruit consumption increased considerably by 22%" (Ministerio de Agricultura, Pesca y Alimentación de España, 2015)

For this project it was necessary to contact the Ecuadorian citizen of Spanish nationality who has been residing in Barcelona for the past eighteen years. Since online sources do not show a precise reality compared to what is currently happening in market; this contact was essential in carrying out market research to closely verify the consumption of tropical fruits in Barcelona-Spain. It is worth mentioning that the information provided by this person is related to costs, prices, presentations, forms of advertising, distribution channels, collection of data related to consumers of tropical fruit products, among other data collected. This resource serves as a direct link between the author of the project and the real tropical fruit market in Spain.

The above gives a clear example of the optimistic scenario for sufficient demand of new or little-known exotic fruits; as well as the demand for freshly squeezed fruit juices. According to the observations of Mrs. Patricia Cueva, demand for frozen fruit, which is used for the preparation of juices and milkshakes has also increased. In reference to the frozen fruit she says: "It is very helpful, because it allows you to economize since each of these purees does not cost more than €2.00 to €2.50; whereas buying natural fruit, for example bananas, cost €1.19/kg or a tomarillo (tree tomato) which costs €1.50. This information gives reference to the fact that current consumption of fruit in Spain is based on the offer of new products made from these fruits; which in turn allows these foods to gain entrance into the daily diet of all Spaniards.

Both Barcelona and the rest of the Spanish market show a significant distribution of tropical fruit in small shops called "fruterías". According to (Ministerio de Agricultura, Pesca y Alimentación de España, 2015) "the traditional store exceeds 45% and the large distributors do not reach 42%."

The graph below shows the per-capita consumption of fruits and vegetables in Spain. It is clearly seen here that the purchases made by citizens take place in distribution stores a.k.a. fruterías which are very close to their place of residence. The graph also represents consumption "HORECA" represented by (Hotels Restaurants and Catering) who also buy fruit, and other institutions such large grocery stores. The following demonstrates the existence of high demand for fruit in the fruterías (small fruit shops) in every neighborhood of each city.

Table 5: Amount of Fruit and Vegetables Bought Inside and Outside the Home (Kg)

ITEM	2011	2012	2013	2014	2015
Consumption per capita of *other fruits*	7.46	8.15	8.40	9.26	9.75
Total Consumption per capita	9.73	94.31	95.69	102.20	101.46

Source: (Productos exportación UE, 2015)

Produced by: MAGRAMA España

*Consumption of other fruits including guava

1.6 Consumption of Processed Fruit

YEAR	POPULATION 65-79 YEARS OF AGE	PER CAPITA CONSUMPTION OF TROPICAL FRUIT	TOTAL CONSUMPTION	UNITS
2011	224,326	7	1,673.472	KG
2012	223,717	8	1,823.294	KG
2013	223,484	8	1,877.266	KG
2014	223,120	9	2,066.091	KG
2015	244,116	10	2,380.131	KG

Source: (Productos exportación UE, 2015)

Produced by: The author

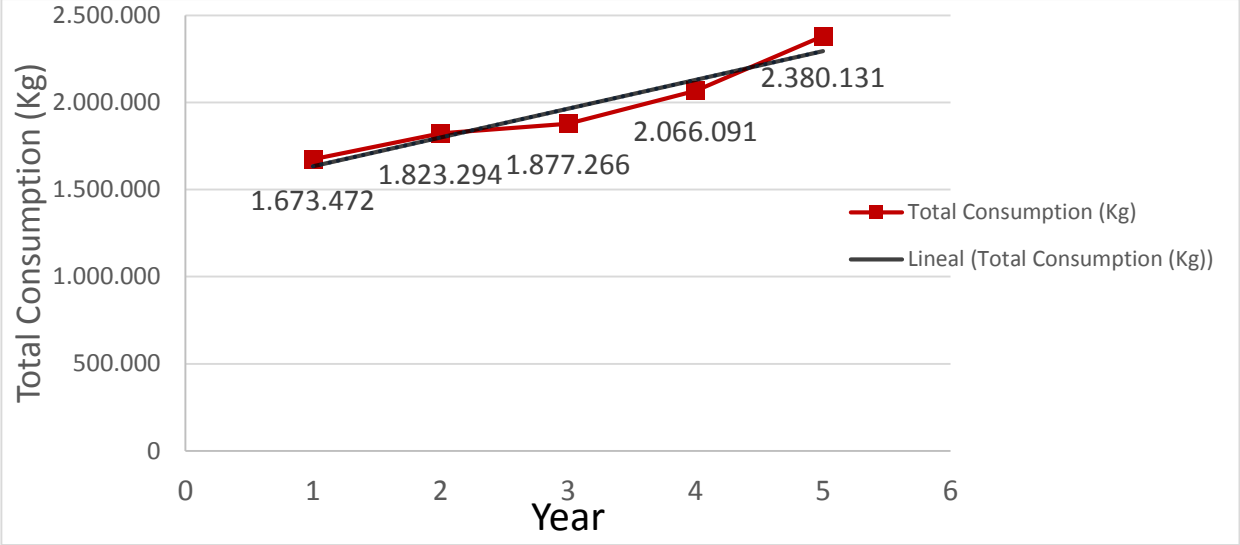


Figure 1: Per Capita Consumption 2011-2015

Source: (Productos exportación UE, 2015)

Produced by: The author

As mentioned before, Spain's fruit consumption has been increasing in recent years due to the idea of healthy eating. Currently there are campaigns, especially in regards to Vitamin C consumption, being carried out by the same companies that sell fruit. This information was also provided by Ms. Patricia Cueva.

Table 6: Major Export Destinations of Ecuador Prepared Jams, Jellies and Marmalades, Fruit and Nut Purees and Pastes, Obtained by Cooking, Containing or Not Containing Sugar or Other Sweeteners Falling within subheading 2007.999.100

Importers	Value Exported in 2011	Value Exported in 2012	Value Exported in 2013	Value Exported in 2014	Value Exported in 2015
World	42274	41832	47790	50568	51287
Netherlands	16746	14386	14337	14228	16692
United States of America	8874	9640	9506	11466	10943
Russia	485	2783	4759	5297	3648
Chile	3333	2308	3469	1959	3096
Poland	2102	1642	2938	1928	2198
France	851	1303	871	1313	1675
Spain	1076	1101	1516	2056	1386

Japan	364	376	969	950	1111
Australia	655	508	358	859	1064
Israel	199	516	715	1190	989
Belgium	153	219	499	656	875
Colombia	103	22	9	635	789
Canada	632	194	378	249	728
United Arab Emirates	381	317	561	1067	625
Ukraine	656	374	609	606	583
Italy	940	1245	979	816	482
China	15	163	275	458	454
New Zealand	189	248	272	341	448
Germany	1838	873	1153	991	424
United Kingdom	759	727	748	617	423
South Africa	222	100	167	308	333
Turkey	161	185	46	84	279
Bulgaria	0	10	107	205	256
Lithuania	54	9	104	241	208
Saudi Arabia	289	355	279	247	200
Libya	0	720	792	376	184
Portugal	212	66	197	113	174
Mexico	415	679	695	688	166
Ireland	0	0	11	71	157
South Korea	0	10	21	109	151
Iran	0	0	0	0	85
Uruguay	27	100	19	0	73
Lebanon	0	0	76	110	65
Greece	61	42	34	54	54
Latvia	46	164	79	10	54
Panama	8	12	31	27	48
Egypt	0	144	0	0	40
Georgia	0	11	23	0	39
French Polynesia	0	19	0	11	35
Finland	74	9	18	48	32
Cyprus	0	0	12	8	11
India	0	0	0	8	8
Taiwan	0	0	0	0	1
Singapore	0	0	0	0	1
Argentina	138	0	0	0	0
Brasil	0	0	0	35	0
Costa Rica	78	55	24	0	0
Denmark	0	0	0	100	0

Ghana	0	0	19	0	0
Guatemala	24	0	0	0	0
Guinea	0	0	0	14	0
Jordan	20	64	55	0	0
Kenya	0	18	27	0	0
Nicaragua	0	25	0	0	0
Peru	50	0	0	0	0
Philippines	9	0	10	21	0
Switzerland	0	0	20	0	0
Venezuela	35	90	0	0	0

Source: (trademap, 2015)

As can be seen in Table 6, the consumption of jams, jellies and marmalades of Ecuadorian origin is increasing. Ecuador exports to Spain reached 1,076 tons of tropical fruit in 2011, whereas by 2015 this number increased to 1,386 tons. Additionally, the year 2014 saw an even greater export growth of 2,056 tons when compared to previous years and the following year.

The above also demonstrates that the Spanish market tends to consume processed fruit. As said earlier this may be due to awareness campaigns for the consumption of healthy food.

Thus, the supply of processed fruit in recent years is detailed below. The following table includes, but is not limited to, those fruits and processed products originating in Ecuador and exported to Spain.

Table 7: Fruits and Legumes - Processed Products Imported from Barcelona 2010-2015 in Kg

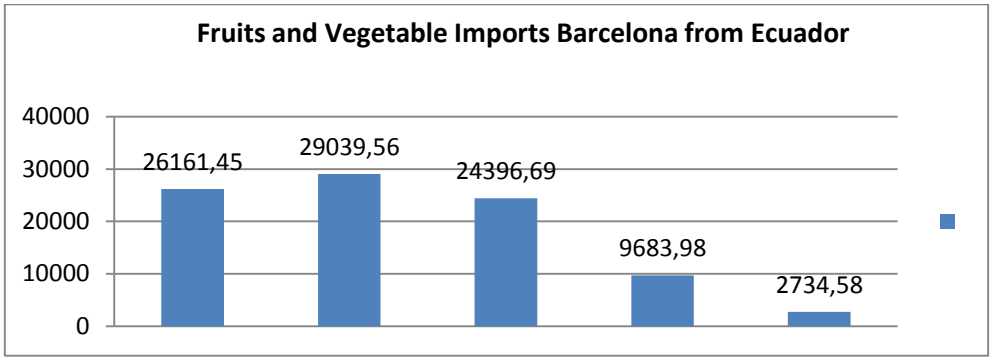
PRODUCT	2011	2012	2013	2014	2015
Fruits and Legumes	26,161.45	29,039.56	24,396.69	9,683.98	2,734.58
Processed Products	116.11	282.19	246.3	229.5	101.11

Source: (IT MARKETING, 2015).

Created by: Author

The above information was obtained from Investigation Technology Marketing (IT MARKETING (www.itmarketing.com). A website where it is possible to subscribe and find monthly and annual bulletins of different products, both import and export, throughout the European Union.

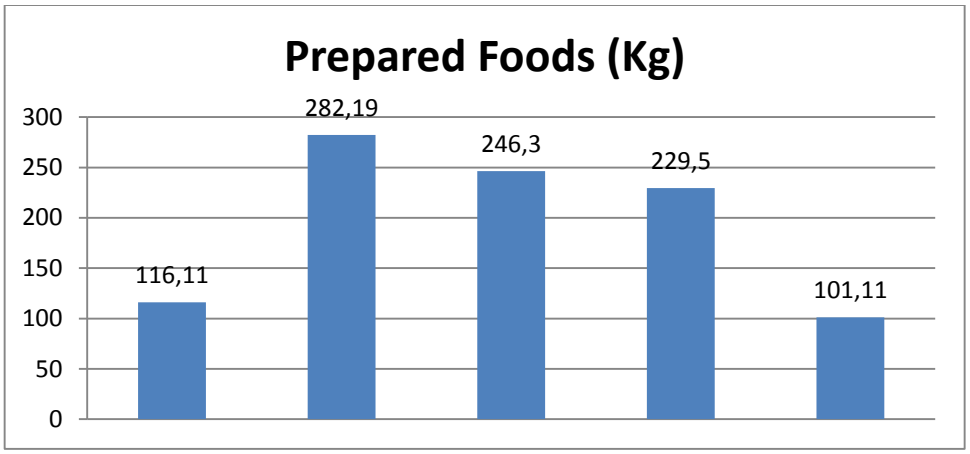
Figure 2: Fruit and Vegetable Imports to Barcelona from Ecuador 2010-2015 in Kg



Source: (IT MARKETING, 2015)

Created by: Author

Figure 3: Import of Prepared Foods Barcelona from Ecuador in Kg



Source: (IT MARKETING, 2015)

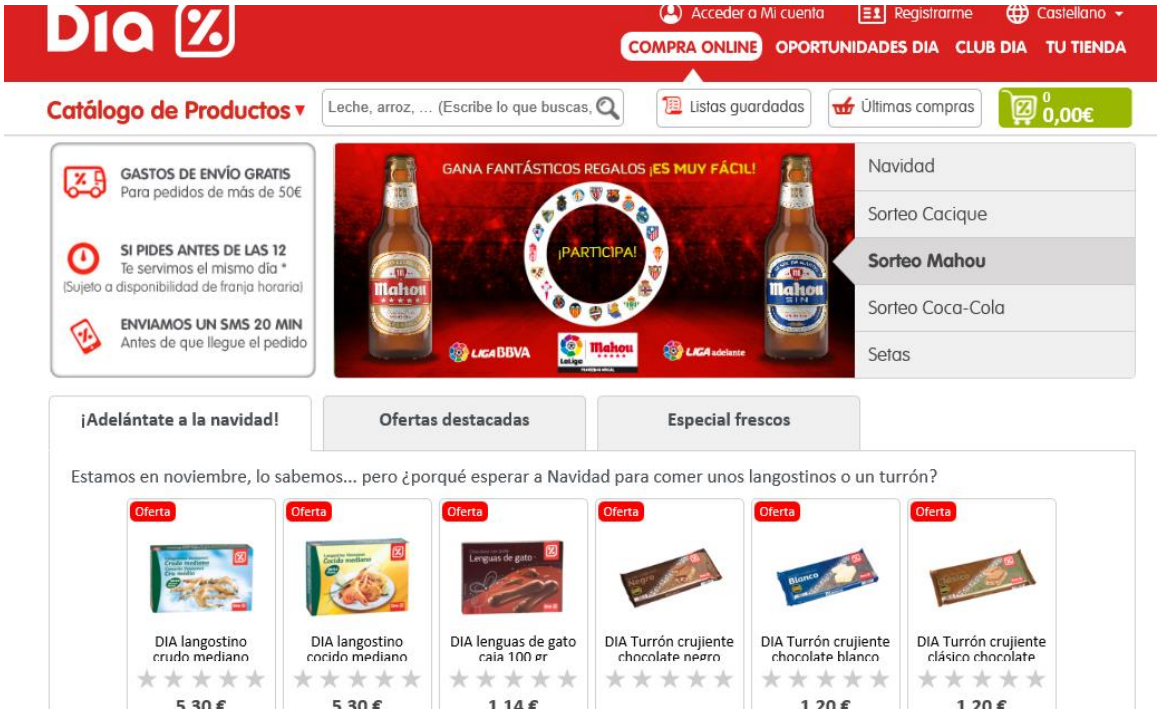
Created by: Author

1.7 Demand Analysis

To analyze the demand, understood as the intended market to reach and those who are expected to be the consumers of guava puree in Barcelona-Spain, a number of factors have been analyzed:

- **Tendency to use technological means** - According to Ms. Patricia Cueva, 16-year Barcelona resident of Ecuadorian nationality: Online sales have been notoriously important to the food sector. The majority of Stores and Supermarkets have a website in which the products are offered online. From these websites it is possible to order products, which are delivered to the customer's house for convenience purposes. In most cases there isn't even a surcharge or additional charge for the service granted.

Figure 4: Example of Supermarket webpage for online purchases



Source: (Supermercados el dia España)

Produced by: 'El Día' Supermarkets in Barcelona, Spain

- **Large elderly population (between 60 and 79) years of age -** The purchase of food through the internet decreases as age increases. The highest percentage of elderly people is found in areas with large populations between 50,001 and 100,000 inhabitants, and the lowest percentage can be found in areas of smaller populations (less than 10,000 inhabitants). (Supermercados el dia España)

Even though older adults are the ones who least occupy the internet, it is possible to reach them with new promotions presented at their local supermarkets and fruterías.

Therefore, the present project is focused on capturing the potential market of elderly people between the ages of 60 and 79. This particular market is looking for products that meet their health requirements while also pursue the purchase of said food products themselves. The item to be sold is guava fruit which contains many vitamins, the most

important being vitamin C. Nutritional sources even indicate that "consuming one guava is equivalent to eating five oranges". (Mejor con Salud, 2009).

- **New Population Characteristics**

"The decline in population occurred in the population range of age groups between 15 and 39 and in children under 5 years of age. In addition, a decrease in the age bracket of 75 to 79 year olds has also been observed, which is caused by the arrival at such an age of the most shrunken generations born during the Civil War." (International Chamber of Commerce, Spanish Committee, 1999)

In addition, there has been a reduction in the number of households with children and a decrease in the average family size. This in turn affects both the characteristics of consumption and the types of products consumed.

This factor is of utmost importance considering that the decrease of adolescents and people under 40 causes a change in consumption habits. For these reasons the focus in potential demand is on older adults.

Figure 5: Spanish Population, Percent Occupying Barcelona and Percentage of Barcelona Occupants between Ages 65-79

Year	Spain Population	Percentage of Spanish population occupying Barcelona	Population between 65-79 years of age (Barcelona)
2010	46,182,000	3.51%	0.49%
2011	471,90,000	3.42%	0.47%
2012	47,270,000	3.43%	0.47%
2013	47,130,000	3.42%	0.47%
2014	46,770,000	3.43%	0.52%

Source: (IT MARKETING, 2015)

Produced by: Author

1.8 Historical Demand Trends

Concerning demand, the first factor to be investigated is the population of Barcelona-Spain. In the table below the values can be seen that in 2013 the population was 1,612,000 inhabitants, while by 2014 it had declined to 1,602,000. This confirms the assertion given in the previous part regarding the population decrease that Spain has suffered in general, and which is obviously reflected for Barcelona.

Table 8: Population of Barcelona

YEAR	POPULATION OF BARCELONA
2011	1,619,000
2012	1,615,000
2013	1,621,000
2014	1,612,000
2015	1,602,000

Source: (IT MARKETING, 2015)

Produced by: Author

Table 9: Historic Demand of Elderly Adults between 65 and 79 Years of Age 2010-2015

AGES	2011	2012	2013	2014	2015
65-69	81642	81355	83876	86488	88013
70-74	68748	69684	67274	66101	89650
75-79	73936	72678	72334	70531	66453
TOTAL	**224326**	**223717**	**223484**	**223120**	**244116**

Source: (IT MARKETING, 2015)

Produced by: Author

In the previous table we have the historical demand from 2010 to 2015 of older adults in Barcelona. It can be seen that for ages 65-69, the population increased in the year 2014 with 88,013 in respect to 2013 which had 86,488 adults of those ages. Additionally the same scenario occurred for 70 to 74 year olds, where population increased by 35.63% with respect to the adult population of those ages in year 2013. This is not the case, however, for those aged 75-79, whose population had decreased by 5.78% in 2014 compared to 2013.

The above gives an indispensable reference for the research at hand. Although the total population of Barcelona, as well as the rest of Spain has generally diminished; the

population between 65 and 74 year olds has increased. As a result this market niche has been chosen to be served the guava puree product.

1.9.1 Current Demand

The current demand is given by the number of seniors between 65 and 79 who are part of the total population of Barcelona for 2014. This represents a total of 244,166 people. Subsequently, the year 2015 represents the projected, or future demand from which the unsatisfied demand will be obtained and a percentage of the demand is intended to be captured. This market segment will be defined as the potential users of the product.

1.9.2 Future Demand

The following table presents the historical, current and projected demand from years 2010 to 2019.

Table 9: Projected Demand of Elderly Adults ranging 65 to 79 years of age

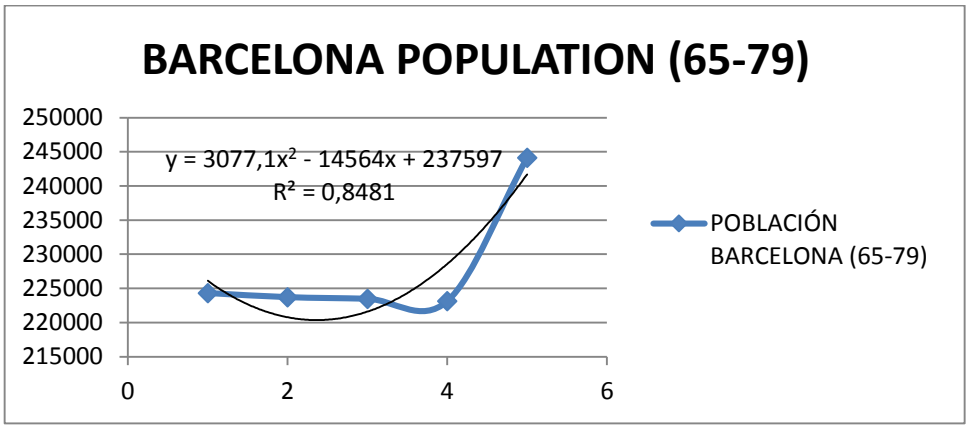
YEAR	POPULATION BARCELONA (65-79)	PROJECTED DEMAND
2010	1	224,326
2011	2	223,717
2012	3	223,484
2013	4	223,120
2014	5	244,116
2015	6	260,988
2016	7	286,427
2017	8	318,019
2018	9	355,766
2019	10	399,667

Source: (IT MARKETING, 2015)

Produced by: Author

The calculation of the projected demand was made based on the average population growth rate from years 2010 - 2014. The preceding years indicate a population decrease of 0.27% from 2010 to 2013. This situation arose because the population at that time began to migrate to other parts of the European Union because Barcelona ceased to be the financial center. However during 2014, this population had already increased 6.91%, which was used to project the following years.

Figure 6: Barcelona Population (65-79 years)



Source: (IT MARKETING, 2015)

Produced by: Author

YEARS	POPULATION 65-79 AÑOS	PER CAPITA CONSUMPTION TROPICAL FRUIT	TOTAL CONSUMPTION	UNIITS
2011	224,326	7	1,673,472	KG
2012	223,717	8	1,823,294	KG
2013	223,484	8	1,877,266	KG
2014	223,120	9	2,066,091	KG
2015	244,116	10	2,380,131	KG

Source: (IT MARKETING, 2015)

Produced by: Author

1.10 Offer Analysis

The consumption of fresh fruits amounts to 4.125 million kilograms (2003), more than 90% of which takes place at home. It is important to highlight the low consumption in hotels, a channel that only presents a significant consumption of lemons and oranges. Concerning the remaining fruits, hotel consumption is minimal, which is related to the development of dairy desserts. The increase in consumption of oranges in catering can possibly be attributed to the increase in the supply of freshly squeezed fruit juices. The fruit with the greatest amount of consumption is the orange, followed by the apple, banana, melon, pear, mandarin and watermelon. Since 1987 fresh fruit consumption has fallen by more than 7%. This decline in consumption followed a continuous trend from that date until

1997, when it stabilized. Since 2000 there has been a considerable increase, however it is still below the amount corresponding to 1990. It is worth noting that in recent years, the category of fruits labelled the term "other" has been growing considerably, which includes exotic fruits. Between the years 2014 and 2015 there was also a 22% increase with respect to this category. Another interesting matter that the available statistics do not represent is the development of pre-cooked and prepared food products in addition to packaged products. All these assorted foodstuffs are growing and undoubtedly have an impact on the operation of the production chain.

Since there is a very high level of self-elaboration in dairy products, the low consumption of fruit in the HORECA channels does not directly translate into an increase of the consumption of refrigerated dairy products. Dairy desserts, however, have been constituted as a substitute for fruit at the time of the dessert. This has considerably influenced the decrease in fruit consumption. This decrease can also be partly attributed to the lack of publicity compared to the dairy desserts. In this regard, it is worth mentioning the few initiatives that exist in promoting fruit consumption. Among them: the promotional activity of 'Intercitrus', financed in part by EU subsidies, and the recent establishment of the "5 a Day Partnership" which is composed of companies in the sector including large cooperatives, trading companies, distribution chains and research organizations (CSIC), etc. all with the aim of transmitting a health message linked to fruit consumption. The promotional campaigns of other products have little prevalence. They are irregular and dependent on the availability of public funds, making their rate of consumption irrelevant. In contrast, it is worth mentioning the positive result that promotional activity has had on kiwi fruit. (Ministerio de Agricultura, Pesca y Alimentación de España, 2015)

Additionally, in order to better understand the calculation of the offer, it is necessary to point out that Barcelona is within the Autonomous Community of Catalonia, as can be seen in the following map:

Figure 7: Map of Catalonia

Source: Google Maps

Produced by: Google Maps

As seen in the map above, Barcelona constitutes one of the 15 cities of the Catalonian community. The distribution of guava to the different autonomous Spanish communities is presented below, including Catalonia for the year 2014.

Table 10: Quantity of Exported and Imported Guava in the different Communities of Spain

SPANISH COMMUNITY	QUANTITY OF EXPORTED GUAVA (MT)	QUANTITY OF IMPORTED GUAVA (MT)
Andalucía	5,477	438.16
Aragón	89	7.12
Asturias	0	0
Baleares	0	0
C Valenciana	1,167	93.36
Canarias	0	0
Cantabria	64	5.12
La Mancha	4	0.32
León	2	0.16
Cataluña	1,465	117.2
Extremadura	44	3.52
Galicia	0	0
Madrid	657	52.56
Murcia	304	24.32
Navarra	2	0.16
Vasco	8	0.64
Resto	120	9.6

Roja	0	0
Total	9,403	752.24

Source (EUROPAGES)

Produced by: Author

The above table reflects the amount of guava distributed per community in metric tons. In Catalonia there were 117.2 metric tons distributed in 2014, which gives a clear indication of the high consumption of guava in this community. Furthermore, thanks to healthy eating campaigns and its large number of inhabitants, Barcelona represents 15% of the total distributed fruits in Catalonia (Ministerio de Agricultura, Pesca y Alimentación de España, 2015). In other words, Barcelona delivered 25.58% of the total metric tons of guava for 2014.

The following presents the main suppliers of fresh fruit in Barcelona:

Table 11: Major Fresh Fruit Providers in Barcelona

ENTERPRISE
Visa Fruits
Molla Fruit
Euro Trade Fresh
Dragon GJ Frutas y Verduras
Fruit CMR
Grupo Fernández SA
Pepe Miro Barcelona
Frutas Amalia SA
Dangle SAT
Agro Experience SL
GSMH Fresh

Source: (EUROPAGES)

Created by: The Author

(Informe de consumo de alimentación en España, 2014) Indicates that "the per capita consumption of tropical fruit in Spain is 100 kg per year."

According to this statistic, the calculation of the offer can then be made, as demonstrated below, to determine the number of people in Barcelona who are being supplied guava:

Table 12: Imported Quantity of Guava in Kg 2014

Community	Imported Quantity of Guava in Kg
Andalucía	438160
Aragón	7120
Asturias	0
Baleares	0
C Valenciana	93360
Canarias	0
Cantabria	5120
La Mancha	320
León	160
Cataluña	117.200
Extremadura	3520
Galicia	0
Madrid	52560
Murcia	24320
Navarra	160
Vasco	640
Resto	9600
Roja	0
Total	752.240

Source: Personal

Produced by: The Author

According to the data obtained, during the year 2014 Catalonia distributed 117,200 kg of guava; 15% of which was destined for Barcelona. In turn, Barcelona obtained 15,580 kg for the year 2015.

Thus, the per capita consumption of tropical fruit in Spain for 2014 was 9.75 kg, where exotic fruits or 'other fruits' represented the total consumption of fruit per individual per year.

1.11.1 Historical Offer Trends

The table below represents the reach that the guava offer has and the number of inhabitants it reached from 2010 to 2014, which represents the historical offer of this project.

Table 13: Quantity in MT and Kg of Imported Guava and Per Capita Consumption for Total Inhabitants of Catalonia and Barcelona consuming Guava

YEAR	EXPORTED QUANTITY (MT)	IMPORTED QUANTITY (MT)	IMPORTED QUANTITY (Kg)	Consumption per capita (Kg)	Total Inhabitants Catalonia Consuming Guayaba	Total Inhabitants Barcelona Consuming Guayaba
2011	1067	85,36	85360	6,7	12740	1911
2012	1285	102,8	102800	7,14	14398	2160
2013	1236	98,88	98880	7,4	13362	2004
2014	1619	129,52	129520	7,59	17065	2560
2015	2681	214,48	214480	7,89	27184	4078

Source: Author

Produced by: Author

1.9.2 Current Offer

"The total number of people who consumed guava in Barcelona in 2014 is 4,078, 22.80% of which was consumed by older adults between the ages of 65 and 79" (EUROPAGES), which is taken as the current offer.

Table 14: Total Barcelona Inhabitants that Consume Guava and Total Consumers between 65 and 79 years of age

YEAR	Total Barcelona Inhabitants Consuming Guava	Consumers 65 to 79 Years Old
2010	1911	435
2011	2160	492
2012	2004	456
2013	2560	583
2014	4078	929

Source: (EUROPAGES)

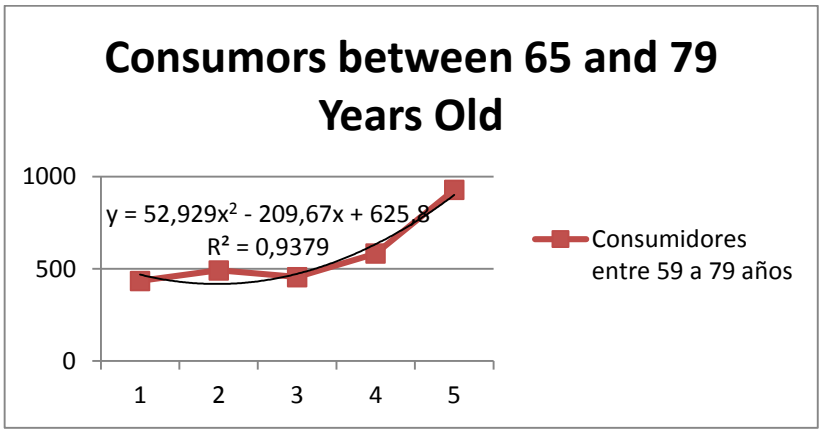
Produce by: (EUROPAGES)

The above information was taken from the website *Europages*, which is a compendium of the macro and micro economic measures of Spain and its communities including Catalonia where Barcelona is included. In table 12 it is possible to visualize the total inhabitants of Barcelona who consume guava or some derivative thereof, such as the puree of this fruit, and subsequently only those consumers between 65 and 79 years of age.

1.11.2 Future Offer

The following polynomial equation was used to establish a projection of future demand. This equation is the one that best fits the correlation of the data, resulting in R2 = 0.9379 which is close to 1, displaying an appropriate correlation.

Figure 8: Projection of Guava Consumers between 65 and 79 years of Age



Source: Author

Produce by: Author

In figure 8, a projection based on a parabolic chart is included. The polynomial equation allows one to observe if the data used are correctly proportional, such as in an instance demonstrated by a correlation of R2 = 1. As shown above the data has a close approximation to 1 being 0.9379, which verifies that the projected data has a correct correlation. Thus, the following equation allows for the prediction of demand regarding the subsequent years. In regards to this specific project, a forecast until the year 2019 has been included.

$$Y=52.929\ x2-209.67\ x+625.8$$

Y= the result of the year that is required to project the offer.

X = the variable that will continue to vary from year to year to generate the projection.

Table 15: Projected Offer for Consumers between 65-79 years of age 2010-2019

YEARS		Consumers between 59 and 79 Years
2010	1	435

2011	2	492
2012	3	456
2013	4	583
2014	5	929
2015	6	1273
2016	7	1752
2017	8	2336
2018	9	3026
2019	10	3822

Source: Author

Produced by: The Author

The table above determines the historical, current and future offer allowing the supply of guava to a certain number of inhabitants and among them the elderly residents between 65 and 79 years of age.

1.12 Calculation of Unsatisfied Demand

To calculate the unsatisfied demand of Barcelona; the demand of those inhabitants between ages 65 and 79, who already include guava in their diet, have been taken into account.

The unsatisfied demand therefore gauges the total population between 65 and 79 years of age in Barcelona not being provided guava based food products. This population may constitute existing potential customers. These customers, however, are not being satisfied due to lack of production or lack of foreign investment in guava and its derivatives. Consequently guava puree is intended for this market sector.

UNSATISFIED DEMAND = PREDICTED DEMAND – PREDICTED SUPPLY

Table 16: Unsatisfied demand for consumption of Guava for Population between 65 and 79 years of age

YEARS		PROJECTED	PROJECTED SUPPLY	UNSATISFIED

		DEMAND		DEMAND (people)
2010	1	224,326	435	223,891
2011	2	223,717	492	223,225
2012	3	223,484	456	223,028
2013	4	223,120	583	222,537
2014	5	244,116	929	243,187
2015	6	260,988	1,273	259,715
2016	7	286,427	1,752	284,675
2017	8	318,019	2,336	315,683
2018	9	355,766	3,026	352,740
2019	10	399,667	3,822	395,845

Source: (EUROPAGES)

Created by: The Author

Table 17: Annual consumption per person in units to reach unsatisfied demand

ITEM	2015	2016	2017	2018	2019
Average annual consumption per person	16.00	16.00	21.00	21.00	26.00
Unsatisfied Demand	7,463.00	7,441.00	7,434.00	7,418.00	8,106.00

Created by: The Author

Table 18: Annual consumption in units and price

Year	2015	2016	2017	2018	2019
Units 250 grams	119,408.00	119,056.00	156,114.00	155,778.00	194,544.00
Price	2.60	2.68	2.77	2.86	2.95

Elaborado por: La autora

According to the unsatisfied demand obtained, and due to the company's installed capacity, the company expects to capture 2.87% of said demand. This estimate furthermore takes into consideration that the market of tropical fruit consumption and their by-products tends to increase in the future.

As for the case of the present project, the unsatisfied demand that is expected to be covered by 2014 is 17,088 inhabitants. This number marks the potential demand for the consumption of guava puree.

1.13 Definition of Guava (Spanish Guayaba)

Guava is a tropical fruit originating in Central America. Currently, the fruit is grown in most tropical countries. The main producing countries include Brazil, Peru, Colombia, Mexico, Ecuador, USA, Philippines, Venezuela, Costa Rica, Puerto Rico and Cuba.

Since it originates in a tropical zone, Guava is defined as a tropical fruit. It is also considered an exotic fruit by the countries in which they are consumed.

The appearance has a round shape; but this depends on the variety as it can narrow and resemble a pear.

Its pulp is a white, creamy tone and its seeds are hard and woody. The size of the guava can vary between 4 to 12 centimeters in length and 4 to 8 in diameter.

There are two varieties of guava: white and red; depending on the color of their pulp.

Like most tropical fruits, guava consists mostly of water with its inner contents formed by carbohydrates. It is very rich in vitamin C, determined to have more than 7 oranges.

Its nutritional benefits also include high potassium and fiber. The fruit helps to alleviate sore throats, facilitate digestion, strengthen the renal apparatus, and has even been diagnosed to relieve stress. (Islabonita, 2014)

As one can see, guava has many nutritional benefits which are evident in its high content of vitamins, minerals and fibers. These benefits allow humans to lead a healthy life avoiding chemicals and preservatives that are usually used in artificial drinks and instant juices.

The percentages of each content that forms a guava are detailed below. Since the pulp is the most useful part and makes up 69% of the total fruit; the Guava can be utilized better than most other fruits.

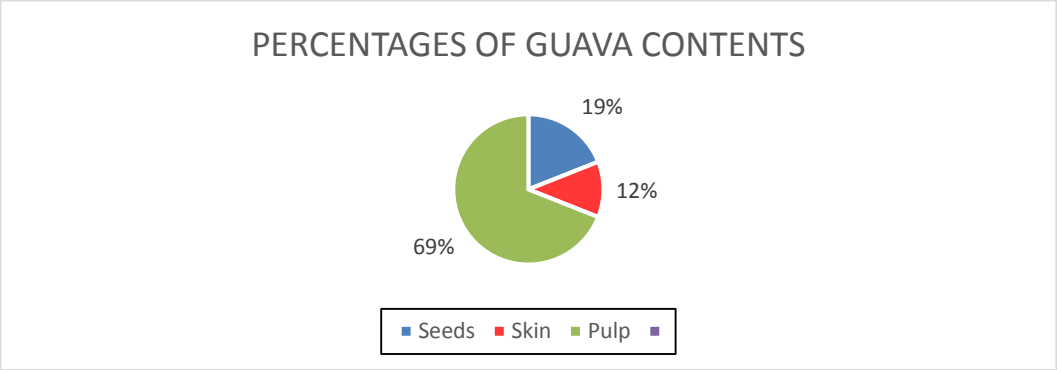
Table 19: Percentages of Guava Contents

CONTENT	***PERCENTAGE***
Seeds	19%
Skin	12%
Pulp	69%

Source: www.cadenahortofruticola.org

Produced by: The Author

Figure 9: Percentages of Guava Contents



Source: www.cadenahortofruticola.org

Produced by: Author

The table below presents the nutritional contents per 100g of Guava fruit.

Table 20: Nutritional Composition of Guava

Composición nutricional Guayaba/100gr	
Agua (g)	83
Fibra (g)	5,5
Carbohidratos (g)	9,5
Proteína (g)	0,8
Grasa (g)	0,5
Minerales (g)	0,7
Vit C	280mg
Vit E	1,14mg
Calcio	17mg
Hierro	0,765mg

Source: www.cadenahortofruticola.org
Produce by: The Author

The table above verifies that the element with the highest content in guava is water, occupying 83 grams of the total of the 100 gr studied. Hence, carbohydrates occupy 9.5

grams in total and vitamin C is the most predominant of vitamins in the fruit with 280 mg. In addition, guava can be seen to contain vitamin E, calcium, minerals and iron; proving that guava is a highly nutritional fruit.

The agricultural production of guava in Ecuador is reflected in Table 17 where it can be clearly seen that the most hectares of guava farms lie in Tungurahua. Such cultivation takes place in villages far from that city, such as Izamba. The area with the second highest production is known as the southeastern province of Zamora-Chinchipe and its surroundings where the climate is hot and humid. A high level of guava production also takes place in the province of Manabí, where the climate is generally warmer than 25°C.

It is worth mentioning that given Ecuador and all its hectares used to produce Guava, only 10% of the fruit goes to use, while the other 90% is wasted.

Table 21: Guava Production in Ecuador

ZONE	HECTARES
Cañar	20
North East	105
Central Southeast	334
Manabí	298
Tungurahua	340
Guayas	40
Pichincha	24
Esmeraldas	13
Imbabura	26

Fuente: (INEC, 2012)

Elaborado por: La autora

1.14 Marketing Plan

In order to implement the present project, a specific company must be created for the preparation and export of guava puree to Barcelona Spain.

Therefore it is vital to include a brand name and enterprise name to accommodate export. In the marketing of the product, it must be taken into account that the Spanish food market requires certain characteristics in the product, as well as in its packaging and labeling.

Hence the company has been given the name: GUAYAEXPORT CIA LTDA.

BUSINESS LOGO

Figure 10: Business Logo

Source: Proprietary

Created by: The Author

SLOGAN

"Desde el Ecuador a tu mesa..un rico y saludable puré!!"

"From Ecuador to your table..a delicious and healthy puree!!"

1.15 Product Details

The current trend in consumption of processed products in Spain, includes two requisite characteristics: According to the 'Alimentaria Fair 2014' held in Barcelona – Spain, it is required that these products are healthy and environmentally friendly.

Healthy - "Healthy eating, be it to avoid obesity or products that have been genetically modified; has caused a tendency to consume foods that are more nutritious and produced in the most natural way possible". (PROECUADOR, 2014)

Environmentally Friendly - As a conscious factor that has moved thousands of companies to adopt the trend today, every product must be environmentally friendly. That factor involves the production of the product itself until it reaches the shelf, including its packaging and presentation.

In light of the two factors mentioned above, as well as the mandatory health regulations and registrations for the introduction of food products into the EU; the following characteristics of the product shall be applied:

- 200 ml glass container, which can hold 200 mg completely airtight and free of contamination

Figure 11: Container

Source: Proprietary Research

Produced by: The Author

- Bar Code

Figure 12: Bar Code

Source: Proprietary Research

Produced by: The Author

- Name of country where the product is produced: Ecuador
- Form of processing: Described in the production process
- % of product waste: 2.5%
- Product travel time prior to being on the shelf: 15 days maximum
- Material used for transport: Cardboard
- Packaging is environmentally friendly and can be reused
- Expiration date
- Nutritional content

Table 22: Nutritional Content of Guava purée

ELEMENTO O COMPUESTO	UNIDAD	TOTAL
Agua	%	82
Proteínas	%	0.8
Grasas	%	0.6
Carbohidratos	%	15
Fibra	%	0.4
Calcio	Mg	5.0
Cenizas	%	1.2
Fósforo	Mg	18.0
Hierro	Mg	0.3
Vitamina C	Mg	12
Calorías	Kcal	78

Source: Proprietary Research

Produced by: The Author

From the above characteristics the guava puree brand carries the same name as the company, i.e. GUAYAEXPORT. The product will have the following presentation:

Figure 13: Product GUAYAEXPORT

Source: Proprietary Research

Created by: Author

The nutritional content mentioned above will be included on the back of the product.

1.16 Distribution and Placement

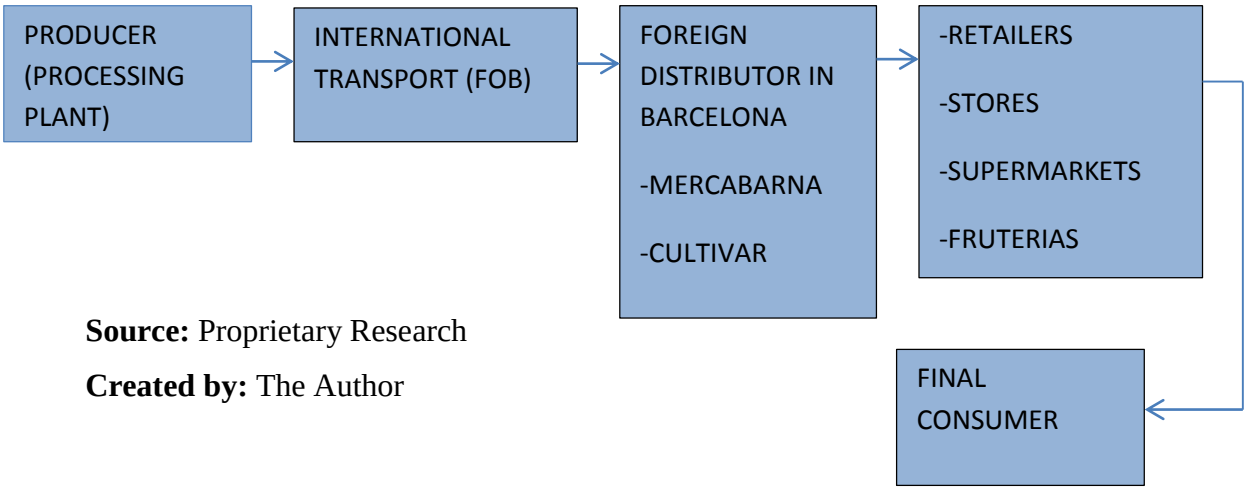
The distribution of the product will be applied based on the FOB (Free on Board) Incoterm, the foreign trade rule states that:

> The seller delivers the goods "on board the ship" designated by the buyer at the designated port of loading, and therefore stowed. At that time the risk of loss or damage of the merchandise are transferred from the seller to the buyer. The seller contracts the main transport through a freight forwarder or consignee on behalf of the buyer. The seller also carries out the necessary customs formalities for export. (Cámara de Comercio Internacional Comité Español, 1999)

> As part of the purchase price, the buyer pays for all costs incurred after the delivery of the goods: freight, unloading at the port of destination, customs clearance, etc. If the buyer wishes, he or she can take out insurance covering the risk during transport by boat. (Cámara de Comercio Internacional Comité Español, 1999)

Furthermore, the diagram below establishes the production and commercialization chain from elaboration of the product inside the factory to the product's distribution.

Figure 14: Commercialization Chain



Source: Proprietary Research

Created by: The Author

1.17 Price

To determine the optimum price of the product, the total costs were taken into account and the unit cost was obtained. A minimum profit margin of 10% was then established.

Main Competitors in Barcelona-Spain

NAME	PRODUCT
American Fruit	Frozen fruit
Prolet	Frozen fruit for juices
Conservera Guayas	Marmalades, preserves, frozen fruit

Source: Field research

Produced by: Author

Table 23: Competitors' Prices

PRODUCT	PRICE	QUANTITY (gr)
Processed fruit pulp	2.15 €	250 gr
Processed fruit juice	2.20 €	250 gr
Jellies	1.10 €	250 gr
Fruit Marmelades	Between €1.50 - €1.70	250 gr
GENERAL AVERAGE PRICE	**1.73 €**	

Source: Field Research

Created by: The Author

NOTE: The price to be obtained is a function of the costs. Those of which that have been taken into consideration include direct and indirect manufacturing costs as well as sales and administrative expenses along with the additional profit margin of the product. Said data will be displayed in the financial chapter of this document. With that, the value of the product has been determined at $2.60 per unit of exported guava purée. The units will be transported in 40 x 30 cm boxes, each containing 36 -250gr. jars.

1.18 Promotion

To attract customers in Barcelona, the product will be promoted through two electronic media. Since the contract will only be with the two largest distribution companies in Barcelona: Mercabarna and Cultivar, the idea will be to target promotion of the product

towards the final consumer. Due to the fact that the target market exists abroad, two virtual promotion techniques will be utilized:

1. A company web page displaying the product and information about the production process, hygiene and great nutritional benefits that the product contains; alongside company name, GUAYAEXPORT, to make it known in the Spanish market.
2. Advertising campaign as a private company on Facebook; payable on a monthly basis.

CHAPTER II: Technical and Organizational Study

2.1 Background:

It is necessary to determine that while the market price increases, the amount of 250g units sold is in accordance with the unsatisfied demand for the projected years. This projection allows us to define the total value of sales in monetary units in real time:

Year	2015	2016	2017	2018	2019
Units Sold (250g)	119,408.00	119,056.00	156,114.00	155,778.00	194,544.00
Price (USD)	2.60	2.68	2.77	2.86	2.95
TOTAL	$ 310,460.80	$ 319,070.08	$ 432,435.78	$ 445,525.08	$ 573,904.80

Source: Field Research

Produced by: The Author

NOTE: Since the installed capacity of the company does not allow to take a larger part, only 2.87% of the total unsatisfied demand is taken. As can be visualized in the financial chapter, this is the optimal amount to obtain a reasonable profit according to the production capacity of the company. As a result, the proposition is to export three containers of product annually. The quantity selected seeks to fill the container to its maximum capacity and thus optimize resources.

The present chapter discusses the technical study with the purpose of analyzing the physical availability of the plant as well as the material, human and technological resources needed to start the project.

Included in this chapter is a definition of size, micro and macro localization and project engineering to establish the structure for production processes. In addition, the identification of health and certification standards for export to the European Union is carried out.

Ultimately, the organizational study and the strategic planning of the project are included in this chapter, which discuss the structure of the company as such, and its planning.

Table 24: Production Costs

Production Costs								
	Cost	Quantity	Total month	Year 1	Year 2	Year 3	Year 4	Year 5
Direct Labor				6337.20	6534.65	6738.61	6949.30	7166.94
Total DL				6337.20	6534.65	6738.61	6949.30	7166.94
Direct Materials (grams)	0.110239							
Guavas	0.110239		1096.95	13163.42	17226.06	17209.85	21261.58	21446.34
Jars (250g)	0.15			17911.20	23439.15	23417.10	28930.20	29181.60
Labels	0.05			5970.40	7813.05	7805.70	9643.40	9727.20
36 Unit Boxes	0.5	36		1658.44	2170.29	2168.25	2678.72	2702.00
Stationary	0.05			5970.40	7813.05	7805.70	9643.40	9727.20
Total DM				44673.86	58461.60	58406.60	72157.30	72784.34
Indirect Manufacturing Costs								
Basic Services								
Light				1536.00	1586.69	1639.05	1693.14	1749.01
Water				2150.40	2221.36	2294.67	2370.39	2448.62
Total CIF				3686.40	3808.05	3933.72	4063.53	4197.63

Source: Proprietary Research
Created by: The Author

2.1.1 Macro Location

The guava puree production plant will be located in the capital of Ecuador: The Metropolitan District of Quito. This location will enable the plant to be in the business center and will grant accessibility to the suppliers mentioned on page 46, materials, technology, basic services and raw materials transport. The raw materials suppliers include:

Supplier Name	Product
Agrocomercial Morvie	Category: Food and Drink Location: Conocoto Specialty: Enterprise dedicated to the commercialization of wholesale fruit
Natural Fruits	Category: Food and Drink Location: Quito Specialty: Commercialization of preservative free, natural fruit
Alberto Pizarro	Category: Food and Drink Location: Quito Specialty: Sale of mora (berries), guava, soursop in its natural state

Source: Proprietary Investigation

Created by: Author

A map of the macro-location is presented below:

COUNTRY: Ecuador

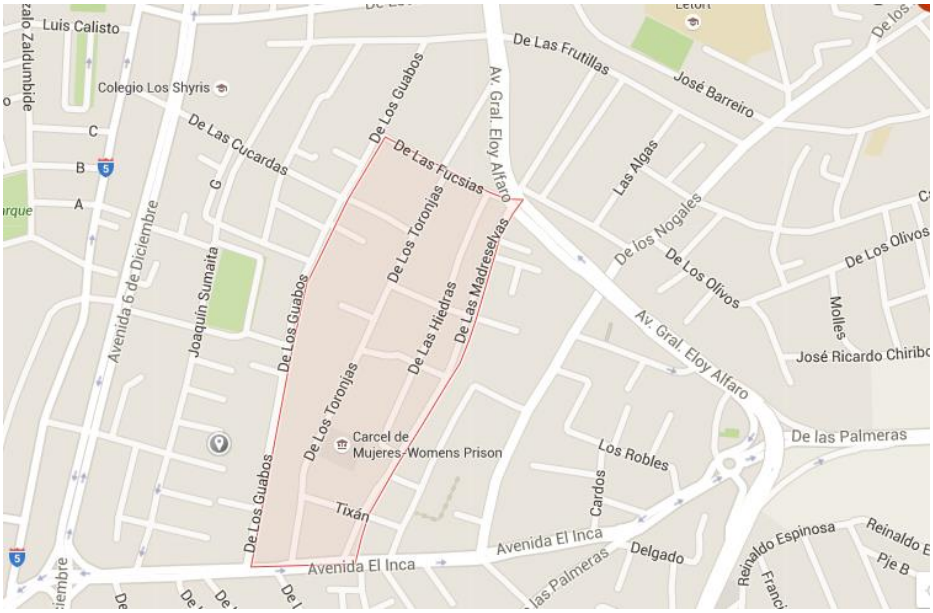
PROVINCE: Pichincha

CANTON: Quito

TERRITORIAL DIVISION: San Isidro

NEIGHBORHOOD: San Isidro del Inca

Figure 15: Macro-location of the Project



Source: GoogleMaps

2.1.2 Micro Location

The physical location in which the production of guava puree will take place is in the territorial division of San Isidro del Inca, on Calle (Street) De Los Toronjas and De Las Fucsias, northern sector of Quito. This place has been chosen based on a position-weight matrix. In the analysis below, two tentative locations for the factory were compared. The position-weight matrix consists of defining the main factors that influence the optimal location of the project and assigning weighted values to each of these defined factors. The sum of the weights are calculated, obtaining a total value over 1. Each individual weight is then multiplied by the locations' scores for that given criteria. The place that obtains the highest total value in weight X score is determined to be the optimal location.

Table 25: Point Valuation Matrix for Optimal Project Location

San Isidro del Inca

FACTOR	WEIGHT	SCORE	MATRIX SCORE	

Communication	0.20	7	1.40	
Availability of land	0.20	9	1.80	
Availability of supplies	0.20	8	1.60	
Availability of direct labor	0.20	7	1.40	
Basic Services	0.10	8	0.80	
Transport	0.10	9	0.90	
TOTAL	1		7.9	

Source: Proprietary Investigation

Created by: Author

Amagasí del Inca:

FACTOR	**WEIGHT**	**SCORE**	**MATRIX SCORE**
Communication	0.20	6	1.20
Availability of land	0.20	6	1.20
Availability of supplies	0.20	5	1.00
Availability of direct labor	0.20	5	1.00
Basic Services	0.10	7	0.70
Transport	0.10	7	0.70
TOTAL	1		5.8

Source: Proprietary Investigation

Created by: Author

According to the results obtained in the position-weight matrix the best place to incorporate the guava puree production plant is in San Isidro del Inca. Proper calculation and evidence reveals that this location received a total score of 7.9 points in comparison with the 5.8 points obtained in the valuation matrix opting for the location in Amagasí del Inca. Therefore, San Isidro del Inca is chosen to implement the necessary infrastructure for the factory.

2.2 Project Size

The size of the project basically depends on the company's ability to produce according to the availability of human resources, technology, materials, and plant and equipment infrastructure, among other factors which will allow measurement of the maximum installed capacity for the production of guava puree maintained by the company.

Below presents the unsatisfied demand that is sought to be covered based on the creation of this project.

Table 26: Unsatisfied demand to be covered

YEAR	QUANTITY OF UNSATISFIED DEMAND	2.87% U.D. to be covered (projected sales)	# of Units Produced
1	223,891	17,911	7,463
2	223,225	17,858	7,441
3	223,028	17,842	7,434
4	222,537	17,803	7,418
5	243,187	19,455	8,106
6	259,715	20,777	8,657
7	284,675	22,774	9,489
8	315,683	25,255	10,523
9	352,740	28,219	11,758
10	395,845	31,668	13,195

Source: Proprietary Investigation

Created by: Author

Table 21 clearly indicates that the unsatisfied demand to be covered under this project will be 2.87% of Barcelona inhabitants aged 65 to 79. This translates to 17,911 inhabitants for the first year of project operation, which in turn corresponds to 7,463 units of guava puree for the first year of production. For this year, each unit of guava puree will have a sale price of $2.60.

It should be noted that due to the company's economic and facilities capacity, it is not possible to cover all unsatisfied demand. For this reason it has been established that only 2.87% of the demand will be covered. This margin allows us to send 3 containers of our product to Europe every year. A lower value will result in a loss, since obtaining a remarkable profit is only permitted through the export of full containers.

2.3 Project Engineering

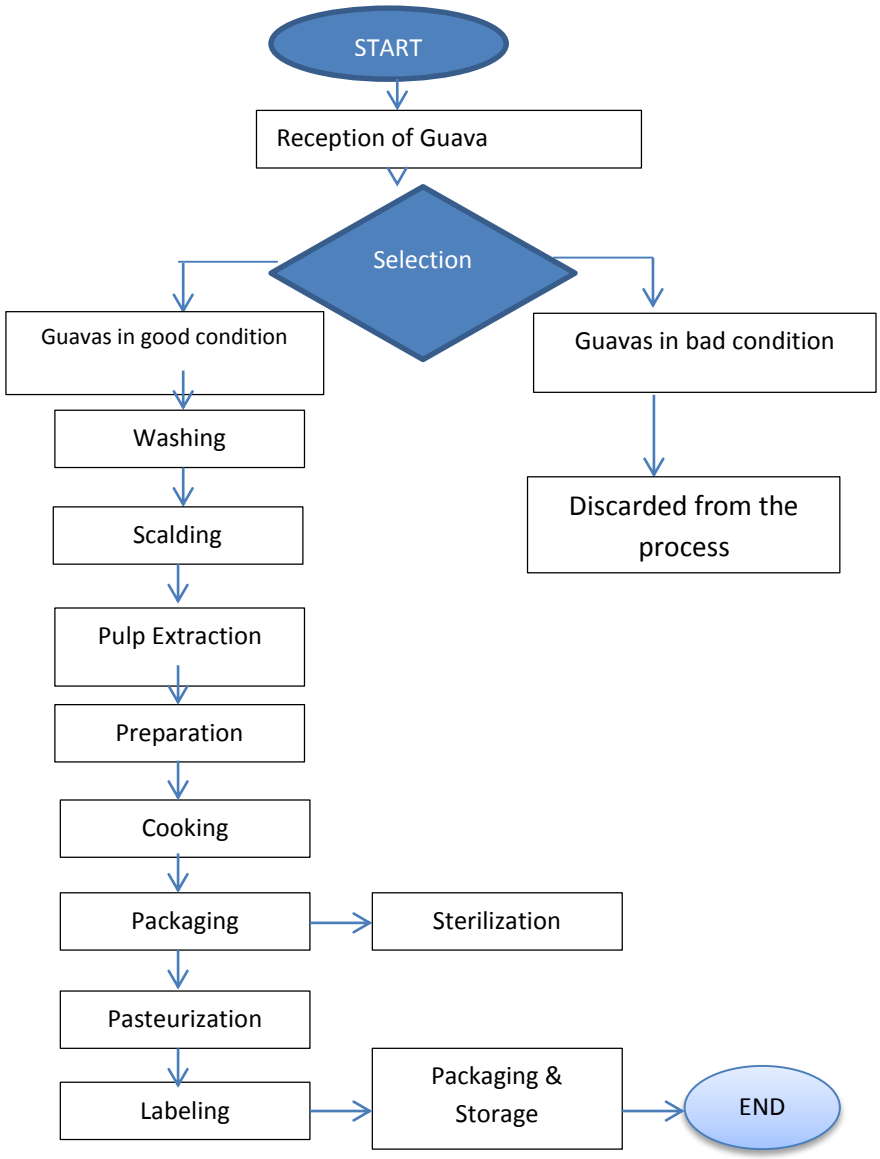
Within the project engineering, mention is made of the production processes necessary for the manufacture of guava puree. Also included in this section is a flowchart to provide visualization of the aforementioned processes.

The production process for the preparation of guava puree is completed through the following phases:

1) Receiving the fruit: The fruit entering the production process must be counted. After, a container is used to quantify it before it is weighed on the hopper scale.
2) Selection: Fruit is analyzed to make sure it is in good condition and does not have a high degree of softness and ripeness. It is also checked for worms or holes. If this type of fruit is found it is discarded and left out of the production process.
3) Washing: The guava is washed with a general hose in order to eliminate bacteria, residues, pests or any non-purified. Shortly after it is re-washed again with the general hose.
4) Scalding: The fruit is placed in water at a temperature of 95°C for 8 minutes in order to kill all existing microorganisms. This process also softens the fruit to facilitate pulp removal.

5) Pulp Extraction: A fine-meshed pulper is used to mash the fruit as well as sift the pulp of seeds.
6) Preparation: The amount of guava pulp obtained in the previous process is weighed on a scale. The amount of sugar and acid required must be calculated (1 lb. of sugar per 5 jars of guava puree, 3 g. of acid for every 5 jars)
7) Cooking: The mashed fruit is placed in a kettle and one more pound of sugar (for every five containers) is added. The puree must be stirred so that the mixture does not "settle or burn". Once the boiling process begins, cooking continues until the mixture is not too liquid or too thick.
8) Packaging: The packaging consists of a 250g glass bottle. The container is sterilized by boiling it for 10 minutes in water with a temperature higher than 75°C. Once sterilized, the glass containers are filled with the cooked guava puree and preserved in storage room #1 for 24 hours.
9) Pasteurization: Puree is pasteurized as you would with jelly or jam. This process involves placing the bottles with the lid closed in a water bath and heated to 95°C for 10 minutes. After this process the units are allowed to cool gradually in storage room #2.
10) Labeling: The label is placed on the containers when they are already completely cold.
11) Packaging and Storage: The 36 bottles of 250g puree are placed in boxes and stored in storage room #3.

Figure 16: Flow chart of Production Process



Source: Proprietary investigation Created by: Author

2.4 Technical Characteristics of Guava (Ecuadorian Guayaba) Fruit

According to (frutamex, 2014) guava fruit displays the following characteristics

Table 27: Nutritional Content of Guava per 100 g

Calories	33
Carbohydrates (g)	6.7
Fiber (g)	3.7

Potassium (mg)	290
Magnesium (mg)	16
Provitamin A (mcg)*	72.5
Vitamin C (mg)	273
Niacin (mg)	1.1
*mcg = micrograms	

Source: (frutamex, 2014)

Created by: (frutamex, 2014)

- Shape: depending on its variety, the guava can have a round shape similar to a lemon or narrow towards the stem, taking a shape similar to a pear. Under the skin is a consistent and firm first layer of pulp approximately 0.25 centimeters thick, depending on the variety. The inner pulp has soft, juicy and creamy textures containing woody, hard seeds. Size and weight it is about 4-12 centimeters in length and 4-7cm in diameter. Its weight ranges from 60 to 500 grams. Characteristics are sweet or acidic, reminiscent of a mixture of pear, fig and strawberry in sweet varieties; and banana, lemon and apple in acidic varieties. Flavor: the flavor of the pulp is reminiscent of walnut and hazelnut. (frutamex, 2014)

  The fruit should be harvested before it takes color to avoid possible diseases and decay, and to improve storage capacity. The form of collection is manual; in traditional systems they collect the fallen fruit from the ground. The classification and quality criteria are determined by their appearance, color, size and phytosanitary status. The average weight is between 100 and 165 grams. As for packaging, it should be packaged in wood or plastic crates with a maximum capacity of 12 kilograms to guarantee the quality of the product. (frutamex, 2014)

- **Election and Conservation Methods:**

The selected fruits should be yellowish-green; not yet fully ripe, but have already

begun to lose their firmness

The green guava should be left at room temperature (20ºC) until it matures, which at this time the fruit acquires a yellow color and yields slightly to the pressure with the finger. In addition, you can tell that it is ready for consumption because of the intense aroma it gives off. Once it is ripe, it is recommended to consume it as soon as possible, or to keep it at a temperature of about 8°C (in the coldest part of the refrigerator). (frutamex, 2014)

- **Nutritional Properties**

Its major component is water. It has a low caloric value because of its low carbohydrate, fat and protein content. It emphasizes its content in vitamin C, which is about seven times more concentrated than an orange. It consists, to a lesser extent, of other vitamins such as those in vitamin group B (especially niacin or B3, necessary for processing carbohydrates, fats and proteins). If the pulp is a pinkish-orange color, it is richer in provitamin A (carotene). In regards to minerals, its contribution of potassium should be noted. Vitamin C is involved in the formation of collagen, bone, teeth and red blood cells. It also stimulates the immune system and absorption of iron from food. The very ripe fruits start to lose vitamin C. Provitamin A or beta-carotene is transformed into vitamin A in our body as it needs it. This vitamin is essential for vision, as well as maintaining good condition of the skin, hair and mucous membranes. Both vitamins also have an antioxidant effect. Potassium, a mineral necessary for the transmission and generation of nerve impulses involved in normal muscle activity, is involved in the balance of water inside and outside the cell. The guava's high fiber content gives it a mild laxative effect and reduces the risk of certain diseases. (frutamex, 2014)

2.4.1 Steps for exportation

Exports of Ecuadorian origin must be accompanied by the following documents:

- RUC (identification number) of exporter
- Original commercial invoice
- Previous automations (when the case warrants it)
- Certificate of Origin (when the case warrants it)
- Exporter registration in Ecuapass software
- Transport document

Step 1: Once the foreign trade activity is registered in the Single Taxpayers Registry regulated by the Internal Revenue Service, the exporter shall:

Acquire the Digital Certificate for the electronic signature and authentication granted by the following entities:

Central Bank of Ecuador

Security Data

Step 2: Register in the portal: ECUAPASS: https://portal.aduana.gob.ec/

Here the exporter must:

1. Create username and password for the company representative
2. Approve the registration of a company employee for portal usage
3. Complete the Sworn Declaration of Origin
4. Fill out the certificate of origin
5. Fill out the Customs Export Declaration
6. Accept usage policies
7. Register electronic signature

The export process begins with the electronic transmission of a Customs Export Declaration (DAE) in the new ECUAPASSS system. The declaration may be accompanied by an invoice or proforma invoice

> along with any documentation it takes into account prior to shipment. This documentation is not a simple intention of shipment, but a declaration by the exporter or declarant that creates a legal bond and obligation to comply with the National Customs Service of Ecuador. (SENAE, 2012)

Suggested Tariff Subheading -

The tariff subheading that is suggested for jams, fruit purees and pastes; is subheading '2007' thus its creation:

(SENAE, 2012) Indicates:

> Section IV: FOOD PRODUCTS, BEVERAGES, ALCOHOLIC LIQUIDS AND VINEGAR; TOBACCO, SNUFF AND TOBACCO SUBSTITUTES
>
> Chapter 20: Prepared vegetables, fruits, nuts or other plant parts
>
> HS subheading 2007: Jams, jellies, marmalades, fruit or nut purée and fruit or nut pastes, obtained by cooking, whether or not containing added sugar or other sweeteners.

The European regulations on food imports have certain safety standards that help ensure the protection of the health of its inhabitants and their consumer interests.

Within these standards there is the safety derivation for animal products and plant products.

Regarding plant products, phytosanitary standards indicate:

Imports of plants and products must comply with a number of phytosanitary measures which essentially require that products:

- Are accompanied by a phytosanitary certificate issued by the competent authorities of the exporting country
- Undergo inspections at the appropriate border inspection post at the point of entry into the European Union
- Are imported into the EU by an importer registered in the official register of a Member State… And
- Customs must be notified before arrival at the point of entry

When shipments of plants or plant products originating in exterior countries pose a risk to EU territory, member States or the EU itself may take emergency provisional measures.

Both processed and frozen fruits along with fruits in their natural state are included in the category of 'vegetables' according to EU these products must comply with certain standards.

These include:

According to (EC.EUROPA, 2012)

- General rules concerning the sanitation of food products
- Standards on residues, pesticides, veterinary drugs and contaminants from and in food
- Special rules applying to a particular product category
- Specific requirements for the commercialization and labeling of raw materials used in the food product
- General rules for materials intended to come into contact with food
- Official controls and inspections to ensure compliance with EU food and fodder regulations

One of the main tendencies in the EU today is the protection of public health in all its policies, including legislation regulating the market for goods and services.

(BID, 2013) Reports the following:

Sanitary Food Requirements:

- The obligations to be fulfilled by food suppliers in exterior countries include: a general obligation to monitor the food safety of all products and processes under their responsibility. Make primary previsions and in some cases comply with microbiological requirements. Carry out procedures based on HACCP principles, and ensure that all establishments are properly registered.

- The obligations to be met by importers include: Imported products must come from a country that is on the Community list. Ensure that products are made available at border inspection posts. Comply with all health requirements. In some cases, the products must come from a recognized establishment and have an identification or health stamp; or be accompanied by a certificate issued by a competent authority in the developing country.

- The obligations to be fulfilled by the competent authorities of the exterior country include: Provide guarantees (or the equivalent) in respect to compliance with EU requirements, which shall ensure that their control services comply with operational criteria. The authority must be part of an establishment that satisfies all certification requirements and is authorized to export to the EU.

- Specific requirements for other product groups may apply in relation to: Pollutants and waste. The use of food additives. Radioactivity. Materials in contact with foodstuffs. Substances

that generate a hormonal effect. Frozen food products. Foodstuffs for particular nutritional purposes. And genetically modified organisms.

General requirements for the labeling of food products:

- Name under which the food product is sold
- List of ingredients in descending order by weight
- Quantities of certain ingredients and their contents
- Net quantity of contents prior to packaging
- Expiration date and maximum duration of product in specified format
- Conditions of storage and use
- Name and address of manufacturer
- Specific data referring to place of origin or province
- Instructions for use
- A code to identify the batch to which the product belongs
- Treatments to which the product has been subjected

2.4.2 Certificate of Origin

It is necessary to obtain the Certificate of Origin, in which

The following steps apply:

"Registration in the Identification System on the MIPRO website prior to the Certification of Origin. Within the ID System exporter must record general data of the company and the subheadings under which the product will be exported" (PROECUADOR, 2012)

Legal Clause: 1. The information contained in this database should be considered as a reference source. PRO ECUADOR has sought to ensure the highest possible accuracy of the information contained according to international sources; however this is prone to permanent changes for which the user is also responsible. 2. Visit to the production company for

verification if it is the first export or if there is a profile of risk that may motivate commentary from the customs officials of the importing country. 3. Elaboration of the technical report by the delegated official for verification purposes. Said report concludes whether or not the merchandise to be exported complies with the rules of origin according to the export market. 4. Communication of the result to the user. 5. The user writes off the value of the Certificate of Origin (USD 10.00) in the Financial Management Department and withdraws the forms from the Commercial Operations Directorate. 6. The user fills out the Certificate of Origin and presents it to the Commercial Operations Directorate along with the enabling documents (such as an invoice). 7. An authorized official reviews the contents of the Certificate of Origin and verifies the information along with its accompanying documents such as the invoice. Official then proceeds to legalize the Certificate of Origin through a signature and seal which is registered in the Customs departments of the destination countries. (PROECUADOR, 2012)

Table 28: Institutions Issuing the Certificate of Origin

Issuing Institution	Commercial Agreement & Preferred Tariff System
El MIPRO (Quito, Guayaquil, Cuenca y Ambato)	Sistema Global de Preferencias Comerciales (SGPC)
El MIPRO (Cuenca)	Acuerdo Comerciales: SGP de procedencia a terceros países, CAN, ALADI y MERCOSUR.

Source: (PROECUADOR, 2012)

Produced by: (PROECUADOR, 2012)

2.4.3 European Quality Standards

- **Payment Methods**

Table 29: Payment Methods for Export to the European Union

Transaction Type	Description	Advantages and Disadvantages	Disadvantages for Importer
Advance Payment	The importer pays the total value to the exporter	Advantages: The payment of goods is received in advance Disadvantages: International payments can take a long time and this causes a delay in the sale or dispatch	High risk of not receiving the goods
Open account or Credit to the Importer	The exporter sends an invoice with the goods to the importer. The importer must pay within the determined period	Disadvantages: High risk of not receiving payment. References of importers must be carefully checked	Advantages: Receive product before paying
Consignment	Similar to open account but importer only pays for products actually sold	Disadvantages: High risk of not receiving payment	Advantages: Only pay for the goods that are sold
Documents Against Payment	Exporters can instruct a bank to retain the documents of ownership of the goods	Advantages: Low risk of not receiving payment	Advantages: Low risk

Documented Letter of Credit	The importer uses a letter of credit guaranteed by their bank. This payment becomes effective when the issuing bank confirms that payment conditions have been fulfilled	Advantages: Low level of risk Disadvantages: This form of payment generally entails a cost of the participating bank	Advantage: Low level of risk

Source: (Banco Interamericano de Desarrollo, 2010)
Created by: The Author

- **Laws**

An export product that is placed on the EU market must comply with the established legislation – by both the EU and its Member States - in areas such as health, safety and the environment, among others. Laws may be related to the 65 characteristics of the product (goods or services) or to the applicable requirements of production processes and methods. Compliance evaluation procedures are designed to determine whether these mandatory requirements are met before entering the market. When exporting to the EU, business owners should be aware that there are two types of legislation that may apply to them: • Common Law: This legislation is developed at the EU level and is applicable in all its Member States. • National law: This legislation is developed at the national level and is only applicable in the Member State involved. The process of harmonizing legislation at the EU level has been progressive and is still ongoing. The aim is to achieve uniformity of laws in such a way as to simplify (commercial) procedures, reduce transaction costs and continue to protect European citizens (health and safety). Both exporters and importers benefit from the harmonization of laws at the EU level because one legislation replaces 27 individual national

legislations. Currently, most of the laws directly related to EU imports are harmonized at the EU level. Specific national laws apply only to a minority of export products (less than one-fifth) and apply with respect to public safety, public morality or public policy. (Banco Interamericano de Desarrollo, 2010)

- **Standards**

Standardization is a voluntary process for the development of technical specifications regarding products or processes, generally carried out by independent standardization entities at the national, European or international level. These specifications for products, services or processes can be interpreted as a uniform technical language applicable to industries (usually worldwide) to help ensure safety and performance; and to ensure that industry products or services are fit for purpose, resemblance and compatibility. Usually, the initiative for implementation of voluntary standards arises itself from the industry involved. At the EU level, there are three standardization bodies: the European Committee for Standardization (CEN), the European Committee for Electro-technical Standardization (CENELEC) and the European Telecommunications Standards Institute (ETSI). EU legislative provisions define the general "essential requirements" for health and safety to which products must adhere before entering their market. The entities that define the standards subsequently establish technical specifications. If a product adheres to these specifications, it is assumed to meet the essential requirements. These specifications are known as "harmonized standards". (Banco Interamericano de Desarrollo, 2010)

- **Manufactured Products: CE Mark**

Many of the products manufactured and placed on the EU's Single Market must have a mark of conformity. The acronym CE: Conformité Européenne (European Conformity) indicates that a product and its manufacturer comply with the legal regulations of the EU with regard to safety, health and environmental requirements. (Banco Interamericano de Desarrollo, 2010)

"This guarantees security at the UE level, while maintaining a level of flexibility". (Banco Interamericano de Desarrollo, 2010)

Table 30: Conformity Assessment Modules

Módulo		Descripción
A.	Internal Control of Production	Covers the internal design and control of production. This model does not require an authoritative entity
B.	Community Economic Evaluation	Covers the design phase and needs assurance of the applicable module of the production phase. The certificate of evaluation CE is given by an authoritative entity
C.	Type Conformity	Covers the production phase and follows module B. Provides the conformity parameters as described in evaluation CE and is emitted by the same entity as module B. This module does not need an authoritative entity

Módulo	Descripción
D. Guarantee Quality in Production Phase	Covers the production phase and follows module B. Derive the quality standard EN ISO 9002, requires the intervention of an authoritative entity that approves and controls the quality system in respect to production, established controls of the factory and inspection of the final product.
E. Guarantee Quality of Product	Covers the production phase and follows module B. Derives the quality standard EN ISO 9003. Requires intervention of an authoritative entity that approve and controls quality for the inspection of the final product and established controls for the manufacturer.
F. Product Verification	Covers the production phase and follows module B. An authoritative entity controls conformity based on the certificate given regarding CE evaluation type following module B and additionally submit a certificate of conformity.
G. Verification of the Unit	Covers the design and production phase. Each product is examined individually by an authoritative entity that gives a certificate of conformity.
H. Total Quality Guarantee	Covers the design and production phase. Derives the quality standard EN ISO 9001, with the intervention of an authoritative entity responsible for approving and controlling the system of quality design, fabrication and inspection of the final product along with the established controls for the manufacturer of the manufacturer.

Fuente: (Banco Interamericano de Desarrollo, 2010)
Elaborado por: (Banco Interamericano de Desarrollo, 2010)

As part of the process, the manufacturer or exporter is required to formulate 'Technical Documentation' with information on the design, manufacture and operation of the product. This document must demonstrate the (technical) conformity of the product with the applicable requirements. The manufacturer must also formulate a 'Declaration of Conformity' as part of the evaluation procedure and develop 'User Manuals' that contain important information for the people who use the product. This is often part of the essential requirements. (Banco Interamericano de Desarrollo, 2010)

- **Food products: sanitary and phytosanitary measures**

To protect the health of human, animal and plant life, sanitary and phytosanitary (SPS) measures have been designed.

The EU is known to have high SPS standards to ensure the health and safety of its citizens. SPS standards are evaluated at two basic levels: • Horizontal Legislation: common to all food products and covering aspects

of additives, sanitation and labeling • Vertical Legislation: requirements for specific product groups such as meat products, dairy products or seafood. Most legislation on food products has already been harmonized across the EU (around 90%). Even so, some Member States may still apply their own legislation in certain aspects not yet regulated at the EU level. (Banco Interamericano de Desarrollo, 2010)

The fundamental obligations for business operators in the food and fodder (conceived as "animal feed") sector according to EU law are as follows: • Security: operators will not sell food or fodder that is not fit for consumption. • Responsibility: Operators are responsible for the safety of food and fodder they produce, transport, store or sell. • Traceability: Operators will be able to quickly identify any supplier or consignee. • Transparency: operators will inform the relevant authorities immediately if they have a reason to doubt that their food or animal feed is contaminated or unfit for consumption. • Emergency: operators will immediately remove a food product or fodder from the market if they consider it unsafe for consumption. • Prevention: Operators should identify and regularly review critical points in their processes and ensure that controls are applied to these points. • Cooperation: operators will cooperate with competent authorities in tending actions to reduce risks. (Banco Interamericano de Desarrollo, 2010)

There are import EU regulations for food products of animal, non-animal and processed origin. The following discusses processed products because the present project deals with a product of processed vegetable origin, in particular, guava puree. Within the European Union there are some essential requirements to be taken into account for residual levels in food products The regulations for which are detailed below:

- **Health and Sanitary Requirements:**

  • All basic food hygiene requirements apply to the aforementioned product. For food processors in exterior countries these obligations include: The general obligation to monitor all safety and process concerning those food products under their responsibility. Implement general hygiene provisions

for raw materials. Implement minute requirements for successive production processes; and in some cases, implement microbiological requirements. Perform processes based on HACCP principles and ensure that establishments are registered. • Processors of composite food products should guarantee that: processed animal components meet the requirements for products of animal origin. The exterior country from which those components are sourced must also be included in the list of countries approved by the Community. Source: (Banco Interamericano de Desarrollo, 2010)

2.5 Optimal Project Size

The plant along with administrative and sales departments will be located on an area of land totaling 440 m2. Within this space the plant's infrastructure will be constructed and specifically distributed as to fit the raw material, indirect materials and other resources that the company require in order to carry out production of 50 tons of guava per year (0.2 to 0.3 tons per day). The plant must also allot space in the plant each job position such as administrative office, factory floor workers, etc.

2.5.1 Raw Materials Requirements

The raw materials required for the production of the product are:

- Guava pulp 55% (per jar of puree)
- Sugar 45% (One tablespoon per jar of puree)
- Citric acid 0.15% (per jar of puree). (frutamex, 2014)

2.5.2 Requirements of machinery and equipment, furniture and fixtures, office equipment, utensils

Table 31: Project Engineering: Requirements of Machinery, Supplies and Materials

ITEM	UNIT	QUANTITY
Building	Units	1
ITEM	UNIT	QUANTITY
Vehicles	Units	1
LAND	UNIT	QUANTITY
Property	Units	1
FURNITURE & GOODS	UNIT	QUANTITY
Desks	Units	5
Chairs	Units	25
File cabinets	Units	6
Microwaves	Units	1
Coffee Makers	Units	2
Cabinets	Units	5
Shelves	Units	5
Hangers	Units	12
Stainless Steel Tables	Units	8
COMPUTER EQUIPMENT	UNIT	QUANTITY
Laptop HP	Units	2
PC Intel Core i7	Units	1
Epson Projectors	units	1
Telephones	units	5
HP Data Servers	units	1
Intercom	units	1
Telecomunication Rack	units	3
Data Software	units	3
Printers/Copier/Scanner Richo Color	units	1
MACHINERY & EQUIPMENT		
PRODUCT	UNITS	QUANTITY
Conveyor Belts	units	3
Packer	units	1
Cisterns	units	4
Pulper	units	1

Processor	units	1
TOTAL	units	

Source: Proprietary Investigation

Created by: Author

2.5.3 Plant Layout

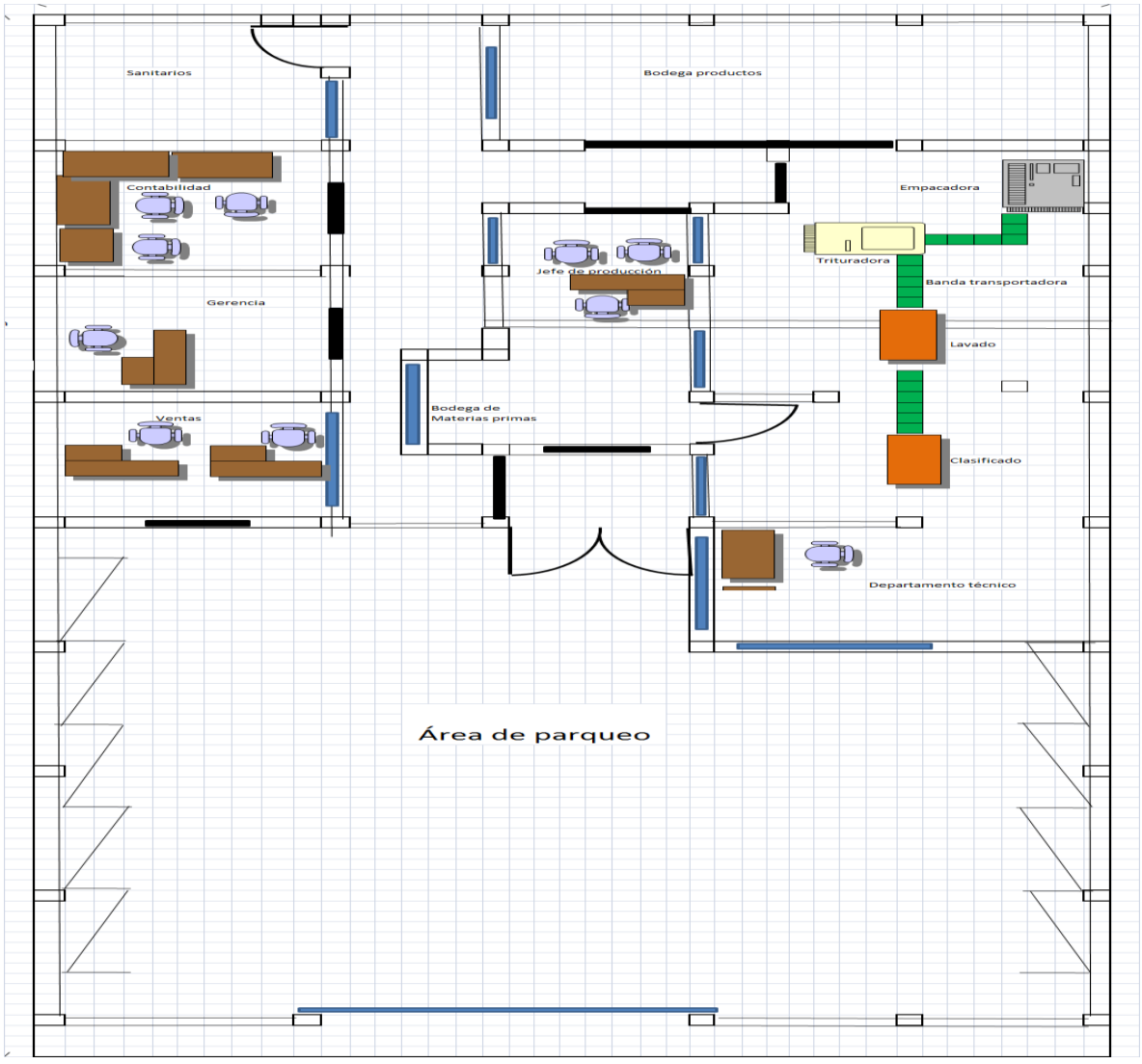
Table 32: Plant Layout

ADMINISTRATIVE AREA	**m2**
Management / Administration	20 m2
Accounting and Reception	20 m2
Restrooms	18 m2
PRODUCTION AREA	**m2**
Production Warehouse	70 m2
Packing Area	25 m2
Masher	25 m2
Conveyor Belt	40 m2
Washing Area	20 m2
Classification Area	20 m2
TECHNICAL AREA	
Technicians	40 m2
ACQUISITIONS AREA	M2

Raw Materials Warehouse	30 m2
EXPORT AREA	**M2**
Sales (Export)	20 m2
Parking Lot	150 m2
TOTAL M2	440 m2

Source: Proprietary Research Created by: The Author

Figure 17: Factory Map



Source: Proprietary Research
Created by: Engr. Darwin Cueva

2.6 Supply Chain

The supply chain starts at the guava supplier who delivers the natural fruit to GUAYAEXPORT. The fruit is then processed to obtain the final product. The product is exported to the intermediary, in this case, the major wholesalers mentioned above, ie Cultivar S.A. and CMR S.A. (headquarters 'Mercabana'). Later the product is sold to retailers such as supermarkets, specialty stores, retailers and fruterias where it finally reaches the specific demand or consumer.

2.6.1 Raw Materials Suppliers

Name of Supplier	Description
Agrocomercial Morvie	Category: Food and Drink Location: Conocoto Description: Enterprise dedicated to the commercialization of wholesale fruit
Natural Fruits	Category: Food and Drink Location: Quito Description: Vendor of natural fruit without preservatives
Alberto Pizarro	Category: Food and Drink Location: Quito Description: Sale of blackberry, guava, and sour-sop in its natural state

Source: Proprietary Research Created by: The Author

2.7 Organizational Study

In the organizational study the formal framework is defined. This includes the elements necessary for the implementation and execution of the project; such as the communication system, levels of responsibility and authority of the organization. The section contains organizational charts, job descriptions and functions required for subsequent financial study. (estudios organizacional y legal, 2011)

2.7.1 Strategic Planning

2.7.1.1 Mission Statement

To be one of the producers and exporters of a new, high-quality product made from guava in Barcelona-Spain positioning the country of Ecuador as a premium supplier of healthy, nutritious and optimal products for consumption; focusing particularly on people between 60 and 79 years of age.

2.7.1.2 Vision

To position the company as one of the most successful producers and exporters of guava puree in the Barcelona market as well as reach new markets within the European Union where there is a high consumption of healthy products, especially in the remainder of the Catalonia.

2.7.1.3 Objetives

- Elaborate a product with high standards of quality and nutrition, in turn receiving approval for the entrance into the European market

- Have the necessary resources to position the company among one of the best exporters of processed Ecuadorian products.

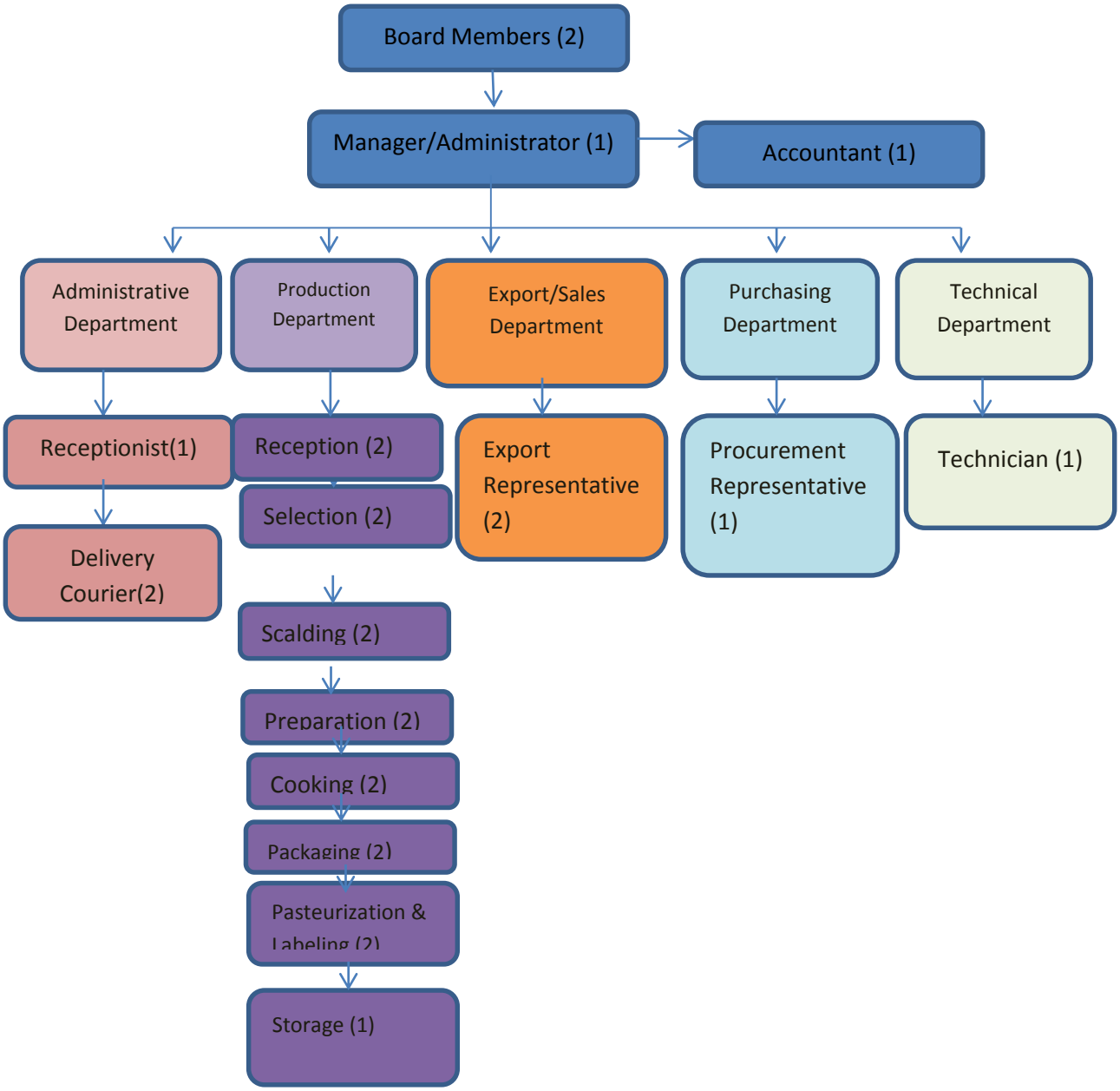
- Reach at least 8% of the total unsatisfied demand for older adults between ages 60 and 79 in Barcelona, Spain.

2.7.1.4 Values

- **Honesty. -** Act with sincerity and consistency in all areas of business, which shall be reflected by actions taken at all levels of the organization.
- **Expedience. -** Provide an efficient and timely delivery service for each segment of the distribution channel.
- **Quality. -** Produce and market a product in optimal condition that fulfills the quality standards demanded by the European Union.
- **Teamwork. -** All employees must work towards the same ideals of professional and business benefit.
- **Responsibility. -** To generate integral and responsible work concerning the environment, the company and society in general.

- **Productivity. -** Produce the product efficiently and effectively, using resources optimally.

2.7.1.5 Organizational Structure



Source: Proprietary Investigation **Created by: The Author**

2.8 Legal Framework

The company will be constituted as a Limited Liability Company (LLC) owned by two partners whose subscribed capital is $2,000 (50% granted by Daniela Abad and the other 50% Juan Ortiz).

2.8.1 Company Constitution

> Today, 7th December, 2015, Ms. Daniela Abad (CI :____) and Mr.Juan Ortiz (CI 1721965629), met in the city of Quito with the purpose of establishing a limited liability company. As indeed they constitute it in virtue of this document, and which shall be governed by the provisions contained in the Articles that are determined below, drafted with sufficient amplitude to serve both the Constitutive Act and Social Bylaws. (Escritos judiciales de Venezuela, 2013)

TITLE I

DESIGNATION, DOMICILE, OBJECTIVE AND DURATION

> ARTICLE ONE: The Company shall be known as GUAYAEXPORT CIA LTDA, holding domicile in the city of Quito with the ability to establish branches, agencies, representations or offices anywhere in the country or abroad, when so decided by the Board of Directors. ARTICLE TWO: The Company will have the following objective: the production and export of guava puree to Barcelona, State of Catalonia - Spain, a country located within the European Union. ARTICLE THREE: The Company will begin its operation upon complying with the legal formalities of its registration in the Mercantile Registry and will have an indefinite duration from that date, with the ability to extend its activity for an equal, greater or lesser

period of time at maturation, if so decided by the General Assembly of Members. (Escritos judiciales de Venezuela, 2013)

TITLE II

SOCIAL AND CAPITAL QUOTAS

ARTICLE FOUR: The subscribed capital of the Company is US $2,000 dollars represented by two social quotas of US $1,000 each. This share capital has been subscribed and paid in full. ARTICLE FIVE: Each participation payment grants its owner equal rights and obligations and gives the participant right to one vote in the deliberations of the Assemblies.

TITLE III

OF THE ASSEMBLIES

ARTICLE SIX: The maximum authority and direction of the society is in the hands of the General Assembly of Members, legally constituted, in ordinary or extraordinary form. Its agreed decisions, respecting the legal and statutory limits and faculties, are obligatory for all partners, even for those who had not attended the assembly, leaving to them the pertinent legal rights and resources. ARTICLE SEVEN: The Ordinary Assembly of Members shall meet annually within the first two months following the close of the fiscal year and the Extraordinary Assembly shall meet when the interests of the Company requires. ARTICLE EIGHT: The Assembly of Members, Ordinary or Extraordinary, shall be considered validly constituted

to deliberate when they are represented by at least 50% of the quotas that compose the share capital. Their decisions will be considered validly adopted representation and the majority agreed in this clause shall be required for any object submitted to the Assembly of Members, including those foreseen in Article 280 of the Commercial Code. The Assembly of Members shall be governed by the President. (Escritos judiciales de Venezuela, 2013)

ARTICLE NINE: The designations of the Ordinary Assembly are: a) To elect the Board of Directors and its Substitute, the Commissary and its Substitute and fix their compensation. B) Discuss and approve or modify the Company's Balance Sheet and Income Statement based on the Report of the Commissioner. C) To decide with respect to the distribution of dividends and to the constitution of the special reserve fund. D) Any other attributions established by the Law. (Escritos judiciales de Venezuela, 2013)

TITLE IV

THE ADMINISTRATION OF THE COMPANY

ARTICLE TEN: The management of the company is held under the Board of Directors which composed of two members. Those members may or may not be members of said board and will be elected by the Assembly of Members, which will appoint their respective alternates. Those alternates will fill the temporary faults or absolutes of their principal. (Escritos judiciales de Venezuela, 2013)

ARTICLE ELEVEN: The Board of Directors shall serve for four years and its members may be re-elected after each term.

ARTICLE TWELVE: The two partners jointly have the broadest powers of administration and provision, and in particular they are entitled to: a) Organize the Assemblies, fix the matters to be dealt within them, and fulfill and enforce their decisions. B) Establish the general administrative expenses and plan the business of the administrative community. C) Regulate the organization and operation of the offices, agencies and subsidiaries of the company and exercise its control and supervision. D) Appoint and remove the personnel required for the activities and business of the company, establishing their salaries and ensuring that they fulfill their obligations. E) Contract, when they deem it appropriate, consulting services to complete one or more negotiations or social operations, establishing at the same time the conditions and other modalities under which they must carry out their activities. F) Serve as a proxy or special attorney, setting all the powers that are relevant in defense of the interests of the company in the case or cases for which they are appointed. G) Draw up the General Plan, General Inventory and Income Statement and a detailed report on the management of the company to be submitted annually to the Ordinary Assembly. H) Calculate and determine the dividend to distribute among members, to agree and fix the opportunity of their payment and to establish the amount of the contributions that they deem appropriate for reserve or guarantee funds; all of which shall submitted to the Ordinary Assembly for consideration and approval. I) Represent the company in all business and contracts with third parties relating to the purpose of the company. J) Lease the assets of the company, even for periods of more than two (2) years. (K) Opening, mobilizing and closing current accounts or deposits. Pay, accept and endorse checks, bills of exchange or promissory notes at the company's order and withdraw by means of such instruments or in any other form, the funds that the company has deposited in banks, credit institutions, trade houses, etc.) L) Request and contract the bank credits required by the company. M) In general, carry out any and all normal and usual acts of management and administration of the company; with the exception of constituting the company as guarantor or endorser of obligations outside its own business, which is explicitly reserved for the Members' Assembly. (Escritos judiciales de Venezuela, 2013)

TITLE V

THE ACCOUNTING, BALANCE AND UTILITIES ARTICLE FIFTEEN: The accounting of the company shall be carried out in accordance with the Law. The Board of Directors and the Commissioner shall ensure that it conforms to the norms established by the Venezuelan Legislation. ARTICLE SIXTEEN: The fiscal year of the company begins on the first of January of each year and ends on December 31 of the same year. The first exercise begins on the day of registration of the constitutive document and ends on December 31. ARTICLE SEVENTEEN: On December 31 of each year, all accounts will be liquidated and cut and the corresponding Balance shall be drawn up, and this deposit shall be remitted to the Commissioner one (1) month prior to the meeting of the General Assembly of Partners. Once the balance sheet and income statement have been verified, the net profits obtained will be distributed as follows: a) 15% to employees and 22% to income tax. After hearing the Board of Directors on the dividend to be distributed to shareholders, the remainder shall be available to the Members' Assembly for distribution in the form that it determines. Dividends that are not collected on the date of their enforceability shall not earn any interest whatsoever. (Escritos judiciales de Venezuela, 2013)

TÍTULO VI

ADDITIONAL PROVISIONS

ARTICLE EIGHTEEN: In all matters not provided for in this document, the provisions established in the regulations of the Superintendence of Companies and other entities immersed in the legality of the operation of companies will be applied. In this same act, the Constitutive Assembly known as the Board of Directors of the Company appointed

for the 4 year period, counted from December 7, 2015, is composed as follows: Daniela Abad President of the Board, and Juan Ortiz as Vice president. (Escritos judiciales de Venezuela, 2013)

Signatures.

Daniela Abad

Juan Ortíz

CHAPTER III: FINANCIAL STUDY

3.1 Investments

The investments require a series of resources to start up the project. These resources must be valued in order to calculate the total value of the investment, be it in fixed, current or deferred assets. This planning will make the necessary resources that the company will require available.

The following presents the necessary investments for the startup of the company:

- ***Terrain***

Acquire land for $50,000 where the infrastructure of the office and the factory of the business will be constructed.

Table 33: Terrain

ASSET	UNIT	QUANTITY	VALUE PER UNIT	TOTAL INVESTMENT
Terrain	Unit	1	$50,000	$50,000

Source: Proprietary Research
Created by: The Author

- ***Building***

The building is included within the terrain investment, since it is counted as an additional item to the land. To give a specific value to the infrastructure of the office and factory the following value as obtained.

Table 34: Building

ASSET	UNIT	QUANTITY	VALUE PER UNIT	TOTAL INVESTMENT
Building	Units	1	$60,000	$60,000

Source: Proprietary Research
Created by: The Author

- ***Computer Equipment***

The acquisition of computer equipment has been planned surmounting $13,520.00 USD.

Table 35: Computer Equipment

COMPUTER EQUIPMENT	UNIT	QUANTITY	VALUE PER UNITY	TOTAL INVESTMENT
Laptop HP	units	2	$900	1800
Pc´s Intel Core i7	units	1	$ 900.00	900
Epson Projectors	units	1	$ 500.00	500
Telephones	units	5	$ 50.00	250
HP Data Servers	units	1	$ 5,500.00	5500
Telephone Service Provider	units	1	$ 500.00	500
Communications Rack	units	3	$ 600.00	1800
Data Software	units	3	$ 90.00	270
Printer/copier/scanner Ricoh Color	units	1	$ 2,000.00	2000
				0
TOTAL COMPUTER EQUIPMENT				**$ 13,520.00**

Source: Proprietary Research
Created by: The Author

- ***Furniture and Equipment.***

The purchase of furniture and accessories for the work of administrative personnel has been planned surmounting $7,205.00 USD.

Table 36: Furniture and Equipment

FURNITURE AND EQUIPMENT				
PRODUCT	UNIT	QUANTITY	VALUE PER UNIT	TOTAL INVESTMENT
Desks	Units	5	$ 250.00	1250
Chairs	Units	25	$ 50.00	1250
File Cabinets	Units	6	$ 120.00	720
Microwaves	Units	1	$ 250.00	250
Coffee Makers	Units	2	$ 80.00	160
Furniture	Units	5	$ 450	2250
Shelves	Units	5	$ 25.00	125
Hangers	Units	12	$ 60.00	720
Stainless Steel Tables	Units	8	$ 60.00	480
TOTAL FURNITURE & EQUIPMENT				**$7,205.00**

Source: Proprietary Research
Created by: The Author

- ***PROPERTY PLANT & EQUIPMENT***

Below includes the complete category for property, plant and equipment (PPE); which refers to purchases of vehicles, land, building, furniture and related equipment, machinery and related equipment and computer equipment necessary to start up the project. Purchase of the land and building are included in the investment.

Table 37: Property, Plant and Equipment

PROPERTY, PLANT & EQUIPMENT	INVESTMENT VALUE
Vehicles	33,000.00
Land	50,000.00
Building	60,000.00
Furniture and Related Equipment	7,205.00
Machinery and Related Equipment	75,000.00
Computer Equipment	13,520.00
TOTAL PPE	238,725.00

Source: Proprietary Investigation
Created by: Author

- ***Office Supplies.***

It is necessary to acquire office supplies for the administrative areas of the factory, thus it has been planned, totaling and amount of $1,872.00 USD

Table 38: Office Supplies

PRODUCT	QUANTITY *ANNUAL	VALUE PER UNIT	ANNUAL VALUE
SALES CHECKS (packet *200)	2	$ 12.00	$ 24.00
TAX SLIPS (packet*100)	2	$ 15.00	$ 30.00
RECEIPTS (packet*200)	2	$ 6.00	$ 12.00
REAMS OF BOND PAPER(250 sheets)	50	$ 5.00	$ 250.00
STAPLERS	5	$ 10.00	$ 50.00
HOLE PUNCHERS	5	$ 14.00	$ 70.00
PROFESSIONAL SEALS	5	$ 5.00	$ 25.00
PENS	120	$ 0.30	$ 36.00
ERASERS	40	$ 0.25	$ 10.00
LIQUID INK	50	$ 0.80	$ 40.00
RICOH TONER B/W COLOR	12	$ 105.00	$ 1,260.00
MARKERS	30	$ 0.50	$ 15.00
NOTEBOOKS	15	$ 2	$ 30

GARBAGE PAILS	10	$ 2	$ 20
TOTAL			$ 1,872.00

Source: Proprietary Research Created by: Author

- **Toiletries**

Below is a list of the cleaning supplies required to start the project with a total value of $825.40 USD.

Table 39: Toiletries

PRODUCT	QUANTITY *ANNUAL	VALUE PER UNIT	ANNUAL VALUE
Brooms	24	$ 2.00	$ 48.00
Mops (units)	24	$ 2.30	$ 55.20
Hand Soap (units)	84	$ 0.80	$ 67.20
Toilet Paper (4 Pack)	105	$ 3.00	$ 315.00
Trash Bags (packs)	14	$ 3.00	$ 42.00
Disinfectant (gallons)	50	$ 5.00	$ 250.00
Furniture cleaner (liters)	12	$4.00	$ 48.00
TOTAL			$ 825.40

Source: Proprietary Research
Created by: Author

3.2 Deferred Assets

The characteristic of deferred assets is that their future profit extends several financial years. Within these assets we have: research and development expenses, start-up expenses, formation expenses, among others. However, constitution expenses are no longer placed in this segment according to IFRSs (International Financial Recording Standards) they are placed within a separate category of expenses containing those items.

3.3 Working Capital

Working capital is included at the time of project start-up, which includes all necessary resources in the form of current assets for the operation of the project during a given period totaling $34,750.37 quarterly.

NOTE: In accordance with INEC data for the year 2015, all detailed project expenditures and investments are projected at 3.30% inflation in Ecuador, as indicated in the technical study for production and sales.

Table 40: Working Capital

DETALLE	Year1	Year2	Year3	Year4	Year5
Personal Wages Expense	$ 62,215.26	$ 64,041.63	$ 65,928.27	$ 67,877.18	$ 69,890.39
Basic Services	$ 5,328.00	$ 5,503.82	$ 5,685.45	$ 5,873.07	$ 6,066.88
Office Supplies	$ 1,872.00	$ 1,933.78	$ 1,997.59	$ 2,063.51	$ 2,131.61
Logistics and Sales Expense	$ 6,853.78	$ 8,993.31	$ 9,009.88	$ 11,163.02	$ 11,293.30
Raw Materials	$ 44,673.86	$ 58,461.60	$ 58,406.60	$ 72,157.30	$ 72,784.34
Cleaning Supplies	$ 825.40	$ 852.64	$ 880.78	$ 909.84	$ 939.87
Publicity	$ 3,106.40	$ 3,208.91	$ 2,139.30	$ 2,209.90	$ 2,282.82
Constitution Expense	$ 1,700.00	$ 0.00	$ 0.00	$ 0.00	$ 0.00
Interest	$ 12,426.01	$ 7,918.07	$ 2,913.33		
Total	**$ 139,000.71**	**$ 150,913.76**	**$ 146,961.20**	**$ 162,253.81**	**$ 165,389.21**
Working Capital *Quarterly	$34,750.17				

Source: Proprietary Investigation
Created by: The Author

3.4 PRODUCTION COSTS

To carry out the production of guava puree with all the requirements and technical specifications the present project incurs specific costs of production. These costs are necessary to transform the raw material into a finished product.

3.5 ADMINISTRATIVE EXPENSES

Payment of Wages and Salaries

This item includes the payment for all personnel who are part of both administrative staff and the productive and export areas of the company. For year 1, said costs surmount to $62,215.26 USD.

Table 41: Wages and Salaries

CHARGE	# PPL.	WAGE	SALARY *month	SALARY *year	HOLIDAY BONUS	EDUCATION BONUS	VACATION	FEDERAL INCOME TAX (12.15%)	SALARY YEAR 1
Manager	1	$ 900.00	$ 900.00	$ 10,800.00	$ 900.00	$ 354.00	$ 450.00	$ 1,312.20	$ 13,816.20
Accountant	1	$ 650.00	$ 650.00	$ 3,240.00	$ 270.00	$ 354.00	$ 135.00	$ 393.66	$ 4,392.66
Secretary	2	$ 400.00	$ 400.00	$ 4,800.00	$ 400.00	$ 354.00	$ 200.00	$ 583.20	$ 6,337.20
Technician	1	$ 450.00	$ 450.00	$ 5,400.00	$ 450.00	$ 354.00	$ 225.00	$ 656.10	$ 7,085.10

Purchasing	1	$ 450.00	$ 450.00	$ 5,400.00	$ 450.00	$ 354.00	$ 225.00	$ 656.10	$ 7,085.10
Exterior trade agent	1	$ 600.00	$ 600.00	$ 7,200.00	$ 600.00	$ 354.00	$ 300.00	$ 874.80	$ 9,328.80
Commercial advisor	1	$ 500.00	$ 500.00	$ 6,000.00	$ 500.00	$ 354.00	$ 250.00	$ 729.00	$ 7,833.00
Operators	6	$ 400.00	$ 400.00	$ 4,800.00	$ 400.00	$ 354.00	$ 200.00	$ 583.20	$ 6,337.20
TOTAL			**$ 4,350.00**	**$ 47,640.00**	**$ 3,970.00**	**$ 2,832.00**	**$ 1,985.00**	**$ 5,788.26**	**$ 62,215.26**

Source: Proprietary Investigation
Created by: Author

Production Costs								
	Cost	Quantity	Total month	Year 1	Year 2	Year 3	Year 4	Year 5
Direct Labor				6337.20	6534.65	6738.61	6949.30	7166.94
Total DL				6337.20	6534.65	6738.61	6949.30	7166.94
Raw Materials (grams)	0.110239							
Guavas	0.110239		1096.95	13163.4	17226.0	17209.8	21261.5	21446.3
Jars 250 grams	0.15			17911.2	23439.1	23417.1	28930.2	29181.6
Labels	0.05			5970.40	7813.05	7805.70	9643.40	9727.20
36 Unit Boxes	0.5	36		1658.44	2170.29	2168.25	2678.72	2702.00
Stationary	0.05			5970.40	7813.05	7805.70	9643.40	9727.20
Total Direct Materials (DM)				44673.8	58461.6	58406.6	72157.3	72784.4
Indirect Manufacturing								
Basic Services								
Light				1536.00	1586.69	1639.05	1693.14	1749.01
Water				2150.40	2221.36	2294.67	2370.39	2448.62
Total IMF				3686.40	3808.05	3933.72	4063.53	4197.63

Source: Proprietary Investigation
Created by: Author

Basic Services.

The Basic Services item includes costs related to water, electricity and telephone necessary for the execution of project activities.

Table 42: Basic Services

PRODUCT/SERVICE	WATER	ELECTRIC	INTERNET
Unit	m^3	kw*H	quota/month 1 MB
Quantity used	700	2000	500
Cost / unit	0.32	0.08	0.12
Monthly Cost (Q*Co)	224	160	60
Annual Cost	2688	1920	720
TOTAL BASIC SERVICES			5,328.00

***** Cost of subsidized electricity kw*H

Source: Proprietary Research
Created by: Author

- ***SELLING EXPENSES***

Sales expenses include promotional and advertising expenses, which totals $3,106.40 for the first year of operation of the company.

- ***Advertising and Publicity***

Table 43: Advertising and Publicity

PROMOTION	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5
Web Page	1800.00	1859.4	960.38	992.07	1024.81
Web Brochures	500.00	516.5	533.5445	551.15	569.33
Facebook Advertising	806.4	833.0112	645.37543	666.67	688.67
TOTAL	3,106.4	3,208.9112	2,139.3	2,209.8969	2,282.824

Source: Proprietary Investigation
Created by: The Author

- ***Constitution Costs***

Are the expenses necessary for the company to be legally established.

Table 44: Constitution Expenses

CONSTITUTION EXPENSE	INVESTMENT VALUE
Municipal patent	500.00
Sanitary registration	1,000.00
LUAE (Operation License)	200.00
TOTAL CONSTITUTION EXPENSE	1,700.00

Source: Proprietary Research
Created by: Author

3.6 TOTAL INVESTMENT

ASSET	TOTAL
Fixed Assets	$238,725.00
Current Assets	$ 34,750.18
Total investment	$273,475.18
ENTRY	**% of TOTAL ASSETS**
Fixed Assets	87%
Current Assets	13%
Total investment	100%

Source: Proprietary Research
Created by: The Author

3.7 SOURCES OF FUNDING

Partner contributions	136,737.59	50.00%
Bank loan	136,737.59	50.00%
Total	273,475.18	100.00%

Source: Proprietary Research
Created by: The Author

3.8 COST BUDGET

Costs include all payouts made by the company in a given period, usually one year. These costs are part of the necessary aspects taken into account for the calculation of the profitability of the project and other elements that are required to evaluate the project. In order to reveal the total costs or expenses that the company can incur during a year of activities, it is required to define a cost budget. The groups of expenses are determined based on business turnover. Taking into account that this is a guava puree enterprise, its incurred expenses are categorized and defined below:

Table 45: Cost Budget

Production Expenses	year1	year2	year3	year4	year5
Fixed Expenses					
internet					
rent					
Variable Expenses					
direct labor	13,422.30	13,841.87	14,275.29	14,723.01	15,185.51
raw materials	13,163.42	17,226.06	17,209.85	21,261.58	21,446.34
supplies	31,510.44	41,235.54	41,196.75	50,895.72	51,338.00
Utilities Expenses					
water	2,150.40	2,221.36	2,294.67	2,370.39	2,448.62
electricity	1,536.00	1,586.69	1,639.05	1,693.14	1,749.01

Source: Proprietary Research
Created by: The Author

Table 46: Administrative Expense

Administrative Expenses	year1	year2	year3	year4	year5
Fixed Costs					
Constitution cost	1,700.00				
Financial expenses	12,426.01	7,918.07	2,913.33	0.00	0.00
salaries	31,631.16	32,494.98	33,387.32	34.309.09	35,261.29
water	537.60	555.34	573.67	592.60	612.15
electricity	384.00	396.67	409.76	423.28	437.25
internet	720.00	743.76	768.30	793.66	819.85
Variable Costs					
Cleaning supplies	825.40	852.64	880.78	909.84	939.87
Materials and supplies	1,872.00	1,933.78	1.997.59	2,063.51	2,131.61

Source: Proprietary Research
Created by: The Author

Table 47: Selling Expenses

Selling Expenses	year1	year2	year3	year4	year5
Fixed Costs					
publicity	3,106.40	3,208.91	2,139.30	2,209.90	2,282.82
salaries	17,161.80	17,704.78	18,265.67	18,845.07	19,443.60
Variable Costs					
Logistics expense	6,853.78	8,993.31	9,009.88	11,163.02	11,293.30
Total Selling Expense	27,121.98	29,907.00	29,414.85	32,217.99	33,019.72

Source: Proprietary Research
Created by: The Author

- **Unit Costs**

1 pound =	453.56	grams		
Cost per pound	grams	Cost *gram	Jar 250 Grams	
0.2	453.56	0.000440956	0.110238998	

Source: Proprietary Research
Created by: The Author

The unit cost per container of 250 grams of guava pulp is 0.11 cents.

3.9 EXPORT COSTS

- **Logistics expenses. -** Includes the costs incurred over the entire distribution of the product from freight leaving Quito to Guayaquil where the merchandise departs, as well as the payment of the transport supervisor, customs agent, shipping costs, customs expenses, export taxes and the transport of the 20" container that carries the merchandise to the port of reception. Also included are shipping expenses for FOB transport, whose initial freight is charged to those who send the merchandise, which in this case corresponds to the company GUAYAEXPORT.

Table 48: Projection of logistics costs

Logistics Costs			
QUANTITY	**ITEM**	**PRICE PER UNIT**	**PRICES**
1	TRANSPORT QUITO - GUAYAQUIL	400.00	400.00
1	SUPERVISOR TRANSPORT	100.00	100.00
1	PER DIEM SUPERVISOR	150.00	150.00
TOTAL			650.00

Source: Proprietary Research
Created by: The Author

Table 49: Projection of Customs Costs

CUSTOMS - FOB			
QUANTITY	**ITEM**	**PRICE PER UNIT**	**PRICES**
1	CUSTOMS AGENT X BL	200	200
1	THC X cnt	150	150
1	TRANSPORT SHIPPING COSTS ECUAPASS X cnt	350	350
1	PORTAGE	90	90
1	NARCOTICS	80	80
1	INTERNATIONAL TRANSPORT of 20" SHIPPING CONTAINER	525	525
1.5 PER THOUSAND OVER THE FOB VALUE OF THE **EXPORTS**	CORPEI		
Total			1395

Source: Proprietary Research
Created by: Author

Table 50: Packing costs for container transport

Packing for transport in 20 ft container			
	Units	Cost/unit	Total
Pallets	20	8	160
STRECH FILM PLASTIC (kilo)	9	2.5	22.5

Source: Proprietary Research
Created by: The Author

Table 51: Costs of packaging and pallets required to fill all three containers.

Total Cost (20 ft. container)					
	year1	year2	year3	year4	year5
	561.53	759.08	783.40	999.77	1041.74

Source: Proprietary Research
Created by: Author

The cost of packaging and pallets required to fill at least three containers for year 1 is $561.53. For the following years the 3.30% inflation rate has been taken into account.

NOTE: The costs shown in the table are part of the production and sales costs for those items destined for container transport. These items require packaging, pallets and plastics, whose projection is calculated with the inflation of 3.30% per year corresponding to that of Ecuador, since that is the country of origin where those elements will be acquired.

Table 52: Total annual export costs for all containers

Total annual costs for export of all containers (sales)					
Containers	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**
cost*20 FT	2,045.00	2,045.00	2,045.00	2,045.00	2,045.00
Total containers	6292.24	8234.22	8226.47	10163.24	10251.55
Corpei	464.79	628.31	648.44	827.54	862.27
Packaging and Pallets	561.53	759.08	783.40	999.77	1041.743
Total Cost	6,853.77	8,993.31	9,009.87	11,163.01	11,293.30

Source: Proprietary Research
Created by: Author

The total cost for the total number of containers used to transport the product for year 1 is $6,853.77.

3.10 SALES BUDGET

- **Retail price**

ITEM	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5
Average annual consumption *units per person	16	21	21	26	26
Unsatisfied Demand	7,463.00	7,441.00	7,434.00	7,418.00	8,106.00
Average Inflation (Ecuador)	3.30%				
Year	**2015**	**2016**	**2017**	**2018**	**2019**
Units 250 grams	119,408	156,261	156,114	192,868	194,544
Price	2.60	2.68	2.77	2.86	2.95
Total	**309,863.76**	**418,878.71**	**432,294.65**	**551,694.31**	**574,852.59**

Source: Proprietary Research
Created by: Author

The selling price per unit of 250 grams of guava puree is $2.60 for year 1 and rises every year according to the 3.30% inflation rate in Ecuador. The total market will consist of 7,463 people between 60 and 70 years of age in Barcelona-Spain whose annual per capita consumption is expected to be 16 containers of guava puree per year.

NOTE: The Ecuadorian inflation of 3.30% is accounted for since the product has been manufactured from this country, constituting the country of origin, and in turn resulting in prices set according to the costs executed from Ecuador. Thus the products, inputs and services are going to be affected by Ecuadorian inflation. Since the value of sales must be of benefit according to the Ecuadorian economy, the amounts recorded in the financial statements are given in dollars, for which a subsequent exchange rate is used for the base year:

Table 53: Exchange Rate

Conversion Rate		
1 euro =	1.5	dollars
Euros	Dollars	
1.73	2.60	

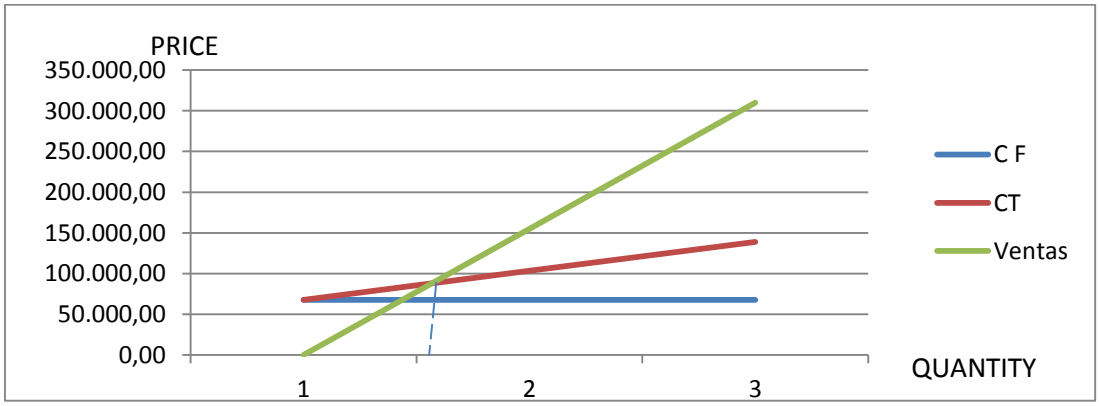
NOTE: 1.73 euros is a competitive price in the Spanish market, which can be confirmed by the market study in Chapter 1.

3.11 BREAK EVEN POINT

The break-even point indicates the profit of the company reaching a value of zero. In other words, the break-even point expresses a situation where the price reaches a level where supply and demand meet and are equal, resulting in no loss or gain. When a certain number of units sold is reached, then there is a break-even point. (Cámara de Comercio Internacional Comité Español, 1999)

- **Break-even Point**

Table 54: Break-even Point



Source: Proprietary Research
Created by: The Author

BEP=$87,903.16

$$BEP = \frac{Total\ Fixed\ Costs}{1-(\frac{Total\ Variable\ Costs}{Total\ Sales})}$$

$$BEP = \frac{67,666.97}{1-(\frac{71,333.74}{309,863.76})}$$

BEP= $87,903.16

Table 55: Break-even Point

Fixed Cost	$ 67,666.97
Variable Cost	$ 71,333.74
Sales	$ 309,863.76

Break-even Point	
Sales	$ 87,903.16
Units	33,874
Price/Unit	$ 2.60

Source: Proprietary Research
Created by: Author

The break-even point, where there is no loss or gain in the company, occurs when the company reaches 33,874 units of guava puree sold at a price of $2.60. This implies that the break-even point (p * q = $87,903.16) for the first year of operation.

3.12 PROFIT AND LOSS (INCOME) STATEMENT

The profit and loss statement, also known as the Income Statement, as the name suggests, is where the company's results are presented. It states the bottom line of the company and whether it has experienced losses or gains in a given accounting period. This statement seeks to synthesize the income and expenses that have been obtained within the period and these are classified according to the operations of the business with which one can identify the losses or earnings regarding certain activities within company.

Below is the amortization table of the bank loan, in which one can locate the capital, interest and balance of monthly debt, which was then added per year to pass the values to the cash flow.

Table 56: Loan Amortization Schedule

Principal	Interest	Time
136,737.59	10.50%	3 years

DATE	MONTHLY QUOTA	CAPITAL	INTEREST	BALANCE
Jan-15				$ 136,737.59
Feb-15	$ 4,444.31	$ 3,247.85	$ 1,196.45	$ 133,489.74
Mar-15	$ 4,444.31	$ 3,276.27	$ 1,168.04	$ 130,213.47
Apr-15	$ 4,444.31	$ 3,304.94	$ 1,139.37	$ 126,908.53
May-15	$ 4,444.31	$ 3,333.86	$ 1,110.45	$ 123,574.67
Jun-15	$ 4,444.31	$ 3,363.03	$ 1,081.28	$ 120,211.65
Jul-15	$ 4,444.31	$ 3,392.45	$ 1,051.85	$ 116,819.19
Aug-15	$ 4,444.31	$ 3,422.14	$ 1,022.17	$ 113,397.05
Sep-15	$ 4,444.31	$ 3,452.08	$992.22	$ 109,944.97

Oct-15	$ 4,444.31	$ 3,482.29	$ 962.02	$ 106,462.69
Nov-15	$ 4,444.31	$ 3,512.76	$ 931.55	$ 102,949.93
Dec-15	$ 4,444.31	$ 3,543.49	$ 900.81	$ 99,406.43
Jan-16	$ 4,444.31	$ 3,574.50	$ 869.81	$ 95,831.93
TOTAL			$ 12,426.0	
Feb-16	$ 4,444.31	$ 3,605.78	$ 838.53	$ 92,226.16
Mar-16	$ 4,444.31	$ 3,637.33	$ 806.98	$ 88,588.83
Apr-16	$ 4,444.31	$ 3,669.15	$ 775.15	$ 84,919.68
May-16	$ 4,444.31	$ 3,701.26	$ 743.05	$ 81,218.42
Jun-16	$ 4,444.31	$ 3,733.64	$ 710.66	$ 77,484.77
Jul-16	$ 4,444.31	$ 3,766.31	$ 677.99	$ 73,718.46
Aug-16	$ 4,444.31	$ 3,799.27	$ 645.04	$ 69,919.19
Sep-16	$ 4,444.31	$ 3,832.51	$ 611.79	$ 66,086.68
Oct-16	$ 4,444.31	$ 3,866.05	$ 578.26	$ 62,220.63
Nov-16	$ 4,444.31	$ 3,899.88	$ 544.43	$ 58,320.76
Dec-16	$ 4,444.31	$ 3,934.00	$ 510.31	$ 54,386.76
Jan-17	$ 4,444.31	$ 3,968.42	$ 475.88	$ 50,418.34
TOTAL			$ 7,918.07	
Feb-17	$ 4,444.31	$ 4,003.15	$ 441.16	$ 46,415.19
Mar-17	$ 4,444.31	$ 4,038.17	$ 406.13	$ 42,377.02
Apr-17	$ 4,444.31	$ 4,073.51	$ 370.80	$ 38,303.51
May-17	$ 4,444.31	$ 4,109.15	$ 335.16	$ 34,194.36
Jun-17	$ 4,444.31	$ 4,145.11	$ 299.20	$ 30,049.25
Jul-17	$ 4,444.31	$ 4,181.37	$ 262.93	$ 25,867.88
Aug-17	$ 4,444.31	$ 4,217.96	$ 226.34	$ 21,649.92
Sep-17	$ 4,444.31	$ 4,254.87	$ 189.44	$ 17,395.05
Oct-17	$ 4,444.31	$ 4,292.10	$ 152.21	$ 13,102.95
Nov-17	$ 4,444.31	$ 4,329.65	$ 114.65	$ 8,773.29
Dec-17	$ 4,444.31	$ 4,367.54	$ 76.77	$ 4,405.76
Jan-18	$ 4,444.31	$ 4,405.76	$ 38.55	$ 0.00
TOTAL			$ 2,913.33	

Source: Proprietary Research
Created by: The Author

Included below is the interest table summarized in years from which we could calculate the remaining financial expenses in the income statement and balance sheet.

Table 57: Annual Interest on Loan

Annual Interest on Loan	Value
Interest year 1	$ 12,426.01
Interest year 2	$ 7,918.07
Interest year 3	$ 2,913.33

Source: Proprietary Research
Created by: The Author

Additionally, before presenting the Income Statement, it is necessary to disclose the sales projection table:

Table 58: Sales Projection

Average annual consumption *per customer	16	21	21	26	26
Unsatisfied Demand	7463	7441	7434	7418	8106
Average Inflation Ecuador	3.30%				
Year	2015	2016	2017	2018	2019
Units 250 grams	119408	156261	156114	192868	194544
Price	2.60	2.68	2.77	2.86	2.95
Total	309863.76	418878.71	432294.65	551694.31	574852.59

Source: Proprietary Research
Created by: The Author

From the previously presented data we can now present the 5 year projected Profit and Loss Statement for the current project:

Table 59: Projected Income Statement

	year1	year2	year3	year4	year5
Item					
Operating Income	309863.76	418878.70	432294.64	551694.3	574852.58
Production Costs	61,782.56	76,111.52	76,615.61	90,943.84	92,167.47
Sales Costs	27,121.98	29,907.00	29,414.85	32,217.99	33,019.72
Gross Income	220,959.2	312,860.1	326,264.19	428,532.49	449,665.40
Operating Expenses					
Administrative Expenses	59,997.33	59,304.34	60,344.58	56,912.49	58,022.52
Operating Profit	160,961.90	253,555.85	265,919.61	371,620.00	391,642.88
Financial Expenses	12,426.01	7,918.06	2,913.33	0	0
Profit before taxes	148,535.88	245,637.78	263,006.28	371,620.00	391,642.88
(15%) distribution of profits (workers benefits)	22,280.38	36,845.67	39,450.94	55,743	58,746.43
Profit	126,255.50	208,792.11	223,555.33	315,877.00	332,896.45
Income Tax (22)%	27776.2097	45934.2645	49182.1735	69492.94	73237.2187
Net Income	98,479.29	162,857.85	174,373.16	246,384.06	259,659.23

Source: Proprietary Research
Created by: Author

Net income for year 1 is $98,479.29 with an inflation rate of 3.30% for the following years.

Detailed Profit and Loss Statement

	year0	year1	year2	year3	year4	year5
Item						
Operating Income		$ 309,863.76	$ 418,878.71	$ 432,294.65	$ 551,694.31	$ 574,852.59
Production costs		$ 61,782.56	$ 76,111.52	$ 76,615.61	$ 90,943.84	$ 92,167.47
Sales costs		$ 27,121.98	$ 29,907.00	$ 29,414.85	$ 32,217.99	$ 33,019.72
Gross profit		$ 220,959.22	$ 312,860.19	$ 326,264.19	$ 428,532.49	$ 449,665.40
Operational Expenses						
Administrative expenses		$ 59,997.33	$ 59,304.34	$ 60,344.58	$ 56,912.49	$ 58,022.52
Operating profit		$ 160,961.90	$ 253,555.85	$ 265,919.61	$ 371,620.00	$ 391,642.88
Financial expenses		$ 12,426.01	$ 7,918.07	$ 2,913.33	$ -	$ -
Profit Before Taxes		$ 148,535.88	$ 245,637.78	$ 263,006.28	$ 371,620.00	$ 391,642.88
(15%) distribution of profits (workers benefits)		$ 22,280.38	$ 36,845.67	$ 39,450.94	$ 55,743.00	$ 58,746.43
Profit		$ 126,255.50	$ 208,792.11	$ 223,555.33	$ 315,877.00	$ 332,896.45
Income Tax(22)%		$ 27,776.21	$ 45,934.26	$ 49,182.17	$ 69,492.94	$ 73,237.22
Net Profit		$ 98,479.29	$ 162,857.85	$ 174,373.16	$ 246,384.06	$ 259,659.23
Other income						
Asset sales profit						
15% distribution of profits (workers benefits)						
Income tax						
Book value of assets sold						
Depreciation		$ 22,327.17	$ 22,327.17	$ 22,327.17	$ 17,820.50	$ 17,820.50
Investment cost	$ 273,475.18					
Fixed assets	$ 238,725.00					
Working capital	$ 34,750.18					
Recovery of working capital						$ 34,750.18
Loan	$ 136,737.59					
Loan repayment		$ 40,905.66	$ 45,413.60	$ 50,418.34	$ -	$ -
Cash flow	**$ (136,737.59)**	**$ 79,900.80**	**$ 139,771.41**	**$ 146,281.99**	**$ 264,204.56**	**$ 277,479.73**

Source: Proprietary Research

Created by: Author

The cash flow shows a positive value from year 1 of $79,900.80 taking into account all net income and expenses arising from the company's activities. This indicates a positive scenario with an initial investment of $136,737.59 for year 0 (2015).

3.13 FINANCIAL REVIEW

- **NPV (Net Present Value)**

"It is a method of valuation of investments calculated by taking the difference between the updated value of the net cash inflow and the updated value of the net cash outflow produced by the investment" (Urbina, 2007)

The formula to calculate NPV according to (Urbina, 2007) is as follows:

$$\mathbf{NPV} = \frac{\text{Net Cash Inflow (CI)}}{(1+r)^n}$$

Net Cash Inflow (CI) = Value of cash inflows during a given time period. In the case of this project years 0 to 5

r = MARR or minimum accepted rate of return

n = Time from where it is desired to transfer the value of cash flow to the present

The following gives a projection of Net Present Value (NPV) for the project:

Table 60: Projected Net Present Value

r =			55%
YEAR	NET CASH FLOW	CURRENT EXPENSES	NPV
0			-136,737.59
1	$ 79,900.80	0.644341522	$ 51,483.40
2	$ 139,771.41	0.415175996	$ 58,029.74
3	$ 146,281.99	0.267515133	$ 39,132.65
4	$ 264,204.56	0.172371108	$ 45,541.23
5	$ 277,479.73	0.111065862	$ 30,818.53
	$ 907,638.50		$ 88,267.95

Source: Proprietary research

Created by: Author

Criteria: If NPV is greater tan 1, the project is acceptable

If NPV is less tan 1, the project is rejected.

If NPV is equal to 1, the project is indifferent

Conclusion: The project is approved since NPV is greater than 1 i.e. the project is acceptable.

- **IRR (Internal Rate of Return)**
  The annual gain that each investor receives can be expressed as a rate of return or annual profit known as the internal rate of return. In this case, the interest rate is fixed (MARR) by the investor. As the Net Present Value increases, the interest rate becomes smaller, until at a certain point NPV reaches zero. At this point the IRR is found. (Urbina, 2007)

The IRR must be determined in relation to the MARR (Minimum Accepted Rate of Return)[1], as presented below:

Table 61: Minimum Accepted Rate of Return

i loan	% external resources	Simple MARR	% own resources	MIXED MARR
10.50%	33.00%	13.79%	67%	12.67%

Table 62: Internal Rate of Return

IRR					
i=			55%		60%
YEAR	NET CASH FLOW	CURRENT EXPENSES	NPV (LOWER)	CURRENT EXPENSES	NPV 1 (HIGHER)
0			-136,737.59		-37,434.84
1	$ 79,900.80	0.644341522	$ 51,483.40	$ 0.63	$ 49,938.00

[1] The MARR, or minimum accepted rate of return, includes "the investor who risks his money, by the nature of risk, deserves an additional gain on inflation, stated as the risk premium. In other words, the higher the risk deserves greater profit" (Urbina, 2007)

2	$ 139,771.41	0.415175996	$ 58,029.74	$ 0.39	$ 54,598.21
3	$ 146,281.99	0.267515133	$ 39,132.65	$ 0.24	$ 35,713.38
4	$ 264,204.56	0.172371108	$ 45,541.23	$ 0.15	$ 40,314.42
5	$ 277,479.73	0.111065862	$ 30,818.53	$ 0.10	$ 26,462.53
	$ 907,638.50		$ 88,267.95		$ 169,591.69

Source: Proprietary Investigation
Created by: The Author

Criteria: If the IRR is greater than the MARR (minimum accepted rate of return) the project must be approved.

In conclusion, it can be seen that for the present project the IRR is higher than the MARR. Where the IRR (Internal Rate of Return) is 55%, the MARR is 12.67%; So the project is accepted.

- **BENEFIT COST RELATIONSHIP.**

The so-called benefit-cost ratio, can be interpreted as the profit made for each dollar spent on project costs. In other words, it is those current revenues produced versus the current costs incurred by the project.

Current Factor

$CA = 1 / (1+i)^n$

Benefit Cost Ratio

R (B/C) = $\frac{\text{Discounted Income}}{\text{Discounted Costs}}$

R576918.75 4.219167165
-136737.59

$$R(\frac{B}{C}) = \frac{576{,}918.75}{136{,}737.59}$$

$$R\left(\frac{B}{C}\right) = 4.22$$

RCriteria: If R(B/C) is greater than, accept the project

If R(B/C) is less than 1 the project is denied

If R (B/C) is equal to 1 the project is indifferent

RESULT: The project is accepted since each dollar invested yields $3.22 ($4.22- $1.00) of profit.

- **INVESTMENT RECOVERY PERIOD**

Table 63: Investment Recovery Period

Investment Recovery			
Period	Cash Flow	Discounted C.F.	Recovery
0	-$ 136,737.59		
1	$ 79,900.80	$ 70,088.42	-$ 66,649.17
2	$ 139,771.41	$ 107,549.56	$ 40,900.40
3	$ 146,281.99	$ 98,736.18	$ 139,636.57
4	$ 264,204.56	$ 156,430.31	$ 296,066.88
5	$ 277,479.73	$ 144,114.28	$ 440,181.16

Source: Proprietary Research Created by: The author

The previous result, shows that the investment will be recovered in the second year after the start-up of the project with a value of $40,900.40. This value is expected to increase depending on the increase in annual sales revenue of guava puree.

CONCLUSIONS

4.1 Theoretical Conclusions

The feasibility of a manufacturing and export project based on the use of typical Ecuadorian fruits such as guava, will take advantage of the country's production and make it known as a high quality, low cost producer. Thanks to today's technical machinery the product can be produced in batches, which increases productivity; therefore giving emphasis to productive processes regarding food products and products made from tropical fruit base. In order to take advantage of this market, the entire process of foreign trade, from shipment of products to delivery to the consumer, as well as the materials and implements used, must be included within the costs and production expenses. When all these factors are taken into account, it reflects the true cost-benefit that the implementation of a project like the present can have.

4.2 Methodological Conclusions

The present project is based on a descriptive study for which it was possible to encourage the implementation of innovation based on specific theories and methods of entrepreneurship. In addition to being innovative, the project was experimental and observational. Thanks to the use of direct observation as an instrument of data collection, it was possible to determine that the theorized project will be accepted by the elderly of Barcelona Spain. This market requires a natural product that does not contain dyes or preservatives. Considering that the guava is commonly accepted as an exotic fruit throughout Europe and much desired by said market, a high demand for guava based products can be expected.

4.3 Pragmatic Conclusions

It was determined that the present project is totally feasible. When it is implemented it will be possible follow what was defined and laid out in the market, technical and financial study chapters. The plans in the aforementioned chapters will be crucial during the undertaking of this company producing and exporting guava puree.

In addition, when reviewing this business plan, the reader will be able to realize the multiple benefits that can be obtained from this project without having to have the full capital for the investment. If a logical structure such as this project is presented to a financial institution, it is very probable that the presenter will gain access to a production credit. Said credit is part of the investment required to accomplish the business activities laid out in this plan such as the manufacture and exportation of the product.

In regards to the export process, the incoterm FOB (Free on Board) will be used. This states that the seller is the entity that delivers the goods through the maritime transport while agreeing to comply with customs procedures; which are ultimately in charge of the exports of the company GUAYAEXPORT. However, according to FOB, the buyer is responsible for any risk of loss or damage in relation to the merchandise as the obligation is passed from the seller to the buyer. Regarding the customs process, the formalities of inclusion of the electronic signature, as well as the inclusion of information requested by ECUAPASS are required. After compliance with all the aforementioned requirements, the product may finally proceed to the physical inspection, where the transaction and customs process of the merchandise is either approved or denied.

The seller delivers the goods "on board the ship" designated by the buyer at the designated port of loading, and the goods are subsequently stowed. At that time the risk of the merchandise being lost or damaged is transferred from the seller to the buyer. The seller contracts the main transport through a freight forwarder or a consignee, on behalf of the buyer. The seller also carries out the necessary customs formalities for export.

RECOMMENDATIONS

- It is necessary that the State and the public authorities such as Ecuador Customs, who are in charge of export management, carry out export incentive projects. Such incentives are carried out in order to mitigate the effects of drops in oil supply and current excessive expenditure; especially focused on domestic production to improve quality and lower costs.
- Joint signatures or agreements should be created between producers and food manufacturers in Ecuador, who wish to export, in order to request trainings, workshop-seminars or permanent courses regarding export processes to the different countries of the world. This may aid in the export process to countries such as the European Union where particular food or tropical fruits are very desirable.
- It would be practical for the producing companies to acquire medium and long term loans in order to technify their productive processes, which will make increasing their sales and reaching foreign markets more achievable.

CONTRIBUTIONS

The current project serves as a guiding document for entrepreneurs of small and medium-sized enterprises, whose aim in the short or medium term is to get their product marketed to foreign markets. This document enables those to have a close-up view of the requirements, the target market and the start-up costs of the business intending to export to the European Union.

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APPENDICES

Appendix 1: Depreciation

ITEM	% DEP.	VALUE	DEP. YEAR 1	DEP. YEAR 2	DEP. YEAR 3	DEP. YEAR 4	DEP. YEAR 5	YEAR 5 ASSET VALUE	RESIDUAL VALUE	Asset sales value year 5 (15% utility)
Vehicles	**20%**	$ 33,000.00	$ 6,600.00	$ 6,600.00	$ 6,600.00	$ 6,600.00	$ 6,600.00	YEAR 5 ASSET VALUE	$ -	
Buildings	**5%**	$ 60,000.00	$ 3,000.00	$ 3,000.00	$ 3,000.00	$ 3,000.00	$ 3,000.00	YEAR 5 ASSET VALUE	$ 45,000.00	
Furniture & Equipment	10%	$ 7,205.00	$ 720.50	$ 720.50	$ 720.50	$ 720.50	$ 720.50	YEAR 5 ASSET VALUE	**$ 3,602.50**	$ 4,142.88
Machinery	10%	$ 288,000.00	$ 28,800.00	$ 28,800.00	$ 28,800.00	$ 28,800.00	$ 28,800.00	YEAR 5 ASSET VALUE	**$ 144,000.00**	
Computer Equipment	33%	$ 13,520.00	$ 4,506.67	$ 4,506.67	$ 4,506.67	-	-	YEAR 5 ASSET VALUE	$ 0.00	
Total Assets		$ 401,725.00	$ 43,627.17	$ 43,627.17	$ 43,627.17	$ 39,120.50	$ 39,120.50	total	$ 192,602.50	**$ 4,142.88**

Source: Proprietary Research

Appendix 2: Loan Amortization

Amount	Interest	Time
265,150.38	10.50%	3 years

DATE	MONTHLY QUOTA	CAPITAL	INTEREST	BALANCE
jan-15				$ 265,150.38
feb-15	$ 8,618.04	$ 6,297.97	$ 2,320.07	$ 258,852.41
mar-15	$ 8,618.04	$ 6,353.08	$ 2,264.96	$ 252,499.33
apr-15	$ 8,618.04	$ 6,408.67	$ 2,209.37	$ 246,090.66
may-15	$ 8,618.04	$ 6,464.74	$ 2,153.29	$ 239,625.92
jun-15	$ 8,618.04	$ 6,521.31	$ 2,096.73	$ 233,104.61
jul-15	$ 8,618.04	$ 6,578.37	$ 2,039.67	$ 226,526.24
aug-15	$ 8,618.04	$ 6,635.93	$ 1,982.10	$ 219,890.31
sep-15	$ 8,618.04	$ 6,693.99	$ 1,924.04	$ 213,196.32
oct-15	$ 8,618.04	$ 6,752.57	$ 1,865.47	$ 206,443.75
nov-15	$ 8,618.04	$ 6,811.65	$ 1,806.38	$ 199,632.10
dec-15	$ 8,618.04	$ 6,871.25	$ 1,746.78	$ 192,760.84
jan-16	$ 8,618.04	$ 6,931.38	$ 1,686.66	$ 185,829.47
feb-16	$ 8,618.04	$ 6,992.03	$ 1,626.01	$ 178,837.44
mar-16	$ 8,618.04	$ 7,053.21	$ 1,564.83	$ 171,784.23
apr-16	$ 8,618.04	$ 7,114.92	$ 1,503.11	$ 164,669.31
may-16	$ 8,618.04	$ 7,177.18	$ 1,440.86	$ 157,492.13
jun-16	$ 8,618.04	$ 7,239.98	$ 1,378.06	$ 150,252.15
jul-16	$ 8,618.04	$ 7,303.33	$ 1,314.71	$ 142,948.82
aug-16	$ 8,618.04	$ 7,367.23	$ 1,250.80	$ 135,581.59
sep-16	$ 8,618.04	$ 7,431.70	$ 1,186.34	$ 128,149.89
oct-16	$ 8,618.04	$ 7,496.72	$ 1,121.31	$ 120,653.17
nov-16	$ 8,618.04	$ 7,562.32	$ 1,055.72	$ 113,090.85
dec-16	$ 8,618.04	$ 7,628.49	$ 989.54	$ 105,462.36
jan-17	$ 8,618.04	$ 7,695.24	$ 922.80	$ 97,767.12
feb-17	$ 8,618.04	$ 7,762.57	$ 855.46	$ 90,004.55
mar-17	$ 8,618.04	$ 7,830.50	$ 787.54	$ 82,174.05
apr-17	$ 8,618.04	$ 7,899.01	$ 719.02	$ 74,275.04
may-17	$ 8,618.04	$ 7,968.13	$ 649.91	$ 66,306.91
jun-17	$ 8,618.04	$ 8,037.85	$ 580.19	$ 58,269.06
jul-17	$ 8,618.04	$ 8,108.18	$ 509.85	$ 50,160.88
aug-17	$ 8,618.04	$ 8,179.13	$ 438.91	$ 41,981.75
sep-17	$ 8,618.04	$ 8,250.69	$ 367.34	$ 33,731.06
oct-17	$ 8,618.04	$ 8,322.89	$ 295.15	$ 25,408.17
nov-17	$ 8,618.04	$ 8,395.71	$ 222.32	$ 17,012.46
dec-17	$ 8,618.04	$ 8,469.18	$ 148.86	$ 8,543.28
jan-18	$ 8,618.04	$ 8,543.28	$ 74.75	$ 0.00

Period	Capital + interest	Capital	Interest
Year 1		$ 79,320.91	$ 24,095.51
Year 2		$ 88,062.35	$ 15,354.07
Year 3		$ 97,767.12	$ 5,649.30
Total		$ 265,150.37	$ 45,098.89

Source: Proprietary Research