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FEASIBILITY ANALYSIS FOR EXPORTING ORGANIC SHAMPOO BARS TO THE SPANISH MARKET

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DEDICATIONS

Above all to my parents, who have been guiding me through all this way, always helping me to not give up; to my sisters, who are life, and my grandmothers, who have always been my daylight.

Emilia Calderón Raue

To my parents, my *tia Liz*, and my *abue Raul*, my grandmother Cumanda, my grandfather Enrique and my *tía Suca*; who are and have always been my driving force, my guides and the clearest examples for me, of what truly, unconditional love means. Thank you all for the support and love, and thank you for helping me to become who I am today.

Juliana Calle Maldonado

WORDS OF THANKS

To our thesis director, Antonio Torres, for all the support provided along the way. Without his help, guidance and patience, this project wouldn't exist.

ABSTRACT

For this final project, there is going to be an analysis related to the chosen product, which in this case, is a natural champ bar, determining whether the market chosen is prepared for the entry of the product and the impact it will create in the society once established, with the bonus that by being an organic product, it will also help the environment. To begin with, there is a market study that determines which country is ready for the merchandise, and subsequent financial and economic analysis, to obtain accurate data on how much is the purchasing power our customers should have, and what is the investment needed to implement the entire project; considering all the factors necessary for a functioning company since its establishment for there to be revenue. The book "Evaluación de Proyectos" by he author Gabriel Baca Urbina, was the guide used to create the project from the beginning, not skip any steps, in order to get a quality project.

Key words: eco-friendly, export, incoterms, natural products, champ bar, soup base.

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CHAPTER 1

1 STATE OF THE ART

Introduction

In this first chapter, several theories of Foreign Trade will be presented in order to better understand the bases from which this work starts. A PESTE analysis will be carried out as well, in order to verify if Spain is the ideal target market, by analyzing political, economic, social, technological and environmental factors. After the analysis, the way in which elements could be related and the way in which they can be affected by each other were considered.

In addition, in order to determine which would be the ideal market for the product, studies were conducted on which countries could be potential buyers. Thus, in this chapter, a brief analysis of the four previously chosen countries, France, Spain, Germany and the United States, will also be carried out. The factors that will be considered are those which could in any way affect the supply and demand of the product to be exported. Finally, we will present a brief description of the product, including its characteristics and the reasons why it is intended to be exported.

1.1 State of the art

For this project, it was necessary to do some research about some theories of Foreign Trade. Foreign Trade starts with mercantilism, which was initially born from the idea of goods accumulation, in 1723 Adam Smith criticizes mercantilism and expresses his theory of absolute advantage, a theory that is based on specialization. He explains that product specialization and trade relations can lead to greater total productions. (Smith, 2011)

After almost 50 years, in 1772 David Ricardo complemented the theory of absolute advantage, thus creating the theory of comparative advantage. This new theory analyzes the relative costs of each product, bearing in mind factors such as labor costs and trade relations

between countries. David Ricardo explains in his theory that nations that are inefficient in a certain area must specialize and export products in another area in which they are relatively less inefficient (an area in which its absolute advantage is less), and that the most efficient nations must specialize and export the product in which they are relatively more efficient. (Ricardo, 1817).

Heckscher and Ohlin propose in the mid-twentieth century a different definition to comparative advantage, explaining that comparative advantage is the product of differences in the national endowment of factors; the comparative advantage theory only explains the degree to which a country has been favored with resources such as land, labor and capital. However, according to Heckscher and Ohlin, some nations have various factor endowments; which explains the difference in relative costs of these same factors. In addition, this theory predicts that countries will export goods that make intensive use of locally abundant factors, and import goods that make intensive use of locally limited factors. (Hecksher & Ohlin, 1977)

In 1990, Michael Porter published the results of his research, of which the main objective was to establish the main reason why certain nations succeed and others fail within international competition. Porter's theory, unlike the theory of national comparative advantage, suggests that the pattern of trade is determined by four attributes of a nation which promote or prevent the creation of a greater competitive advantage and are established in the well-known Diamond of Porter. (Porter, 1988)

The 4 attributes mentioned before are: the endowment of factors, which refers to the national position of the factors of production such as skilled labor or the necessary infrastructure to compete in a given industry; the conditions of the demand, which refer to the nature of the national demand for the product or service of a particular industry; the related industries and the support industries which refers to the presence or absence within a nation of related and providing industries that are internationally competitive; and the strategy, structure and rivalry, which discuss the conditions of a nation in which they govern the way that companies are created, organized and directed, as well as the nature of the

national rivalry. It is important to recognize that, in *Porter's Diamond* theory, the effect of one attribute depends on the state of the others. (Teorias del Comercio, 2014)

Another theory of international trade that is important to understand for this research, is the theory of internationalization, which explains how multinational organizations, as they spread throughout the world, improve mainly in two areas. The first is the exploitation of the advantages of being located in several countries, and the second is the ease of managing dependencies from a central company. These two areas help to improve the income of the company that is internationalized, and at the same time, to avoid certain costs depending on where the companies are located.

When talking about internationalization it is important to emphasize the Uppsala model, which focuses mainly on medium and small companies; for this, Cardozo, Chavazo and Ramírez (2004) explain that there are 4 stages for internationalization:

- Sporadic or non-regular export activities.
- Exports through independent representatives.
- Establishment of a commercial branch in the foreign country.
- Establishment of productive units in the foreign country.

None of these depends on the other, which means that they can be fulfilled in any order and not necessarily all of them must be done; and above all, the company that is becoming internationalized, over time will understand the market it enters better, through experiences.

The last theory that we will approach is "the *Born Global companies"*, which are companies that since their creation already have an international vision (meaning that they are born international), or those that are internationalized within the first two years. Thanks to the telecommunications facility that currently exists, internationalizing is a lot easier than it was before, since marketing, processes and all the necessary information can be found on the internet (Cardozo, Chavazo, & Ramirez, 2004). This last theory is fundamental for study,

since the company we are planning to create after this feasibility analysis is directly related to this concept.

Having understood these theories, we can proceed to focus on the basis of how this thesis will be carried out, which, given its nature, will be developed as a project; For this, we must know that a project is the search for an intelligent solution to a problem statement, a search that tends to solve a human need.

According to Baca Urbina, the first part of the formal investigation of the study is called market analysis. It consists of the determination and quantification of demand and supply, the analysis of prices and the study of merchandising. The technical study can be subdivided into four parts, which are: determination of the optimal size for the production plant, determination of the optimal location of the plant, project engineering and organizational, administrative and legal analysis. The last stage of the study is the economic and financial study, its objective is to order and systematize the monetary information provided by the previous stages, and prepare the analytical tables that serve as the basis for the economic evaluation. (Urbina, 2010).

As stated previously, our project is a Born Global company, with production in Ecuador, but with final products destined for export. In order to determine which would be the ideal market for the product offered, secondary information was collected about the countries with the most developed and fastest growing ecological markets, as well as the countries with closest trading relations with Ecuador. For this reason, the first chosen country was the United States, since it was determined, through Trademap, that it is Ecuador's main trading partner.

Afterwards, European countries were chosen, mainly because of the benefits that the recent trade agreement between Ecuador and the European Union represents, and also due to the current ecological market of the region. The selected countries were Germany, France and Spain, these three countries were the most convenient after the review of different studies, which revealed that the largest ecological markets are in Germany and France (Cano,

2018). Spain, on the other hand, was selected as it has shown to have the highest growth in the eco-market; although it does not belong to the largest markets, in terms of natural cosmetics (the market we are targeting), Spain has shown a great growth in recent years, therefore we saw great opportunities and decided to analyze it as one of the options, also considering that it is the only country we share language with, which could present a great advantage.

After choosing the countries, as Olegario Llamazares explains in his book "International Marketing", several factors should be analyzed to determine which country is the most suitable one. To make the final selection, we made a weighting matrix. The criteria we analyze to assess the potential market are: economic growth, purchasing power per capita ($) and the volume of imports (tons); and regarding the criteria for assessing risks and accessibility: tariff barriers, non-tariff barriers, commercial risks, ease of doing business and transparency and corruption. Several tools such as the International Monetary Fund, Trading Economics, Global Trade Alert, COFACE, World Bank and Transparency International were used to obtain the necessary data to perform table 1.

Table 1 *Country evaluation*.

Criterion	Country			
	Spain	USA	Germany	France
Economic growth	2%	3%	1%	1%
Purchasing power per capita ($)	$35,055.70	$54,225.45	$45,959.40	$39,555.50
Import volume (kg)	49,697,719	64,520,029	61,821,652	36,125,423
Exports from the company's country (kg)	18	1,893	-	-
Tariff	0%	15%	0%	0%
Non-tariff barriers	19	133	24	19
Commercial risks	A2	A2	A2	A2
Ease of doing business	86.91	91.23	78.9	93.27
Transparency and corruption	58	71	80	72

Source: Monetary Fund, Trading Economics, Global Trade Alert, COFACE, World Bank and Transparency International.

The next step after obtaining the information needed from secondary sources, is granting a weight to each of the variables to be analyzed, for which we used 4 coefficients, from 1 to 4, 1 being the least important criterion and 4 the most important. Once the coefficients were established, each country was graded according to the data obtained previously. For the qualification we used a system from 1 to 5 in which 1 represents very unfavorable conditions and 5 very favorable as shown in table 2.

Table 2 *Country weight*.

Coefficient	Criterion	Spain		USA		Germany		France	
		Grade.	Weight.	Grade.	Weight.	Grade.	Weight.	Grade.	Weight.
4	Economic growth	5	20	5	20	2	8	3	12
3	Purchasing power per capita ($)	3	9	5	15	4	12	3	9
2	Import volume (kg)	3	6	4	8	4	8	2	4
3	Exports from the company's country (kg)	3	9	4	12	0	0	0	0
4	Tariff	5	20	5	20	5	20	5	20
5	Non-tariff barriers	5	25	2	10	4	20	5	25
3	Commercial risks	4	12	4	12	4	12	4	12
3	Ease of doing business	3	9	3	9	2	6	4	12
2	Transparency and corruption	3	6	4	8	4	8	4	8
	TOTAL	116		114		94		102	

Source: Authors.

After multiplying the coefficient by the rating assigned to each country in the different variables and adding these results, the final result was obtained, which, as we can see in the Table #2, shows Spain as the most suitable country for our study. This result is given by criterions in which Spain has a high weight such as non-tariff barriers, which facilitate the commercialization of the product, the ease of doing business, and the growth of its GDP. However, now that we know which country we want to export to, we need specific information about Spain that lets us observe the real scenario we will face. For this, we will carry out a PESTE analysis, which involves the most relevant information of the Spanish macroeconomy; its society and culture, which will allow us to better understand how to do

business; the technology that exists in the country; and the most relevant for this study: the environmental.

1.2 Political analysis.

Spain, also known as the Kingdom of Spain, is a country located in Europe and a member of the European Union, of which it has been part since January, 1986. Madrid is the capital and the currency they use, as in most countries in the European Union, is the Euro. Spain is constituted as a social and democratic rule of law, in its legal system it promulgates the values of freedom, justice, equality and political pluralism. Spain is a parliamentary monarchy, which means, that King Felipe VI, the head of state, the responsible for arbitrating and regulating the institutions, and the maximum representative of the Spanish State with respect to international relations. However, the powers are handled by the general courts. (EURYDICE, 2018).

Spain, being a multi-party country, allows several political parties to participate in the elections. When the research took place, the president of the government was Pedro Sánchez, and Spain was being governed by the Spanish Constitution of 1978 and a series of organic laws that were developed based on it.

The executive power, which is the one that manages internal and external policies as well as the civil and military administration, is run by the government, which is generally made up of ministers, deputies and the head of government. The legislative power, on the other hand, is managed by the general courts and a parliament chosen every four years, for which all citizens over 18 years old can vote. The general courts are composed of the Congress of Deputies and the Senate with a total of 350 members. Finally, the judicial power is exercised by a set of courts and tribunals, composed of judges and magistrates in charge of administering justice (EURYDICE, 2018).

For our research, political analysis is important since when exporting, we must consider the technical standards and regulations of each country, which are mandatory. A

technical regulation in the European Union, is the same throughout the whole community. A technical norm on the other hand, is elaborated by private, non-profit entities that seek to obtain standards, tests, characteristics, etc. These are two different, but related, types of documents (Ministerio de Industria, Comercio y Turismo., 2012).

On the other hand, a technical barrier is born as a result of protecting the markets of each state, it is solved thanks to international treaties which opens up greater business opportunities, but at the same time generates greater competitiveness in the territory. The European Union is currently trying to avoid these through international agreements, with the aim of a free market. Within this, the one in charge of the norms and regulations for the European Union is the European Commission and Directive 98/34/CE, and for Spain is the Spanish Association for Standardization and Certification (AENOR). Currently there are no tariff barriers with Ecuador, thanks to the recent agreement signed with the European Union (Ministerio de Industria, Comercio y Turismo., 2012).

1.3 Economic analysis

Spain has always been a country with a stable economy, despite having suffered some crises as in the 90s or in 2008, it has managed to successfully overcome them. Its GDP is 1,864 billion dollars with an approximate of $ 40,300 per capita income ; and has an HDI of 0.89, considered by the United Nations as very high. It currently has the thirteenth world economy, and it is considered one of the countries with the most open economies in Europe and with greater internationalization of products. Spain began to recover from the crisis of 2008 only in 2014, and its GDP started growing progressively until 2017 reaching a 3% growth. However, in all those years, education spending continued to grow and in 2016 it reached 4.25% of its GDP (EURYDICE, 2018).

Education is a mainstay of development for Spain, which demonstrates it with the decrease in the number of people who had lower education than secondary school from 61.4 in 2000, to 40.9 in 2017; Likewise, the percentage of people with higher levels of education

has increased from 22.7% in 2000, to 36.4% in 2017, in a range of people from 25 to 64 years old.

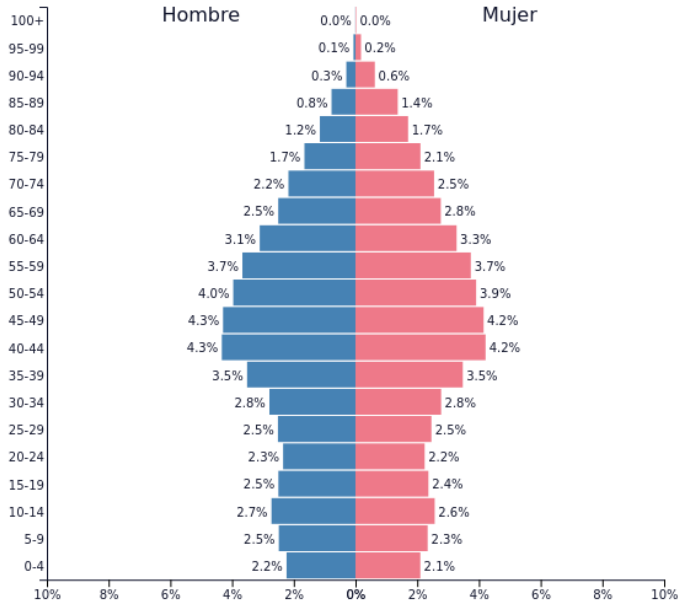
1.4 Social analysis

Some of the social and cultural factors that we believe are pertinent to analyze for this study are demography, population growth rates, age distribution, changes in lifestyle, attitudes towards work, education, trends, the feeling of health and well-being and living conditions, among others.

Spain has about 49,000,000 inhabitants today. The demographic change is a social area that is directly related to the economy of this country, and in recent years has been of vital importance. The population pyramid in this country has undergone a change that not many countries have, in which the largest number of inhabitants are people over 30 years old; which means that only 19.1% of the population are 15-29 years old. This tells us that in the future there will be population differences that will affect the country economically, since it may not cover all the jobs (CIA Factbook, 2018).

The population distribution by gender is almost symmetrical, there is a small difference of percentage tenths with a majority of women as a result (See figure 1). Most of the population is concentrated in ages between 26 and 56 years, although the pyramid has lost its original shape over time and is "flattened" given the decrease in births, a fact that has increased the long-lived population, population under 40 years decrease, and the elderly population increase.

Figure 1 *Population pyramid of Spain of the year 2018.*



Source: (Population Pyramid, 2018)

Several factors such as the rapid advancement of technology, the increasing degree of education in individuals, the gain of new types of social rights and their acceptance, and the increase in the quality of life itself, are other socio-cultural aspects that have led the Spanish lifestyle to have significant changes in recent years. Technology, especially communications and the internet, allow us to carry out various activities from anywhere, so, especially in younger generations, there is a tendency to modernize everything, including and above all, business (BLASCO, 2017).

Every year the concern of individuals about their image increases, due to improvements in the levels of quality of life. This is why consumers demand more and more when it comes to the variety of products offered, brands, and their characteristics. Although the majority of people involved in cosmetics in Spain, both consumers and labor markets, are mostly women, the increase in male interest in personal care and beauty in general is an undeniable fact. In addition, another important feature when we talk about social factors

within the cosmetic area, is the increasingly preference for eco-friendly and natural products (Babayan, 2009).

Another important aspect to analyze is the cultural distance (differences between culture, values and beliefs of several countries) that exists between Spain and Ecuador. Geert Hofstede, author of the cultural dimensions theory, explains that cultures are distinguished by their unequal way of programming the mind; this theory is based precisely on the ability to analyze how one culture differs from another, through the gauges that Hofstede raises.

The first dimension is power distance, which is based on how people with "less power" in institutions or organizations accept that power is distributed unevenly around the world. In this dimension, Ecuador receive a score of 78/100, since Ecuadorians believe that inequality is a simple fact of life, and this is accepted in society; it is commonly associated with race and social stratum (Hofstede Insights, 2018). On the other hand, Spain obtain a score of 57/100 which materializes the hierarchical society in which they live. They accept it and do not need an explanation in this regard. Subordinates await orders, and in return ask for an understandable boss.

The second dimension is individualism, which is the degree of interdependence that a society maintains. It refers to whether a society, when thinking about their well-being, thinks in singular or in plural. That is to say that when people act they focus on personal or social benefit. Individualist societies care about themselves and their direct family, while collectivist societies care about groups of people.

Ecuador has a score of 8/100 in the second dimension (being one collectivism as a society and 100 individualism as a society), therefore Ecuador is one of the most collectivist countries in the world, only surpassed by Guatemala. Groups of people tend to grow rapidly. However, foreigners or non-participants can be recognized as enemies (Hofstede Insights, 2018). Spain, in this dimension, has a score of 51/100. It is considered as collective, especially compared to other European countries, which tend to be mostly individualistic.

This means that Spaniards can interact better with collective countries, especially in Latin America (Hofstede Insights, 2018).

The third dimension is masculinity / femininity. Hofstede explains that masculinity is when a society is driven by achievements and success, while femininity focuses on values, caring for others and the quality of life. Femininity denotes as a low score while masculinity as a high score. Ecuador has a score of 63/100 which makes it a masculine society, in which success and achievements matters, contradictory to the myth that Latin Americans are vague. Ecuadorians are as competitive as they are collective. They fight together for power (mainly social). On the other hand, Spain has a score of 42/100. It is a neutral country in which people are taught to seek harmony without the need to take a position or excel. For example, bosses often ask their workers for their opinions in order to find a solution that is feasible for everyone (Hofstede Insights, 2018).

The fourth dimension is uncertainty avoidance, which is based on how each society learns to deal with the fact that the future is unknown. In this, several factors intervene such as culture, economy, etc. In this indicator Spain receives a score of 86/100 (being 1 a society that does not care about the future and 100 a society that worries about the future). Spain is one of those countries that has rules for everything, since change causes stress, but at the same time by having rules for everything, they are forced to evade them repeatedly which in the end makes life more complicated. A study showed that 75% of the young population of Spain want to get jobs in the sector where they are sure that there will be no changes, that is, a job for life. Ecuador also obtained a score of 67/100, since, although it cares about the future and there are mechanisms that help keep calm (one of them is religion), the fact that there is extensive and detailed legislation also helps. (Hofstede Insights, 2018).

The fifth dimension is long-term orientation, based on how each society remains linked to its past in order to understand the challenges of the present and the future. Ecuador does not have an exact score; however, the society of this country does not tend to worry much about the future, they are a society that lives in the moment. Likewise Spain, which is recognized for giving knowledge to the world of the word "party". In the long-term

orientation Spain obtains a score of 48/100, being 1 a society that does not care about the future and 100 a society that cares about the future (Hofstede Insights, 2018).

The last dimension is indulgence (it is good to be free) which is based on how people control their desires and impulses. Spain it obtains a score of 44/100 (being 1 societies that cannot control their impulses, and 100 societies that control their desires and impulses). The score obtained by Spain is a low score, societies with scores like this tend to be cynical and pessimistic, they think that their actions are restricted by the laws of society, but not by the need to be a less aggressive society. Ecuador does not have a score in this dimension either. However, it is a society quite culturally similar to Spain when controlling impulses and desires (Hofstede Insights, 2018).

1.5 Technological analysis

Spain has a growing technological sector that is developing in such a way that it presents a quite hopeful future, mainly for the macroeconomic field. Spain ranks fifth as a technological power in Europe. According to a report by the international Atomic company of investments in technology companies, Spain received 672 million euros in 2016 which takes it to fifth place when it refers to foreign investments in technology companies. According to the report published at the end of 2017, in Spain the number of developers was growing in the last year until reaching 268,149, many of them (104,102 specifically) working in Madrid, the fourth European city with more professionals with this profile. The study also ensures that the Barcelona city is the third favorite city in Europe by the founders of emerging small businesses. Therefore, we can see that Spain is in the platoon of the most competitive European countries, technologically speaking, but without being the leader in many aspects.

Two Spanish companies are among the best European technology companies; Telefónica, a large telecommunications company, and Amadeus IT Group, the largest technology provider in terms of tourism services. However, Spain is in a low position in a world ranking, considering that there are no Spanish technological companies that integrate the list of the 20 most important in the world (Diario Atlántico, 2018).

The turnover of the technology sector in Spain grew by 6.4% in 2016, which means that it reached around 25 billion euros according to data that was published by Ametic (Multisectoral association of electronics companies, the technologies of the information, telecommunications and digital content). The most significant areas of activity that make up the ICT market also registered growth. Ametic emphasizes that:

> "This type of services increased by 7.2%, which allowed them to invoice around 17 billion euros; The subcategory of software enlarged by 5.4%, to reach 3 billion euros, while the hardware subcategory achieved 4.5% more, with 4 billion. On the other hand, employment achieved 6% more than in 2016, with 216,800 direct workers in the sector." (Diario Atlántico, 2018).

For this growth to have been possible in recent years, the inclusion of technologies in professional and personal areas, a dynamic economy, and a digital transformation in the network of companies has been essential in Spain. Ametic in an article in the Atlantic newspaper (2018) has confirmed that, "IT are an aid for economic growth and these data show that there is a direct relationship between the increase in gross domestic product (GDP) and that of ITs". Although Spain has very interesting small and medium-sized technology companies, this are not enough to build a network of technology companies important enough to face the competences of the future. However, the Spanish technology sector should be proud as it is among the most competitive European countries in this matter (Diario Atlántico, 2018).

After an investigation carried out by José Molero, it was concluded that the Spanish technological economy needs to deepen on the constitution of new theories of innovation and its relations with economic dynamics, especially considering three factors: the changes produced in the way of innovating, the growing importance of innovation in services and the relevance, which is increasing, of internationalization processes. Also, it is necessary to dedicate more research to the knowledge of the institutional factors to be able to determine the transcendental obstacles that affect the low efficiency in the creation of innovations.

According to Molero (2007) "the public-private relationship should be the object of greater attention in policies."

Innovations are important as they lead to technological advances that could be reflected more quickly in fields such as logistics and product distribution. The development of information technologies helps the propagation of information and facilitates greater dissemination of a brand. Most cosmetic brands in Spain have websites that provide the necessary information about their products and/or services. The progressive growth in consumer confidence in online shopping has created a new sales channel, which allows a great opportunity for growth. If technological advances are well used, they constitute a great strength for companies, but it is important to know that they can also generate threats if the company does not know the correct way to adjust to the changes while its competition does it correctly (Babayan, 2009).

1.6 Environmental analysis

Nowadays, environmental factors are of the utmost importance, since as a result of the critical climate change, there are already many companies that have begun to change their products in order to reduce the impact on the planet. Around the world, companies that have not done something yet to reduce this impact are forced to find other ways to contribute to this problem. These activities are known as business ethics or social responsibility, in which companies theoretically 'care about what happens around them'.

According to a study by The Guardian and published by *El Diario de España*, "by 2021, the annual plastic bottles sold are projected to increase to 584 billion. Less than half of the bottles purchased in 2017 were collected for recycling and only 7% of those collected were converted into new bottles. This means that approximately 93% of the 480 billion plastic water bottles sold in 2017 ended up in landfills or in the ocean." (Laville & Taylor, 2017), truly alarming data for the crisis.

Regarding the industrial and economic environment of the chosen country, according to the latest statistics in the report “The world of organic food. Statistics and emerging trends 2018”, presented last February, Spain is already the tenth largest bio consumer country in the world in terms of volume. With a market of 1,686 million Euros that grew, according to the study "Myths and realities of organic products", 14% in 2017, versus 2.2% of the total market. With this growth it is already among the 10 ecological markets in the world that grows the most.” (Urrutia, 2018).

For all these factors, it can be said that Spain has a lively and growing market that could work for the study that is being carried out if we take advantage of factors such as technology or the changing lifestyle of the Spanish population, which gradually turns more towards an ecologically conscious market. A market positioning among the 10 countries with the highest ecological consumption worldwide according to the annual report of the company Ecovalia (Revista ARAL, 2019).

After analyzing this data, it was concluded that the best option was to create a product genuinely focused on environmental care, a cosmetic with a technologically innovative production and friendly practices to completely dispense of this type of packaging (plastic) and take advantage of the analyzed market.

1.7 Plan study of the product

The product to be exported is a shampoo bar, the bars would be produced in Ecuador, with raw material and local labor. The reason why we want to export the product is because it is believed that the Ecuadorian market is not ready yet to become an organic market, considering that, in saying organic market, we mean a market willing to pay higher prices for products that are 'green' or 'eco-friendly'. This information was corroborated with a focus group carried out in the city of Cuenca, which results can be found in the annexes.

Our shampoo bars will have the characteristic of ‘green’ since they will be organic and natural products from their raw material, to the final product. In the same way it is a

plastic-free product, which does not use animals to make tests or raw material that is difficult to renew such as palm trees. By having these differences with regular products, they require a special market, with consumers who are willing to pay higher prices in exchange for lowering their carbon footprint, for which a level of awareness is required in consumers, that was not found in the Ecuadorian market.

The consumer education of the market is a large cost that a new company, recently created, cannot afford, so it is more convenient to enter a market that is already prepared and has experience in the field. Spain is a market with an already developed marketplace in terms of ecological, however, it presents a great opportunity since it is in full growth. At the same time, natural cosmetology has shown great acceptance in Spain given its benefits, not only to the environment, but to the human being and his personal care. Because of these characteristics, and all the others demonstrated in this chapter, and because of the type of product that we want to launch, we will carry out this study to confirm that our assumptions are real, and that it is a viable project with immense benefits for both, consumers and producers.

Conclusion

It is clear that Spain has had problems in its economy, however, it has always known how to get out of its crises and remain relatively stable. After analyzing the data, we have concluded that several of the factors are beneficial for our study. The population pyramid is inclined towards adult people, which is convenient for the company since they are the ones who invest in products for their personal care, at the same time one of the factors found is the change of the market of Spain towards an ecological consciousness, and the growing male concern for beauty and personal care, which again represent an advantage for our project.

CHAPTER 2

2 MARKET ANALYSIS

Introduction

In order to verify how profitable the product could be, how ready the market is for it, or if there are any other suitable markets for it, we proposed a study on population and consumption characteristics. This is based on Gabriel Baca Urbina's book and broken down along this chapter.

2.1 Product description.

To understand the main ideas of the project, first we must understand the product itself. This solid shampoo bar, is going to be made out of natural products from Ecuador, such as cocoa, cacay, coconut, etc. Its main characteristic is being solid, which means that it doesn't need a plastic packaging; this would take care of the hair and the environment since it would use less plastic and decrease the contamination of the water used, because of the lack of chemicals normally used in common shampoos.

Since our main market is going to be Spain, we decided to look up what the Ministry of Health, Consumption and Social Welfare (AEMPS) says about shampoo, quoting:

> "The products used to wash the hair are called shampoos. These are generally presented on the market in a liquid presentation, more or less viscous and in varied colours, transparent or pearly. The characteristics these must include are: cleaning hair perfectly, leaving it soft, shiny and easily combinable, and produce abundant foam, not be irritating or sensitizing on the skin, and have a nice consistency and perfume, according to the characteristics of each hair (normal, dry or oily). Through the wide range of shampoos, you should choose the more suitable for your hair." (AEMPS, 1988).

The Harmonized System (SA) is the one in charge of the international multipurpose nomenclature of products prepared by the World Customs Organization (WCO), within chapter 33, we find, Essential oils and resinous; Perfumery toilet or cosmetics preparations, at the 6-digit level, in which the shampoo is included in "other", as shown in table 3. (Trade Map, 2019).

Table 3 *Tariff Classification*

Tariff Heading	Product Description
330590	Hair preparations (excl. waving preparations or permanent straightening, hair lacquers)
330510	Shampoos
330530	Hair lacquers
330520	Waving preparations or permanent straightening

Source: (Trade Map, 2019)

We emphasize the fact that the solid shampoo fairing, is a market that nowadays is in vogue, its growth is larger in European countries than in any other, where environmental awareness and body care with natural products is a big concern.

2.2 Offer Analysis

With the aim of carrying on an analysis of the offer this market could have, we need to clarify that since there is an absence of statistical data and since this study is being made in a foreign country, we had to do it mainly with information from secondary sources. The offer analysis is a method that is sought to determine the amount of money that our clients can invest in a good or service. (Urbina, 2010).

In order to analyze the offer, we have three different ways: First, is the competitive offer also called free market, where a good or service is offered without conditionals. Second, is the oligopolistic offer, in which the fact that there are so little producers for that good, allow them to price their product as they wish, according to the demand. Finally, we have the monopolistic offer, in which, although there is not only one producer, just one controls, more or less, the 95% of the market, therefore they have the chance to choose the price, the quality, etc. (Urbina, 2010).

We based our study on a competitive market offer, which focuses on many producers ruling the market, which means that it is easier to enter in the competition, because when there are several producers, they are catalogued for their quality or price. (Urbina, 2010).

When talking about shampoos, as reported by the Spanish Society of Cosmetic Chemists: "In Spain, the growth of these products increased 20% from June 2017 to June 2018. Even at the community level there is data that confirm the upward trend: from 2016 the sale of organic cosmetics increased by 30% in Madrid, according to a study made by the Spanish Agency for Consumer Affairs, Food Safety and Nutrition", quoting directly the newspaper El País from Spain.

In Spain, there is the Association of Spanish Ecological and Natural Cosmetics (ACENE), which is integrated by 50 partners, who are dedicated to cosmetics in different fields. However, very few provide the same products as we would offer. The idea of this association is that they can grow together, instead of becoming rivals in the field. The fact that there are already associations with regard to natural cosmetics, also shows the growth that the market has. Spain is the country with the greatest growth in this area, and it is demonstrated since new companies have had to open to fulfill the demand. (Asociación de Cosméticos Ecológicos Naturales Españoles, 2014).

2.3 Demand Analysis

As mentioned before, the lack a primary information data made us base our study in secondary information sources, which according to Gabriel Baca Urbina, is a better option, since there is plenty of information, even more than if an analysis from primary sources was made, that should allow us to obtain a proper analysis. (Urbina, 2010).

To begin with, first, we must compare the demand in relation with the opportunity. In this market, since it's a new one, there is unsatisfied demand. Spain is one of the main countries leading the ecological and sustainable movement. Something to highlight, is the fact that sustainable goods, are not usually produced in large amounts (since in the long term

that would have an impact on the environment), that is why entering this market, is also easier. Spain is also one of the countries with the most remarkable growth in the natural cosmetic field, since their offer is priced a bit higher than the normal, but people seem to prefer it, without neglecting the fact that it would also help with the care of their skin or hair. (Urbina, 2010).

The next step of secondary information, is related to the people's needs. Our shampoo bar is classified as demand of social goods and nationally needed, since the majority, if not all, the population in this country use shampoo daily. The fact that it is such a common good, means that if lots of people start using it, the reduction in plastic bottles in this area would be massive. (Urbina, 2010).

Third, there is the classification by seasons, which is divided between the product that are used through the year, and the ones that are used only at certain times of the year. Our product has been categorized as continuous demand, since it is used by everyone, during the whole year, and if population grows, our demand will grow too. It's important to emphasize that the natural cosmetic market has grown faster in Spain, but we cannot forget the fact that it also has strongly affected the rest of the European market. (Urbina, 2010).

Last but not least, our last classification is related to destination, the destiny of our product according to the demand. Our goods are connected straight to our consumer, since they are bought for their prompt use. For this reason, it is important to mention that in Spain there are already many stores specialized in natural cosmetics.

Quoting the newspaper El País from Spain (2019) "25,11 million dollars is the value that the Grand View Research consultancy will provide for natural and ecological cosmetics worldwide in 2025, which according to its latest report on the sector, was a market that in 2017 reached 12,19 million. With an annual growth that ranges from 8 to 10%, the fever for this type of cosmetics seems unstoppable. "

Another thing to highlight, is the negotiation with Spain. For starters, Spanish people are very formal in the way they dress; they insist on men wearing suit and ties, and women wearing formal skirts or pants, even in summer, they still wear a tie, but with something lighter than a jacket, something more casual due to the seasonality. Spanish people tend to be punctual, still, being about 10 minutes late are still well seen by them. On the other hand, Spaniards do not like talking about their other business, the belief is, this is intrusive, it is better not to talk about other enterprises, instead, it is better to know everything about the company of concern at that moment, will make them feel flattered.

It should be kept in mind the fact that the Spanish culture is very similar to the Ecuadorian. In important meetings, people are very likely to interrupt to expose their own point of view, and this is not taken as a sign of disrespect; in Spain, when there is an interruption during a presentation, the attention and interest that is being taken is demonstrated, and we must acknowledge this and answer all the questions asked.

2.4 Price Analysis

The next step to follow is determining the optimal way to enter a new market with price analysis. The price analysis will allow us to recognize the feasibility and, in a certain way, the profitability limit of our product, by allowing us to compare ourselves with the competition and prices that already exists. This means that, there is already a price in the market, which we must take into account to become competitive and demonstrate how our company could or could not succeed in the target market.

For this study, it is also important to keep in mind the fact that quality is vital, since that means that it will have a direct impact on the price. Quality will allow the producer to obtain a competitive price in the market and at the same time, it will help obtaining the gains wanted. Our targeted market, won't allow a low quality which means this must be an essential characteristic, hand in hand with the ecological factors as well.

Price “is the monetary amount at which producers are willing to sell and consumers to buy a good or service, when supply and demand are in balance” (Urbina, Evaluación de Proyectos, 2010, p. 44). However, Baca Urbina, explains that nowadays with the wide branches and professions, there are perspectives that see price in different ways, linking it to the balance of prices posed by the government directly, or the fact that price balance is not achieved through supply-demand balance, but instead it is achieved by analyzing the production costs plus the profits the producer wants to obtains. Furthermore, this perception does not represent the whole reality, since there are other factors, as well, that must be taken into account like quantity and time to get an exact amount.

In order to understand price in a product or service, it is imperative to get the difference between cost and price. Cost refers directly to the value paid by the producer to obtain raw material, machinery and everything that is necessary to obtain the final product or service, which means that cost is directly linked to the value and effort incurred in the production process until obtaining the final good. (Campos, Roche, & Herrera, 2002). While, price, will be the cost plus the profit the manufacturer will obtain.

There are several types of prices, it’s important to know the exact cost and price that will be used since this is the basis for calculating the future income. Similarly, we must distinguish between what type of price are we dealing with and how it could be affected by the constantly changing conditions in sales sites. The price type we are dealing with is the international price. The international price “is the one used to import or export items. It is normally quoted in US dollars and FOB (free on board) in the country of origin. (Urbina, Evaluación de Proyectos, 2010, p. 45).

Knowing the real price of the product in the target market is essential, since this is the way we can really find out the income and project it to the future, always taking into account the fact that the demand of the product will always be linked to its final price. Also, by knowing market prices, we can know the current situation on the market. It’s important to emphasize how there is not only one price, since there are many factors that may affect it, like quality and quantity (See table 4).

Table 4 *Price comparison of shampoo bars in the market*

Quality / Brand	Shampoo retailer
Good: I should cocoa	7,95 €
Very good: Lush	9,95€
Excellent: Beauty and The Bees.	17,12€
AVERAGE:	11,67€

Source: I should Cocoa, Lush, Beuty and The Bees.

We chose three different shampoos, all of them with good quality, however, these were classified according to the company's own interests. The first one, *I should Cocoa*, is owned by the enterprise 'Bath Bubble and beyond'. This was chosen because even though this is not classified as one of the best, they prepare their shampoos with the same raw materials we are looking forward to use, especially cocoa. The next one is a really good one because it is internationally known, this company is 'Lush', but their way of producing do not fully share our values, especially our vision and the characteristic of being plastic free. The last one chosen was from the company 'Beauty and the bees'. This one has a wide range of products with different retail prices, however the price we obtained is an average of the shampoo prices. This company, shares our values, making their products 100% plastic free, natural, and free of animal testing. All these characteristics make it similar to what we want to produce, this is why this is the company we should be comparing with, for its quality and price, but above it all for their organic production, which is the plus we are looking for. These references demonstrate how we could, more or less, raise our prices in an already accepted market.

The average selling price for the shampoo retailers in Spain is around €11.67; something to keep in mind is that the price not only includes the fixed costs of the company and the profits, but also the cost that it will take to commercialize it. We need to consider the fact that, there are several people who will be in contact with it, before the product can reach its final destination and each actor will also gain profit from it, which raises the real price of

the product. Nonetheless, this data helps us to get our sales projection, with real prices and margins from our competition.

2.5 Product Commercialization

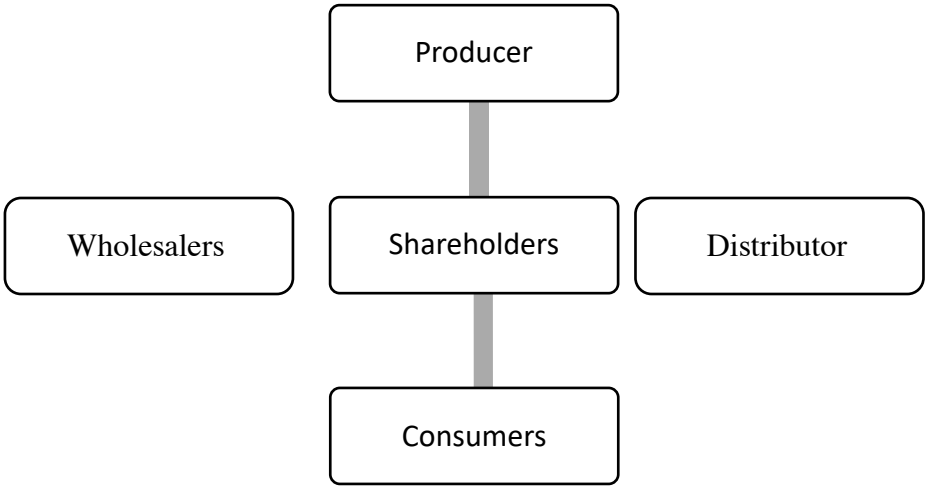
The product commercialization, is one of the most important parts of the sales process, anyhow it is mostly neglected by companies so it is not surprising that many companies have gone bankrupt because of their lack of a good commercialization. When we refer to commercialization, we are talking about the process that the product goes through until it arrives to our customer hands. Most companies require intermediaries which are "companies owned by third parties, responsible of transferring the products from the factory to the customer, so that the customer have the ease of time and place." (Urbina, Evaluación de Proyectos, 2010, p. 48).

Despite the high profit margin of each intermediary, which ranges between 25% and 30%, the benefits the product offers is bigger than the price itself. An intermediary is the one in charge of distributing the products in such a way that every single one arrives in the best possible ways and moment, also, that means that it is less risky for the company, since usually the intermediaries are the ones that assume the risk of transportation. In the same way, since the intermediary has direct contact with the consumer, he knows better its interests and can do something to fulfill them due to the proximity with the producers.

In our case, the product we want to sell needs intermediaries. Although our product will be finished in the same production plant, it is better for the company to find someone who can find the best places to sell it, considering that the final sale will be made in Spain. Considering the fact that our final sale is not going to be in the same country as the production, we need to find the right distribution channel that adapts properly to our product and goals. The distribution channel is "the route that a product takes to pass at several points along the path" (Urbina, Evaluación de Proyectos, 2010, p. 49). There are several distribution channels that could be used depending on the nature of the product (popular use or industrial

use), the coverage that is desired in each market, the costs and the control wanted over the product (See figure 2).

Figure 2 *Distribution chain*



Source: Authors.

We chose this channel since our shampoo bar is a popular consumption product, with which what we seek is the greatest possible coverage in the market. Although, today there is a limited target, this market has grown a lot in the past few years, that means that if the product is placed correctly, with good prices and quality, it could be consumed by most of the population, and not just a small part of it.

On the other hand, we must consider the fact that each intermediary, will take away some of the control of the product from us. Thankfully, the shampoo bar doesn't need much care of it after its production, nonetheless, the intermediaries we chose, must know how to let the product arrive safe to its destination, with the right controls, seriousness, and sufficient knowledge, so that it does not have any damage when it reaches the final consumer. As for the costs, people usually believe that the longer the channel of distribution is, the more expensive it gets. For a company like ours, it is cheaper to hire five wholesalers who already

know the market, than try to do business with 100 final consumers for which we would require additional studies, which would mean a new cost.

2.6 Chosen product

After preforming the supply and demand study in Spain, we were able to verify how this country is not only ready for our product, but also have an interesting growth in this area. Although, the amount of people who are interested in this kind of product, is as small portion of the population, nowadays, the environmental awareness is growing so quickly that more people every day become part of it. All these factors guarantee an easy immersion on the market, since the shampoo bar is good for both, the hair and the environment, helping to keep hair clean and healthy, and reducing the use of plastic and chemicals that pollutes irreversibly the water.

The chosen product is characterized by being a relatively new product on the market, that is why we are explaining it a bit further. Our shampoo bar is similar to soap bars, and can be used like them as well. But it is important to note that, although this shampoo bar does not produce as much foam as normal soap bars, it is cleaning hair correctly; the lack of foam, is because it does not contain salt or chemicals that could make it produce foam. And all of this has no relation with the quality of effectiveness of the product, moreover, one could even say that its quality is higher looking at the results in air, since salt normally dehydrates and weakens hair.

Each unit will have 55gr, which is equivalent to two conventional shampoo bottles, and lasts approximately 4 months depending on the frequency of usage and the amount used. Is also important to clarify the differences between conventional soaps and shampoo bars. For starters, the shampoo bars need to have a much lower Ph than body soap, since the skin can deal with a higher Ph than the hair. The prototype of the shampoo bar is shown in figure 3.

Figure 3 Shampoo prototype.

Made by: Proaño, J.

2.7 Sales Projection

From the data obtained in the supply and demand study, the sales projection will be carried out for the following five years, considering that the year 0 will be the present year, 2019. In order to project our sales, data from previous years was needed. However, since it is a relatively new product in the market, there is no exact data; for this reason, the data obtained have been inferred form information of various sources that will be explained in more detail below.

Our sales projection, is based on data from 2014 to 2018, to be able to reach the total sales of organic shampoo in Spain. We started with the information of the total sales of cosmetics in general. The total sales of Spanish ecological cosmetics each year were extracted from the National Association of Perfumery and Cosmetics (STANPA). Our data is expressed in millions of dollars. It was necessary to deepen our study, since our product does not precisely belong to the category of cosmetics, but it has an additional characteristic

which is the ‘natural and ecological’ part. According to a VPC magazine report, from Spain, 12% of cosmetics sales belong to green cosmetics.

Next, the composition of the cosmetics market was sought, which according to STANPA data, is divided in five different categories, being “hair care” the only one important to us. In this category, there is a wide variety of products, although STANPA, does not directly presents the composition of this category, we were able to find within a study carried out by the VPC magazine of Spain that there are five sub-categories within “hair care”. But, we were only interested in the “shampoo” category, which after the respective calculations ended up representing approximately the 38.35% of the total sale of hair care product (See table 5).

Table 5 *Organic shampoo market in Spain*.

	2014	2015	2016	2017	2018
Cosmetics Total Sales	$ 4,725,000,000.00	$ 6,450,000,000.00	$ 6,656,880,000.00	$ 6,819,670,000.00	$ 6,954,000,000.00
Participation Percentage in the Ecological Cosmetics market	12%	12%	12%	12%	12%
Ecological Cosmetics total sales	$ 567,000,000.00	$ 774,000,000.00	$ 798,825,600.00	$ 818,360,400.00	$ 834,480,000.00
Participation percentage in the Organic Hair Care market	21.29%	19.19%	18.76%	18.74%	20.00%
Total Hair Care Sales	$ 120,720,000.00	$ 148,560,000.00	$ 149,892,000.00	$ 153,338,400.00	$ 166,896,000.00
Participation percentage of the Market of Ecological Shampoo	38.53%	38.53%	38.53%	38.53%	38.53%
Ecological Shampoo Total Sales	$ 46,512,231.47	$ 57,238,710.30	$ 57,751,916.83	$ 59,079,780.93	$ 64,303,391.18
Growth		23.06%	0.90%	2.30%	8.84%

Source: Authors

Within the table, there is data that we will be explaining separately, about the growth of the market in 2015. The significant growth the table shows in this year is due to a crisis that Spain experienced a few years before (2008-2014). It was not until 2015 that Spain managed to recover almost completely. For this reason, the growth percentage during that year was 23%. Regardless, in the subsequent years, when the market stabilized, the growth was not more than 9%, with a common growth of no more of 2% per year, as in most markets.

Based on information, the sales forecasts for the following five years (2019-2023), was made with the "Excel forecast" formula, which obtained the data that will be presented in the next table. During the first two years, the participation we expect to have in the Spanish market will be 1%, this is due the fact that the market of natural cosmetics is growing, not only in demand, but also in supply, so introducing the product in the market with a higher percentage of participation would be unrealistic. Yet, by the third year, our participation will increase by 50% of the initial participation, which means about a 1.5% and, in the fifth year, again another increase of 0.5%, with a total of 2% (See table 6).

The price is calculated first in 'price per kilogram', which was calculated in table 5, by averaging of the prices of the shampoos already in the market, after obtaining the total sales, were divided to find the number of kilograms produced, and that amount is then divided into 55 grams, which is the measurement per unit of shampoo that we will produce.

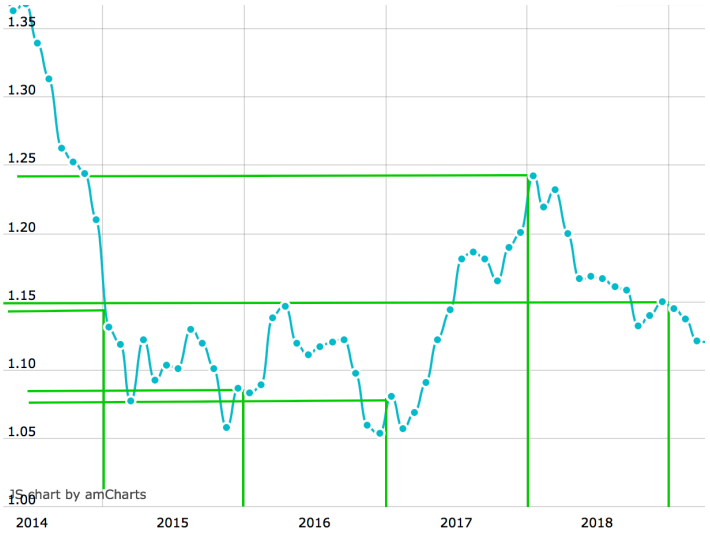
Table 6 *Sales Projection of the shampoo bars for the first five years.*

	Year 1	Year 2	Year 3	Year 4	Year 5
Ecological Shampoo Market Sales Forecast	$ 68,204,223.16	$ 71,946,562.16	$ 75,688,901.17	$ 79,431,240.17	$ 83,173,579.18
Market share	1%	1%	1.50%	1.5%	2%
Total Sakes	$ 682,042.23	$ 719,465.62	$ 1,135,333.52	$ 1,191,468.60	$ 1,663,471.58
Price (kg)	$ 249.90	$ 249.90	$ 249.90	$ 249.90	$ 249.90
Quantity (kg)	2729.26	2879.01	4543.15	4767.78	6656.55
Units(55gr)	150109.33	158345.78	249873.32	262227.98	366110.19

Source: Authors.

After finding the total sales for each year, and to finalize the sales projection, we need to transform the values expressed in dollars, to the currency of the foreign market where the sale will be made. For this we start by making an average of the price of the exchange rate of the last 5 years that can be seen in figure 4, in order to make a forecast for the next 5 years. At the same time, the projected inflation of Spain was added, and thus we obtained the total sales in Euros that is presented in table 7.

Figure 4 *Exchange rate Dollars to Euros*



Source: (Cambio Today, 2019)

Table 7 *Sales Projection in Euros*

	Year 1	Year 2	Year 3	Year 4	Year 5
Total Sales ($)	$ 682,042.23	$ 719,465.62	$ 1,135,333.52	$ 1,191,468.60	$ 1,663,471.58
Exchange Raye Projection ($ - €)	€ 1.12	€ 1.16	€ 1.18	€ 1.19	€ 1.16
Sales (€)	€ 763,887.30	€ 835,059.76	€ 1,344,739.48	€ 1,415,394.09	€ 1,933,307.21
Projected inflation in Spain	1.10%	1.50%	1.31%	1.41%	1.48%
Total Sales (€)	€ 772,290.06	€ 847,585.66	€ 1,362,355.56	€ 1,435,308.69	€ 1,961,893.09

Source: Authors.

Conclusions

After this analysis, we can conclude that the market is ready for our product. It is a market that, although it is relatively new, it is remarkable how its growth can be evidenced year by year. With this market study we can tell that it is not only the demand that increases, since the Spanish population focuses on caring for the environment and looking for alternatives for these problems, but this concern has led to a growing supply as well, which on one hand indicates that the insertion in this market should be as fast as possible but on the other hand it shows us that it is an open market that is prepared for the acceptance of a product like the one we propose.

In this chapter we could also notice that in Spain there is a great interest in innovative products and that the population has the purchasing power to acquire them, since, after analyzing the current prices of the product in the market, it could be found that €11.67 is the average price for a shampoo bar. From this average market price, we were able to make our possible sales projection, considering that, after researching and studying this market, it was concluded that our participation in this market during the first year will not be greater than 1%.

Taking these data into account (the percentage of participation and the average price), we arrive at the results of our projected sales that involve a projection of production during the first year of 2729.26 kg of shampoo, an amount that means 150109.33 units and $150,109.33 in sales. However, these figures are not the final result, since it is necessary to contemplate that, being a market with a different currency, is important to apply the exchange value, and an inflation percentage that allows us to observe the data in a more real way. Finally, it is always important to emphasize that we do not have the exact numbers to be able to produce the bar shampoos, since the data obtained are only projections and the true viability of this production is not yet considered. This is why, in the next chapter, we will consider all the data necessary to obtain the essential technicalities and the real feasibility of the plant.

CHAPTER 3

3 TECHNICAL STUDY

Introduction:

To carry out the technical study, according to the author Gabriel Baca Urbina (2010), four parts that are the most important must be considered: determination of the optimal size of the plant, the optimal location of the plant, project engineering and organizational, administrative and legal analysis. In order to obtain a worthy technical study, the previous sales projection data must also be included here, in order to be able to measure how much the investment in machinery and employees would be, and what would be the appropriate machinery for the desired production.

3.1 Determination of optimal plant size

3.1.1 Location

In order to decide where the shampoo bar's production plant will be located, it was necessary to find out several factors that define the best place for it; there are five factors that will be analyzed between two cities: Cuenca and Guayaquil. After having eliminated other options, these two were chosen since each one has its respective advantages over the other.

To be able to make a real analysis we will use the method that Baca Urbina (2010) suggests: make a table with weighted ratings as shown in table 8. In this, a pertinent rating will be given to each factor in order to discover which city gets the highest rating and is most suitable. Baca Urbina (2010) also suggests a macro and micro location analysis in which factors such as product consumers, ease of obtaining raw material for product manufacturing, climate, environment, and ease of reaching the plant, and plant distribution, among others, are analyzed.

Table 8 *Weighting by location.*

		Cuenca		Guayaquil	
Factor	Assigned Weight	Score	Weighted Rating	Score	Weighted Rating
Workforce available	12%	9	1,08	9	1,08
Safety	18%	8	1.44	7	1,26
Cost of living	19%	8	1,52	8	1,52
Raw material available	26%	6	1,56	9	2,34
International logistics	25%	6	1,5	9	2.5
Total	100%		6.1		8.7

Source: Authors.

To be able to make the table, we first identified the factors that could affect us directly, five were the factors chosen for the weighting table. We chose the weight that each one obtains, based on how much each of them affects us, and to this weight we gave a rating of 10 to obtain a result. As the first factor is the workforce available in cities such as Cuenca or Guayaquil, a considerable variable is that in Guayaquil the workforce has the possibility of being more specialized than in Cuenca.

Then comes the safety which is a fundamental factor. Our products are going to be made with expensive raw material, which leads us to consider that if we have a loss, our prices would start to rise. That is why at this point, Cuenca obtained a better score than Guayaquil. Cuenca is a very quiet city, in which robberies are not very common although they have been increasing over the years and the growth of the city. On the other hand, Guayaquil is a dangerous city, and at the start, it is important to take care of everything that could represent a loss.

The next factor is the cost of living. Here, we can analyze which is a better city to live in, in relation to expenses related to daily living. Although in Cuenca it can be said that the quality of life is better, the purchasing power of Guayaquil is greater than that of Cuenca; so, when comparing costs, in Guayaquil it is possible to have a better lifestyle and that is why its score is higher in this area.

The raw material available is the next factor; Guayaquil obtained a higher score in this since being a bigger city there are always more options when looking for new products and suppliers, as well as for the fact of being a commercial port. We have also chosen to import, since after paying for the entire process, the kg of soap base would cost $ 3.75/kg, while buying it here in bulk would cost $ 10 per kg; and we also considered the characteristics that the imported soap base has, contribute to better hair care because of the amount of beneficial oils for health.

Finally, the last factor is international logistics, in which Guayaquil obtained a higher rating than Cuenca mainly because it is one of the most important ports in the country. In addition, having a factory in the same city from which the products will be exported would not occur in Cuenca. Therefore, placing the production plant in Guayaquil represents a greater saving in spending of logistics. In conclusion, Guayaquil is the best option our company has; it would facilitate the logistics and the obtaining of many goods so that our final product does not raise its price, and above all it is easier to maintain control over all processes, without waiting for any other company to handle it.

3.1.2 Size of the natural shampoo bar production plant

To perform the ideal analysis of the size of the plant, according to the author Gabriel Baca Urbina (2010), there is no an exact method. However, he proposes certain options. Before explaining the procedure we chose, we must be clear about the factors that are important for the project to be viable. The first is the fact that the demand is high, as we have explained before, in our case the number of kilograms that we plan to export are 150,109.33 during the first year, which would cover 2% of the market, which is viable since the demand is higher than this.

Subsequent to this, it was decided through an analysis that the plant would be located in the city of Guayaquil, thanks to the facilities for logistics, as the ease to obtain products in a port; the greater specialization of the market; and a bigger availability of spaces where the plant could be located in the future.

In the producing plant, modernization would seek to make processes more agile and optimize resources, as well as to increase the production capacity to supply more countries in the future. The required workforce does not need very advanced technical knowledge, which opens the way to more people who can access this job in the project.

3.2 Supply chain

Gabriel Baca Urbina (2010) explains how raw material is one of the most important parts of the production process; many times, machines and people can be productive, but they can be deprived of the necessary raw material for the production. He also explains different scenarios where this had happened, and how managers should be aware of the company's annual growth in order to continue acquiring more product at the same rates (Urbina, Evaluación de Proyectos, 2010).

In our case, we must review the raw materials first, confirming that we have the quality and quantity that was initially ordered to be able to continue the process calmly. After this, it is weighed and stored in order to carry a correct inventory. When starting with the production, the first thing is to melt the glycerin base and regulate its viscosity, looking for the texture we need, the next step is to regulate the pH, which is extremely important for the care of the scalp and the rest of the skin, and add the natural preservatives such as lemon and fragrances.

When the first mixture is ready, the different ingredients from our country are added, first the cocoa butter together with the cocoa drool, which will give the extra viscosity for texture, and argan oil for extra hair care. To have variety, in a different type of shampoo, coconut oil will be added to give softness to the hair and banana as the fragrance. Cacay oil, which although is little known is a plant that grows in the Ecuadorian Amazon, is going to be added to all our products. Cacay is recognized for helping to keep hair healthy and soft.

At the end of the process a quality control is done to verify that all the ingredients are at the appropriate levels for hair and skin care, in order to finally package and start the

distribution. However, it is necessary to emphasize that we would have several suppliers which will be responsible for delivering the raw materials. The main one is the glycerin base supplier, which will be imported; the other suppliers will be national, a second supplier is going to be in charge of the oils, and a third one in charge of the packaging and everything related to it.

3.3 Production processes

In this section we will explain the shampoo production process. A flowchart will be carried out to summarize and understand this process, in order to determine the necessary times for each of the activities, as well as the machinery that we will use for them. Our production process is divided into four stages, the first involves the collection of raw material, the second is the preparation of the glycerin base, the third is the preparation of the shampoo, and the fourth and last, the final line and packaging.

In the first stage (raw material collection), after receiving the material from our suppliers in our plant, we will go through a review and inspection, the first control will be carried out here, in which it will be verified that the material received has the characteristics and quality that we specified, then the material will be weighed, so that the measures are ready for each batch of production, and finally, the raw material will be stored in our warehouse.

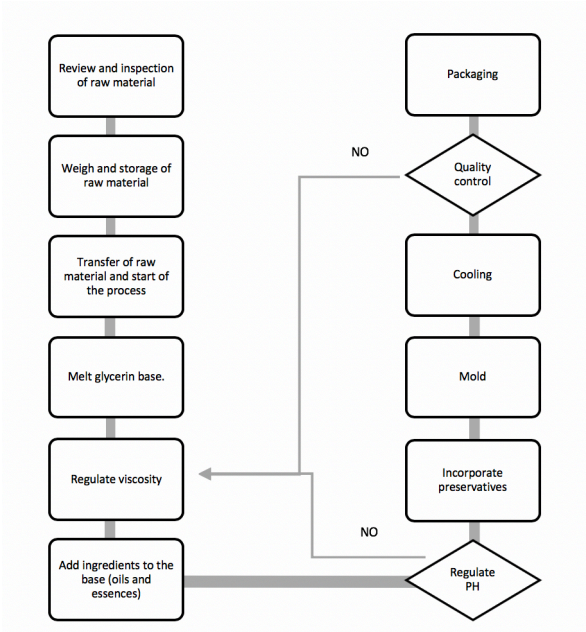
The second stage (preparation of the base), begins with the transfer of the raw material from our warehouses to the production area. The base that will be used in our shampoos is the Crystal SLS / SLES Free base soap which main ingredients are water, glycerin and coconut oil, since it meets the requirements for the soap to be natural; It does not contain parabens, preservatives, sulfates or salts. To prepare the base, it will first be melted in a laboratory water bath , when it is sufficiently melted, the viscosity will be adjusted until obtaining the needed one to move on to the next stage.

The third stage will begin by adding the oils and essences, which in our case are extracted from cocoa. Next, the shampoo's pH will be regulated by adding citric acid as required. Finally, to have our shampoo ready, non-chemical preservatives will be added to extend the life of the product in its optimal condition.

To finish the production process, the fourth or final line starts with the molding, which will be done manually in molds containing 55 grams of soap and then placed in a fridge that guarantees and makes the cooling effective. Once cold and with the hardness needed for the demolding, the bars will go to the packaging process, which will be carried out with recycled materials, so that the product is completely ecological. At the end of the process a random quality control will be carried out to verify that the products are done as desired.

The following block diagram, shown in figure 5, summarizes the production process to which the product studied in this graduation project will be subjected. This will present each of the activities, as a sequence, which should be followed for the production of shampoo in bar.

Figure 5 *Supply chains*



Source: Authors.

The time used for each activity was divided into two different processes, the first process is the collection of raw material, which, although is a part of the production process, will not be a process that has to be carried out daily; that is why it is isolated in a different table and will not be involved in the productive estimations. The second part includes the second, third, and fourth stage, which are directly the production and creation of the shampoo; from the times needed here, the pertinent calculations will be made (See tables 9-10).

Table 9 *Productive process. Part I: Collection of raw material.*

Activity	Time (minutes)
Collect (receive) raw material	10
Review and inspect raw material	30
Weigh and store raw material	43
TOTAL	83

Source: Authors.

Table 10 *Productive process. Part II.*

Activity	Time (minutes)
Base preparation	48
Raw material transfer	10
Melt glycerin base	32
Regulate viscosity	6
Shampoo preparation	27
Add ingredients to the base (oils and essence)	5
Regulate Ph	16
Incorporate preservatives	6
Final line	107
Mold	16
Cooling	64
Packaging	20
Quality control	7
TOTAL	182

Source: Authors.

These tables are expressed in minutes, which is why this process would take 182 minutes or 3.03 hours. It is planned for a maximum production of 605 bars per process, since the machine used for the first step allows a maximum of 11kg as will be explained later, when talking about the machinery. However, during the first year 240 bars will be produced per process, for 8 hours a day in the 20 working days of the month, which will allow us to satisfy the demand, and have a small stock in case of any unforeseen event. The amount of shampoos will gradually increase year by year, as demand grows, however, the machinery will be chosen with a view of long-term quantities, so that the investment in machinery has is done every 5 years, and not every time the demand increase.

By analyzing the necessary times in the production process, we found that the bottleneck in our process is in the cooling of the shampoo bars. However, the best possible measures that were found at the moment, are the ones we will be using. In the future the company may search for better technologies to optimize the times and processes. The excess of the production capacity is going to be rented for private labels, as in our case it could be Supermaxi, in order to take full advantage of all the machinery's capacity.

3.4 Required machinery and equipment

3.4.1 Collection of raw material

For the collection of raw material, the machinery that will be obtained is:

Figure 6 *Transpallet, which will allow the transportation within the company of the supplies.*

Source: (Mercado Libre, 2019)

Model: ZF2000 2000

Budget: $260

Figure 7 *Two stainless steel working tables, to weigh and separate the raw material for storage.*

Source: (Mercado Libre, 2019)

Model: Two levels steel working table 1.10 x 60 x 90

Budget: $150 each one

Figure 8 Industrial scale, to weigh the raw material.

Source: (Mercado Libre, 2019)

Model: FS-90

Budget: $300

3.4.2 Base preparation

For the preparation of the shampoo base, as previously stated, it will be necessary to melt the crystal soap base until the viscosity is regulated, for which the machinery obtained will be:

Figure 9 *Laboratory water bath, it has a capacity of 11 liters, to melt the soap base.*

Source: (Mercado Libre, 2019)

Model: 602.01.001

Budget: $ 1.193.27

3.4.3 Shampoo preparation

In this part of the process, the PH will be regulated with citric acid, ingredients such as oils and essences will be added, and preservatives will be incorporated. For this process the required machinery:

Figure 10 *Four stainless steel mixing wells, in which the soap base will be mixed first with the essences and oils, and then with the preservatives.*

Source: (Mercado Libre, 2019)

Model: 849851013315

Budget: $30.99 each

Figure 11 Two mixers, to mix the soap base with the essences and oils, and then with the preservatives.

Source: (Mercado Libre, 2019)

Model: MPBP1-2

Budget: $4.50

Figure 12 *PH meter, to calculate and analyze the required PH*

Source: (Mercado Libre, 2019)

Model: B07RY488QV

Budget: $13.99

3.4.4 Final Phase

At this stage the product will be molded, refrigerated to cool faster, and packaged. For this process we will obtain:

Figure 13 *Fridge for faster cooling of the shampoo bars.*

Source: (Mercado Libre, 2019)

Model: MXC-V110M

Budget: 800$

Figure 14 *350 silicone molds, the molds will be square for more customer comfort, and will contain 55gr each.*

Source: (Mercado Libre, 2019)

Model: K014321

Budget: 40 cents.

In table 11 the machinery and utensils needed for the manufacture of shampoo will summarized along with their costs and essential characteristics:

Table 11 Required machines and utensils

Quantity	Condition	Model	Characteristics	Unit price in USD	Physical size in centimeters	Capacity	Total inversion
1	New	ZF2000 2000	Transpallet	$ 260.00	1150*550*190	2000 kg	$ 260.00
4	New		Stainless steel work tables	$ 150.00	1.10 x 60 x 90	-	$ 600.00
1	New	FS-90	Industrial balance	$ 300.00	75*30*40	100 kg	$ 300.00
1	New	602.01.001	Laboratory water bath	$ 1,193.27	327 x 265 x 280	11 liters	$1,193.27
4	New	8.49851E+11	Stainless steel wells	$ 30.99	55.9*55.9*19.7	28 liters	$ 123.96
2	New	MPBP1-2	Mixers	$ 4.50	60*12*0.5	-	$ 9.00
1	New	B07RY488QV	PH meter	$ 13.99	-	-	$ 13.99
1	New	MXC-V110M	Fridge	$ 800.00	600*583*1860	386 liters	$ 800.00
350	New	K014321	Silicone molds	$ 0.40	23*23*5	440 grams	$ 140.00
			TOTAL				$ 3,440.22

Source: Authors.

We can thus demonstrate that the capacities of the machines and utensils allow us to manufacture the quantity of shampoos already established above in the process times. In the same way, we can see that the company is still artisanal since it does not use a lot of heavy machinery, but rather laboratory machines that will be used with the help of an operator in most cases.

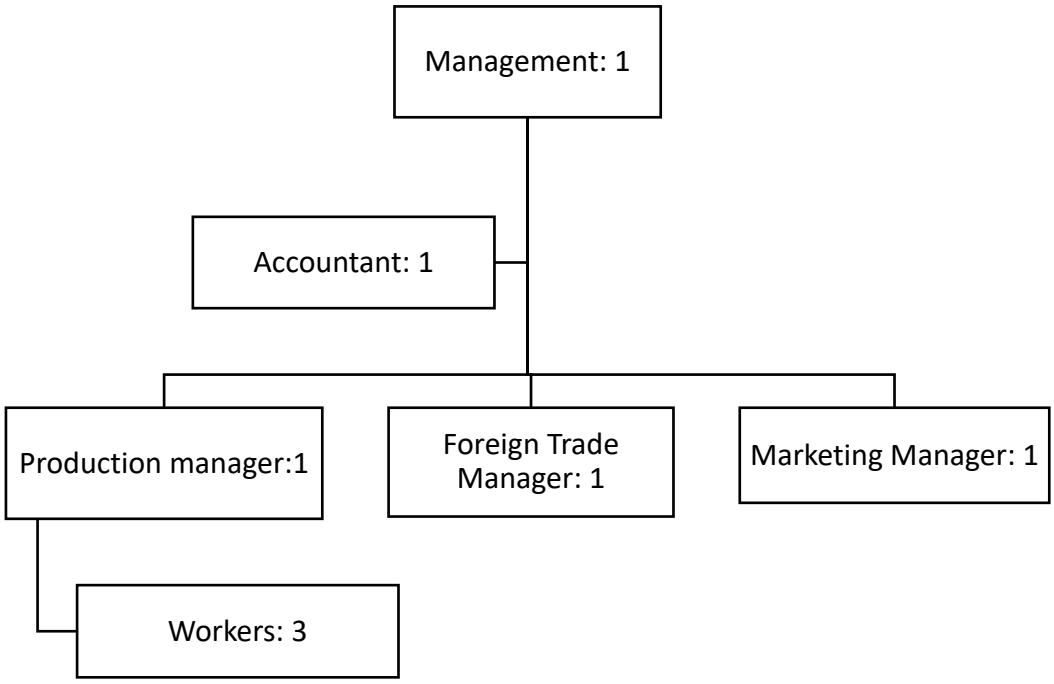
3.5 3.5 Organization of human resources and general organization chart of the company

For the proper organization of the staff, it was decided to follow what the author Gabriel Baca Urbina (2010) suggests. He explains that first it must analyze how many people the company needs, in order to be able to determine the cost that they will represent, as this is also included in the cost of the product. It is important to emphasize that personnel capable of handling the machinery correctly will be needed in order for the shampoo to have the

quality wanted. For this, Baca Urbina (2010) highlights that the company cannot depend on a single worker, that is, when exercising the job, it must be taken into account that all are equally trained for different positions, so if some worker leaves the company, another worker with the appropriate skills replaces his position without major inconvenience.

In order to know how many people are required, an organization chart, shown in figure 15, will be drawn up with all the positions to be filled. However, over the years this may change, as companies usually restructure in order to grow. As we will see next, eight people will be needed, in total, to manage the plant and the company in the most agile and productive way possible, fulfilling the standards and the desired quantity for export.

Figure 15 *Organizational chart*



Source: Authors.

3.6 Shampoo bars export process

When exporting any product, before worrying about the requirements that are asked in the destination country, we first have to focus on what Ecuadorian Customs asks exporters;

this is the public entity in charge of all regulations when importing or exporting any merchandise. According to the Ecuadorian Customs, export is a customs regime with the purpose of freely moving goods outside Ecuadorian territory. (ADUANA ECUADOR, 2017).

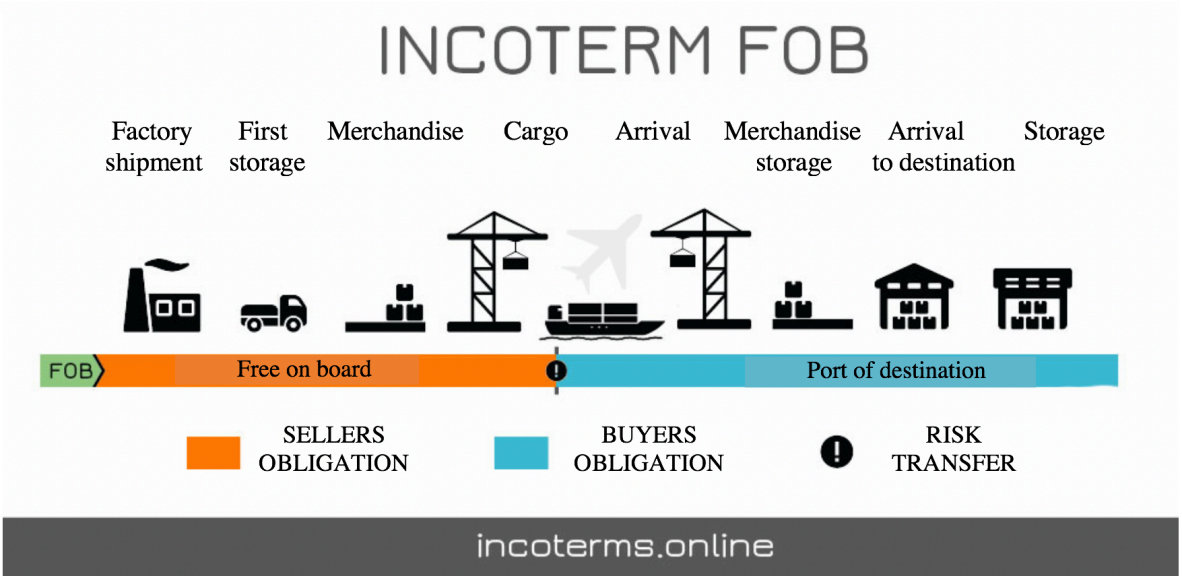
The export process is usually friendly to the seller. First we need to obtain an electronic signature, which is used to certify all the documents that have to go through the system used, called ECUAPASS. One of the main documents is the Export Customs Declaration (DAE). Some of the data that will be found in the DAE are: name of the exporter or declarant, destination of the cargo, quantities, etc. When the DAE is accepted, the merchandise enters the Primary Zone, where it is registered and stored before being sent. The last step, previous to embarkation, Ecuador customs performs an appraisal.

There are three types of appraisals depending on the merchandise. First there is the Automatic Appraisal, in which the merchandise goes to be shipped directly or to the temporary warehouses or primary areas without the need for any kind of inspection. Then there is the Documentary Appraisal, that involves a review of all the accompanying documents before the merchandise is shipped, if there are no problems, it is closed and shipped; but if there are any observations, it will be notified by electronic means and when it is resolved, the shipment will proceed. Finally, there is the Intrusive Physical Appraisal, in which first the cargo is physically reviewed to corroborate what the documentation presents, and then it is shipped (ADUANA ECUADOR, 2017).

After having correctly accomplished with the provisions of Ecuadorian customs, our products will be shipped. To send our product we have chosen the sea route since it costs less than shipping by air. Also, because with the shampoo bars, since they are not perishable, the time it takes to arrive does not matter. We have chosen to negotiate with Spain in FOB terms (Free on board), which means that the selling company delivers the merchandise on board of the ship designated by the buyers at the port; in case the merchandise suffers any damage the company that bought the product must bear the costs. By choosing this incoterm, we must make it clear that we will take care of the export until it is delivered to the destination port;

however, the commercial responsibility comes until after the consumption of the product guarantee, as shown in figure 16 (Inconterms, 2010).

Figure 16 *Incoterms*



Source: (Inconterms, 2018)

When exporting a product, as previously mentioned, it is necessary to contemplate that the country to which it will be exported also has technical standards that must be complied with, since these will regulate the quality of the product. Any country in the European Union requests mainly a commercial invoice, in which several data are specified such as name and address of the exporter, date of issue, description of goods, unit and quantity, unit and total value, total invoiced value, currency used, transformation to the currency from which it is exported, corresponding incoterm, type of transportation, etc. The customs value declaration must also be attached, this is a document that is required if the product exceeds the price of 20,000 euros, and must be presented together with the Unique Administrative Document (DUA), both must be presented at the time of the first entry to the European Union (European Comission (trade helpdesk), 2019).

An extremely important document is the well-known bill of lading, which is a document that the shipping company must have, in order to be able to take charge of the goods that enter their ships. This document give ownership of the merchandise to whoever carries it, taking into account that every product to be exported requires insurance, which covers it in the event of any incident. A packing list must also be added, which includes the type of packaging the product has, number of packages, marks and numbering, net weight, gross weight and dimension (European Comission (trade helpdesk), 2019).

Another important and essential issue when exporting to the European Union is the requirements for products to enter its territory. To start we have the packaging . The Helpdesk of the European Union explains it must specify several important things such as the name and number of the person in charge to be contacted, the weight or volume of the product and the durability, precautions and ways to use it, and the ingredients that were used for manufacturing, so that the consumer clearly knows what product he is about to use. (European Comission (trade helpdesk), 2019)

Once all of this is explained, it is understood how in order to export these goods from Ecuador, the required tariffs must be paid (which in this case is 0% thanks to the commercial agreement that exists) and to be able to be shipped the insurance must be paid in advance. Upon arrival in the European Union, the arrival fees have to be paid, which in this case would be 21%, of VAT, and will only be charged once, regardless of the country origin, since they all maintain the same agreement.

Likewise, Spain has certain restricted products or components due to the damage it can cause to its inhabitants. However, our shampoo, by being made with natural products, won't be counterproductive to the health of individuals. So, to verify this, we will process the phytosanitary registration before sending the merchandise, so that our users know what they are using, how to use it, and where the ingredients used come from.

Conclusions

After the analysis carried out in this chapter, it can be stated that the production to be exported is viable and achievable. After studying the possible locations of our plant, and with the help of a weighting table, we concluded that Guayaquil the location of our company, given, above all, its ease of business logistics, which will allow us to have better control of the company ourselves, and not outsource it. In order to position a product within a market that is currently growing, we could see that Ecuador also presents a plus, in terms of its raw material, since its components are natural, the bars do not contain as many chemicals and pesticides as it could happen for logistical issues in other countries.

The productive analysis made in this chapter allowed us to reach the appropriate technical process for our product, which involves 4 main steps to follow: collection of raw materials, preparation of the base, preparation of the shampoo, and the final phase. Within each of these areas, as we saw earlier, there are different processes that must be followed to achieve the final product. All this production process will take us a total of 3.03 hours, for each batch produced, which will be 500gr of shampoo.

Since it is a product that we want to export, an analysis was carried out to determine the best form of distribution. For this we conclude that the incoterm that our company will use will be FOB; in other words, we will take care of delivering the merchandise on board of the ship designated by the buyers at the port. In the same way, we could observe that since it is a product that will be shipped outside the country, there are standards and certificates we will need to embrace, however, this was found beneficial for the company and for the product, since it is an impulse to continuous improvements and to provide better quality.

As for the staff of the company, as shown previously, eight employees are needed, of which four will work in the productive area and four in the administrative area. Regarding machinery, they consist of simple equipment and not heavy machinery. The costs involved in these two areas will be analyzed in Chapter 4, in which the financing and resources will be studied in order to legally establish the company, and above all, to find the costs and expenses that takes is to a more clearly view of the profitability and projected utilities of the

company. It is important to mention that for the next chapter we must base ourselves on the data found in this chapter, to be able to express these findings numerically in the next 5 years.

CHAPTER 4

4 ECONOMIC Y FINANCIAL STUDY

Introduction

The information obtained in the technical study will be critical and essential for the economic analysis, since it is the sum of all the data obtained, but this time, in monetary terms. In this chapter, all the decisions made previously - specifically referring to factors such as the quantities of raw materials, labor, machinery, among others - will be transformed and expressed in costs and income.

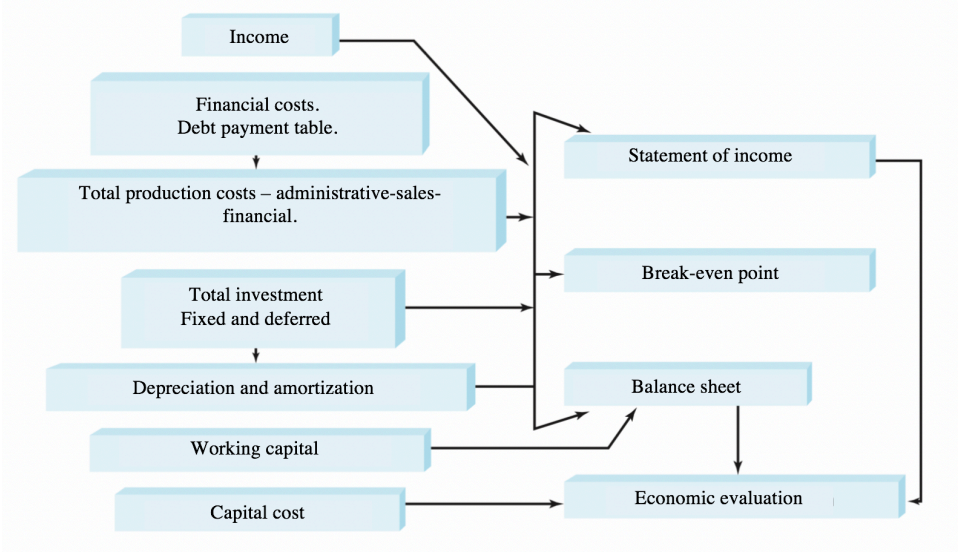
The economic study allows us to focus more specifically on the profitability of the project through the analysis of all the investments and the costs that will be necessary for the project to be carried out. For this step the determination of costs is essential, which is divided into several categories such as administrative, productive, financial and sales costs.

The ICT (information and communication technologies) will be essential when carrying out the analyzes. The main tool that we will use is Excel, this way it will be easier for us to order all the hard data to be analyzed in order to have a reliable and useful base for a subsequent sensitivity analysis and company planning. Having this solid basis, any changes in costs or income, will be automatically reflected in the final income statement.

According to Gabriel Baca Urbina "the economic analysis aims to determine what is the amount of economic resources required to carry out the project, what will be the total cost of operating the plant (covering production, administration and sales functions), as well as another series of indicators that will serve as the basis for the final part of the project, which is the economic evaluation." For our economic evaluation or financial analysis, we will use several accounting tools such as the Minimum Acceptable Rate of Return (MARR), the Net Present Value (NPV), and the Internal Rate of Return (IRR), the Return over Investment (ROI) and the Payback period.

Baca Urbina summarizes this process in the following figure:

Figure 17 *Economic study process*



Source: (Urbina, Evaluación de Proyectos, 2010, pág. 39)

4.1 Determination of costs

When planning a project it is necessary to analyze it from a monetary view; that is why we will review the projected costs. Even if there is no exact definition of 'cost' in Gabriel Baca Urbina's book, it is said that "cost is a disbursement in cash or in any kind, made in the past (sunk costs), in the present (investment), in the future (future costs) or virtually (opportunity cost). " (Urbina, Evaluación de Proyectos, 2010, pág. 139)

All the expenses needed for the project, whether in the present or for the future, should be presented here in order to have a clearer view of the possible profitability on the future. However, it is important to keep in mind that for the planning of a project only a projected accounting is sought, so certain data could vary in the future. As in the rest of this project, the analyzes will be made for five years from the base year or year 0. The analysis is carried out with this period of time in order to have a representative artificial cut that allows us to

better calculate the projected profitability, five years were chosen since the project reaches sufficient development and profitability in this time.

4.1.1 Production costs

Production costs reflect all the decisions previously made in the technical study. Therefore, possible errors in costing will be mainly due to errors attributable to the technical study. At the time of evaluating projects, a costing method called absorbent costing is used. This method is also called total costing, since it involves all the costs, both direct and general, of manufacturing a product, beyond actual sales. Within the production costs are the costs of raw material, maintenance and production materials.

The total cost of production presented in table 12 already shows us the results of the prices and calculations made, however, later, each of them will be shown in more details and how each was obtained.

Table 12 *Production costs*

Concept	1st year	2nd year	3th year	4th year	5th year
Raw material costs	$ 65,044.86	$ 66,039.02	$ 104,615.87	$ 110,213.24	$ 154,467.52
Packing costs	$ 6,004.37	$ 4,750.37	$ 7,597.25	$ 7,972.88	$ 11,131.36
Production materials costs	$ 462.00	$ 465.88	$ 472.16	$ 475.20	$ 479.13
Plant maintenance costs	$ 305.00	$ 307.56	$ 311.71	$ 317.49	$ 325.00
TOTAL	$ 71,816.24	$ 71,562.83	$ 112,996.99	$ 118,978.82	$ 166,403.01

Source: Authors.

4.1.1.1 Raw material costs

The raw material costs are directly related to the sales projection already made previously; At the same time, it is important to emphasize that the raw material required varies from year to year. For the calculation of costs in this category, Baca Urbina explains that 1% should be added to the amount of raw material needed for production, since there is a percentage of decrease in any type of manufacturing. As previously stated, the analysis will be done for the first 5 years of the project, as shown in the tables of this chapter.

To begin the analysis of raw material costs, a table was added with the transformational coefficients that we believed pertinent, that is to say that everything ends up being expressed in the same unit, to be able to make equivalences with respect to the same reference. So, we transformed the prices, for a better understanding, to "price per kilogram", however, it is important to say that in the market each product is offered in different sizes, and of course it has its own unit of measurement. We would like the raw material or supplies that we will use for our product, as stated at the beginning, to be Ecuadorian. The oils, butters and fragrances will be obtained from productions made in Ecuador, however, there is no appropriate and good-cost production of the soap base in the country, so this will be the only imported input, for which several market rates were obtained to decide afterwards that the most convenient would be the one that cost $ 3.75 per kilogram, including freight.

Each shampoo bar contains 55gr of base soap, however, each production process will be 500gr, for which 10 grams of coconut oil, 10 grams of cocoa butter, 4 milliliters of cocoa oil, and 3 milliliters of essential oil, (whether orange, rose, lemon or lemon verbena) will be used. Considering this and the sales budget already presented in previous chapters, the annual amounts that we anticipate are listed in tables 13 and 14:

Table 13 *Raw material price per kilogram or liter*

	Raw material		Price
	Shampoo base (kg)	$	3.75
Oils	Coconut (kg)	$	19.79
	Cocoa (kg)	$	15.00
	Cacay (l)	$	805.00
Fragrances	Rose (l)	$	6,844.50
	Orange (l)	$	12.00
	Lemon (l)	$	448.50
	Lemon grass (l)	$	342.00
	Total	$	8,490.54

Source: Authors.

Table 14 *Raw material amounts*

		1st year	2nd year	3th year	4th year	5th year
Shampoo base (kg)		3,002.19	3,166.92	4,997.47	5,244.56	7,322.20
Oils	Coconut (kg)	54.59	57.58	90.86	95.36	133.13
	Cocoa (kg)	54.59	57.58	90.86	95.36	133.13
	Cacay (l)	21.83	23.03	36.35	38.14	53.25
Fragrances	Rose (l)	4.09	4.32	6.81	7.15	9.98
	Orange (l)	4.09	4.32	6.81	7.15	9.98
	Lemon (l)	4.09	4.32	6.81	7.15	9.98
	Lemon grass (l)	4.09	4.32	6.81	7.15	9.98

Source: Authors.

This is how we arrived at our annual raw material or input costs. These costs are one of the most important since without them there would be no production. Our highest cost, which is also 100% necessary, is the shampoo base. Due to its importance we decided to take the predicted quantity plus 1% as the measure, since that will be the range of error that could occur due to losses on the molding, possible errors in any production batch, etc. It is also important to take into consideration that the values shown in table 15 also suffered an increase due to the expected inflation for each year, depending on the origin of each input or raw material.

Table 15 *Raw material costs*

		1st year	2nd year	3th year	4th year	5th year
Shampoo base (kg)		$ 11,249.77	$ 12,021.31	$ 18,945.25	$ 19,856.10	$ 27,686.02
Oils	Coconut (kg)	$ 1,080.18	$ 1,149.02	$ 1,822.32	$ 1,922.01	$ 2,696.80
	Cocoa (kg)	$ 818.78	$ 870.96	$ 1,381.32	$ 1,456.88	$ 2,044.17
	Cacay (l)	$ 17,576.44	$ 18,696.59	$ 29,652.29	$ 31,274.39	$ 43,881.58
		$ 28,020.64	$ 29,806.41	$ 47,272.15	$ 49,858.13	$ 69,956.71
Fragrances	Rose (l)					
	Orange (l)	$ 49.13	$ 52.26	$ 82.88	$ 87.41	$ 122.65
	Lemon (l)	$ 1,836.11	$ 1,953.13	$ 3,097.61	$ 3,267.06	$ 4,584.06
	Lemon grass (l)	$ 1,400.11	$ 1,489.34	$ 2,362.05	$ 2,491.27	$ 3,495.54
	Total	$ 65,044.86	$ 66,039.02	$ 104,615.87	$ 110,213.24	$ 154,467.52

Source: Authors.

4.1.1.2 Packaging costs

The next production cost that we will add is the packaging cost, for which the price per unit, of boxes for a 55-gram shampoo bar was priced. In the table 16 we can see the annual costs obtained.

Table 16 *Packaging Cost*

	1st year	2nd year	3th year	4th year	5th year
Boxes price	$ 0.04	$ 0.03	$ 0.03	$ 0.03	$ 0.03
Units	150,109	158,346	249,873	262,228	366,110
TOTAL	$ 6,004.37	$ 4,750.37	$ 7,597.25	$ 7,972.88	$ 11,131.36

Source: Authors.

In this table we can see the total packaging costs for boxes that allow the soap to conserve its shape and properties. From year two, although the total cost increases as the production quantity increases, the unit cost of packaging could potentially decrease, conditioned to its negotiation A projected inflation percentage was also added to the cost of boxes per unit, , which, although at first glance does not have an incidence, when calculating the totals gives us a clearer and closer to the reality vision of what the value will be.

4.1.1.3 Production equipment costs

When we talk about production, there are more costs than raw material and packaging. That is why, we have prepared a list of products that we will need and its prices in order to maintain the quality of our shampoo bar and its hygiene, as well as employee safety, in table 17.

Table 17 *Production equipment costs*

Product	Units	Unit cost	1st year	2nd year	3th year	4th year	5th year
Dressing gowns	8	$ 20.00	$ 160.00	$ 161.34	$ 163.52	$ 166.55	$ 170.49
Eco friendly gloves (box 1000u)	5	$ 9.00	$ 45.00	$ 45.38	$ 45.99	$ 45.99	$ 45.99
Industrial toilet paper	50	$ 2.50	$ 125.00	$ 126.05	$ 127.75	$ 127.75	$ 127.75
Soap	100	$ 1.00	$ 100.00	$ 100.84	$ 102.20	$ 102.20	$ 102.20
Paper towel (box 1000u)	5	$ 4.00	$ 20.00	$ 20.17	$ 20.44	$ 20.44	$ 20.44
Hair nets	8	$ 1.50	$ 12.00	$ 12.10	$ 12.26	$ 12.26	$ 12.26
TOTAL			$ 462.00	$ 465.88	$ 472.16	$ 475.20	$ 479.13

Source: Authors.

In table 17 we show the annual expenses that will be made in order to maintain the healthiness of the business and the standards required to export to Spain. To perform the annual calculation, the projected inflation corresponding to each period has been added.

4.1.1.4 Maintenance costs

Another cost that we need to consider when performing the analysis is the maintenance cost for the office and the shed, shown in table 18; which includes products and instruments to maintain the required cleanliness in the plant and the quality standards that we must achieve.

Table 18 *Maintenance costs*

Product	Unit	Unit cost	1st year	2nd year	3th year	4th year	5th year
Cleaning tools	22	$ 8.00	$ 176.00	$ 177.48	$ 179.87	$ 183.21	$ 187.54
Broom	3	$ 5.00	$ 15.00	$ 15.13	$ 15.33	$ 15.61	$ 15.98
Mop	5	$ 6.00	$ 30.00	$ 30.25	$ 30.66	$ 31.23	$ 31.97
Chlorine	12	$ 4.00	$ 48.00	$ 48.40	$ 49.06	$ 49.97	$ 51.15
Disinfectant	6	$ 6.00	$ 36.00	$ 36.30	$ 36.79	$ 37.47	$ 38.36
TOTAL			$ 305.00	$ 307.56	$ 311.71	$ 317.49	$ 325.00

Source: Authors.

In table 18, we can see how more or less $ 310 will be spent annually in maintenance. Since its a small company, it does not need expensive maintenance equipment, nor large quantities of product; however, if necessary, more products could be purchased; maintenance

costs cannot be spared, since any damage to production due to poor maintenance would represent a great risk for the company.

4.1.2 Administrative costs

The next costs to be examined will be those derived from the administration of the company. Here, we added the workforce, which will include all our employees within the same pay role, regardless of their area of work. The administrative costs also include the annual cost of office rent, its basic services, and the indirect costs for office supplies. Next, we will be able to observe the total of all the figures that we have just mentioned, bearing in mind that we can find more detailed data in table 19.

Table 19 *Administrative costs*

	1st year	2nd year	3th year	4th year	5th year
Workforce costs	$ 123,072.73	$ 144,214.18	$ 148,013.74	$ 151,641.86	$ 155,269.99
Office supplies costs	$ 355.00	$ 357.98	$ 362.81	$ 369.54	$ 378.28
Basic services	$ 1,274.86	$ 1,285.57	$ 1,302.90	$ 1,327.08	$ 1,358.45
Office rent	$ 11,280.00	$ 11,374.75	$ 11,528.08	$ 11,742.04	$ 12,019.63
TOTAL	$ 135,982.59	$ 157,232.49	$ 161,207.53	$ 165,080.53	$ 169,026.34

Source: Authors.

4.1.2.1 Workforce costs

The first and most important administrative cost is the cost of labor. The workforce included in these costs can be direct or indirect. As Baca Urbina explains: “direct labor is one that personally intervenes in the production process, specifically referring to workers. Indirect labor refers to those who, although in production, are not workers, such as supervisors, shift managers, production manager, etc.” (Urbina, Evaluación de Proyectos, 2010, pág. 140) .

The amount of labor that will be needed for the production of shampoo bars was previously analyzed in the technical analysis of the project, where 8 employees were found to be needed, of which three are workers, one is the production manager and another four hold administrative positions, such as the foreign trade manager, the marketing manager, the

accountant, and obviously the general manager. Similarly, to obtain the unified basic salary (SBU) for each year, a growth forecast was made, based on the previous 5 years. The cost of wages and salaries is projected to single 8-hour shifts a day, from Monday to Friday.

We will add a table summarizing the annual costs for work force, considering mainly the total cost per charge for each year, which will already include the payments of salary contributions to the IESS (the Ecuadorian social security), both from employer and personal, and provisions for vacations, as well as the cost of the monthly salary per person in each position and the costs of the Christmas bonus and the XIV annual salary. A total of eight employees will remain during the first five years, the values change from year to year due to general changes in the unified basic salary given by the government, which must at the same time be increased by the same percentage to all the wages, as shown in table 20. To understand this information in more detail, see Appendix 2.

Table 20 *Labor cost*

Position	Required staff	1st year	2nd year	3th year	4th year	5th year
Manager	1	$ 40,364.20	$ 46,711.96	$ 47,942.66	$ 49,151.94	$ 50,361.21
Accountant	1	$ 6,053.25	$ 7,311.97	$ 7,504.61	$ 7,675.83	$ 7,847.05
Production manager	1	$ 27,040.80	$ 31,412.42	$ 32,240.03	$ 33,046.21	$ 33,852.39
Foreign trade manager	1	$ 27,040.80	$ 31,412.42	$ 32,240.03	$ 33,046.21	$ 33,852.39
Marketing manager	1	$ 5,643.42	$ 6,841.35	$ 7,021.60	$ 7,180.42	$ 7,339.24
Workers	3	$ 16,930.26	$ 20,524.06	$ 21,064.80	$ 21,541.25	$ 22,017.71
TOTAL		$ 123,072.73	$ 144,214.18	$ 148,013.74	$ 151,641.86	$ 155,269.99

Source: Authors.

4.1.2.2 Office rental cost

As we do not need an entire house, nor a factory with large dimensions for the production of natural shampoo bars, and bearing in mind that we are going to acquire a shed in which the production plant and warehouses will operate, we have chosen to rent an office in a suitable area of the city, in the office center building in Samborondón, an area where we believe our potential clients could be located. The office will provide administrative services,

and direct customer service. The office rental agreement will be annual, and will be $ 11,280 the first year. To complete the total expenses, we increased the projected inflation year by year as it can be seen in table 18 of administrative costs. The office is shown in figure 18.

Figure 18 *Rental office for customer service*

Source: (plusvalia.com, 2020)

4.1.2.3 Basic services costs

Among the administrative costs, we can also find the costs of basic services, which represent fixed costs of any company, and which must be considered in order to make a more realistic analysis of the annual expenses as it is represented in table 21. Fixed costs will grow progressively year by year due to the projected national inflation that we will use.

Table 21 *Basic services costs*

Service	1st year	2nd year	3th year	4th year	5th year
Water	$ 223.74	$ 225.62	$ 228.66	$ 232.90	$ 238.41
Electricity	$ 223.36	$ 225.24	$ 228.27	$ 232.51	$ 238.01
Internet	$ 623.88	$ 629.12	$ 637.60	$ 649.44	$ 664.79
Telephone	$ 203.88	$ 205.59	$ 208.36	$ 212.23	$ 217.25
TOTAL	$ 1,274.86	$ 1,285.57	$ 1,302.90	$ 1,327.08	$ 1,358.45

Source: Authors.

After a price analysis, we got our future annual expenses for water, electricity, internet and telephone. We use water based on Gabriel Baca Urbina's book, who proposes that at least 150 liters of water per person per day should be contemplated in a company. For electricity, we investigated about the average cost in the coast of Ecuador, based on INEN data, considering also the extra costs the coast usually has. As for the internet and the telephone, we have chosen plans that adapt to our needs to have an optimal service.

4.1.2.4 Costs of office supplies

To continue with the analysis, we will consider the expenses generated by office supplies. We made the proforma through the wholesale stationer's shop *Distribuidora Comsucre*, and we adjusted the prices that we obtained to the rest of the years, according to the projected inflation in table 22:

Table 22 *Office supplies*

Product	Units	Unit cost	1st year	2nd year	3th year	4th year	5th year
Reams of paper	100	$ 2.72	$ 272.00	$ 274.28	$ 277.98	$ 283.14	$ 289.83
Pens	50	$ 0.25	$ 12.50	$ 12.61	$ 12.77	$ 13.01	$ 13.32
Agendas	10	$ 5.00	$ 50.00	$ 50.42	$ 51.10	$ 52.05	$ 53.28
Folders	50	$ 0.05	$ 2.50	$ 2.52	$ 2.55	$ 2.60	$ 2.66
Clips	50	$ 0.02	$ 1.00	$ 1.01	$ 1.02	$ 1.04	$ 1.07
Staples	100	$ 0.01	$ 1.00	$ 1.01	$ 1.02	$ 1.04	$ 1.07
Stapler	2	$ 4.00	$ 8.00	$ 8.07	$ 8.18	$ 8.33	$ 8.52
Hole puncher	2	$ 4.00	$ 8.00	$ 8.07	$ 8.18	$ 8.33	$ 8.52
TOTAL			$ 355.00	$ 357.98	$ 362.81	$ 369.54	$ 378.28

Source: Authors.

We can see how the annual spending will be $ 355 during the first year, and how it increases progressively in the future, however, we will try to reduce this spending, in order to adhere to the ecological principles that will rugulate our company, but always considering that the norms required by law and the materials needed for the administrative and sales area cannot be ignored.

4.1.3 Sales costs

The third and last type of cost, within the fixed costs that the company will assume, we have the cost of sales, which includes, anything necessary to make the sale; it includes logistics, which in our case is international, commissions, and advertising. We have omitted the salary of the person in charge of this section, since it was previously included in the labor cost. See table 23.

Table 23 *Sales costs*

	1st year	2nd year	3th year	4th year	5th year
Advertising	$ 6,000.00	$ 6,050.40	$ 6,131.96	$ 6,245.77	$ 6,393.42
International sales logistics	$ 819.23	$ 871.44	$ 1,393.68	$ 1,489.74	$ 2,129.07
Sales commissions	$ 6,820.42	$ 7,194.66	$ 11,353.34	$ 11,914.69	$ 16,634.72
TOTAL	$ 13,639.65	$ 14,116.49	$ 18,878.98	$ 19,650.19	$ 25,157.20

Source: Authors.

In the first year, $ 13,639.65 will be invested in sales. Within the advertising we include the social networks management that will be the main channel we will use. Regarding international logistics, the price is calculated per kilo including freight and insurance. And the commissions will be 1% of the total sales.

4.2 Investment determination

In order to analyze the investment needed for the establishment of the production plan, we must bear in mind several important items, like the price for the set-up of the company, as well as the furniture, machinery and equipment required, and finally, the land

and construction; however, as we do not need heavy machinery, we have replaced the investment in land and construction with the purchase of a shed, as will be explained below.

4.2.1 Investment in land and construction

As explained above, since a factory with large dimensions is not necessary for the production of natural shampoo bars, we decided to rent an office where the administrative and customer service area will work, as well as a manufacturing facility where the productive area and warehouse will be established. Because our products do not have a very elaborate process, almost any space is optimal; that is why after an analysis of prices and locations, we found a shed located in Mapasingue, which picture is shown in figure 19. Mapasingue is an area that is approximately 8 minutes away from our main office. The price to be added, as our investment for the purchase of this, will be $ 280,000.

Figure 19 *Manufacturing facility*

Source: *(Plusvalia, 2020)*

4.2.2 Investment for the set-up of the company

Ecuadorian laws make setting up a business a somewhat complicated and expensive process for entrepreneurs; however, this are requirements that must be achieved and expenses that must be done only once.

Since we are a small company, we will constitute ourselves as a 'private partnership', since it is cheaper and more convenient. The expenses of setting up a company involve an initial capital contribution from all partners, the attorney's fees, and some notary's expenses; unlike a limited company, for which the commercial registry payment is also necessary. We will also reflect the brand and patent costs and brand and packaging design costs. It is important to mention that the certificates and payments that are made when starting a business do not need to be renewed, so it is not necessary to take this expense into account in the future.

According to the lawyer Pamela Andrade Malo, and the designer Nicolás León Rodas, the prices for these items will be in table 24.

Table 24 *Setting up of the company*

Concept	Price	
Company set-up attorney fees	$	300.00
Trademark registration attorney fees	$	330.00
Capital and notary contributions	$	400.00
Trademark registration (SENADI rate)	$	248.00
Design expenses (logo + logo manual)	$	450.00
Design costs (packaging)	$	150.00
TOTAL	$	1,878.00

Source: Authors.

4.2.3 Machinery and production equipment investment

As previously analyzed, in Chapter 3, our production plant will need several machines and utensils for its production process, however, since it is not heavy machinery, many can be obtained directly in Ecuador, or they can be imported without any additional permission or high costs. As we show in Table 11, the total value for production machinery and

equipment is $3,440.22, which will also be reflected in the summary table of total investment (Table 25).

4.2.4 Office furniture and equipment investment

Office furniture and equipment are an important part of any business; in our case, we do not need a lot of space or furniture, since our complete staff are eight employees, and not all of them require equipment. For production staff, their tables and equipment have already been previously budgeted, so the prices of the tables that we will present below include only the furniture and equipment needed for administrative staff.

With this small investment we would have all the necessary equipment to work with the optimal functionality of the plant, it is also important to emphasize that some of the equipment has relatively high prices as it will be of high quality to make it last and to try to obtain a higher salvage value after its validity of at least the first five years. With this, the workers will be able to carry out their tasks. See table 25.

Table 25 *Office furniture*

Characteristic	Amount	Unit price	Price
Desk	5	$ 130.00	$ 650.00
Chairs	10	$ 89.99	$ 899.90
Computers	5	$ 540.00	$ 2,700.00
Printer / Copier	1	$ 295.00	$ 295.00
Office furniture	3	$ 149.99	$ 449.97
TOTAL			$ 4,994.87

Source: Authors.

The prices were budgeted through mercadolibre.com.ec, and we obtained a value of $4,994.87 of total investment for the furniture and office equipment so that the employees can fulfill their functions in the most efficient way possible.

4.2.5 Working capital

The working capital, as Gabriel Baca Urbina explains, "From a practical point of view, is represented by the additional capital (other than investment in fixed and deferred assets)

that must be counted on to start a business." The working capital is the amount of money needed to survive the first few months, since, as it is known, these are the most complicated for a company since there are no high incomes, especially when just entering a market. It is the capital that must be counted on to start working, to obtain raw materials, to carry out the first batch of production, to pay for labor, etc. (Urbina, Evaluación de Proyectos, 2010, pág. 145)

We have considered the first four months in order to have an idea about how much money we will need to subsist at the beginning with a result of $69,687.94, however, it is important to note that working capital is not the only money needed to start the business, and that this will only allow us to analyze better the actual amount of initial investment. Working capital also helps us to have sufficient liquidity considering that there is a period of time when money is not recovered from the credits that are granted to clients as shown in table 26.

Table 26 *Working capital for the project.*

Concept	Price
Raw material	$ 21,681.62
Workforce	$ 41,024.24
Packaging	$ 2,001.46
Basic services	$ 424.95
Maintenance	$ 101.67
Rent	$ 3,760.00
Production material	$ 154.00
Inland and THC	$ 540.00
TOTAL	$ 69,687.94

Made by: Authors.

4.2.6 Total investment

After obtaining the working capital, which corresponds to the first 4 months of fixed expenses, but which will continue to be a expense after that time, we will add the rest of the costs to set the company up, in such a way that we will obtain the total investment, as we will observe in table 27.

Table 27 *Total investment*

Concept	Price
Shed	$ 280,000.00
Machinery and equipment	$ 3,440.22
Set-up costs	$ 1,878.00
Furniture and office equipment	$ 4,994.87
Working capital	$ 69,687.94
TOTAL	$ 360,001.03

Source: Authors.

Finally, the total investment for the set-up of the company for its proper operation during the first months will be $360,001.03.

4.3 Depreciation y amortizations

As the author Gabriel Barca Urbina explains in his project evaluation book, depreciation and amortization have the same connotation, with the only difference that one represents fixed or tangible assets, which with its usage will tear, while the amortization represents deferred or intangible assets, which are assets that do not necessarily depreciate, but rather mean a charge that is made annually to recover an investment, such as a brand. (Urbina, Evaluación de Proyectos, 2010, pág. 145)

In order to obtain the amortization values corresponding to each asset, we resorted to article 28, numeral six, of the Ecuadorian tax law, since it is the government of each country that will dictate the values of amortization. The application of the amortization and depreciation of the assets is carried out so that at the end of their duration, a new injection of capital is not necessary, but over the years the values of the same are recovered. The depreciation used for this work can be seen in table 28.

Table 28 *Depreciation of office furniture*

Concept	Price	%	1st year	2nd year	3th year	4th year	5th year	Salvage value
Machinery and utensils	$ 3,440.22	10%	$ 344.02	$ 344.02	$ 344.02	$ 344.02	$ 344.02	$1,720.11
Furniture and office equipment	$ 2,294.87	10%	$ 229.49	$ 229.49	$ 229.49	$ 229.49	$ 229.49	$1,147.44
Shed	$280,000.00	5%	$14,000.00	$14,000.00	$14,000.00	$14,000.00	$14,000.00	$210,000.00
Computers	$ 2,700.00	33%	$ 899.91	$ 899.91	$ 899.91	$ 0.27	$ -	$ -
TOTAL			$15,473.42	$15,473.42	$15,473.42	$14,573.78	$14,573.51	$212,867.55

Source: Authors.

In this table we include the different depreciation percentages according to the required concept. Computers, for example, will have a useful life of three years, that is, 33% of annual depreciation, so in the third year there is no salvage value, unlike machinery, furniture and office equipment. Which have a depreciation of 10%, so in both cases we have a salvage value of 50% due to the time cut that we have applied during this study; and the shed, which have an annual depreciation of 5% according to the law, will have a salvage value equivalent to 75% after five years.

4.4 Financing

Two types of financing will be used for the company, as it can be seen in table 29. The first will be based on investments by individuals. Since the investment is low and very achievable considering that there will be three partners, and that it is expected that by the fifth month, in accordance with the working capital, a surplus to cover the costs and the desired profit should be obtained. And the second type of financing will be through a financial institution. Next, we will detail each partner's investment with its corresponding percentage, based on the investment values obtained previously.

Table 29 *Company Financing.*

	%		Value
Investor 1	30%	$	108,000.31
Investor 2	15%	$	54,000.15
Investor 3	15%	$	54,000.15
Bank	40%	$	144,000.41
TOTAL		$	360,001.03

Source: Authors.

As for the financing, 40% is going to be made through a bank loan, the interest rate was obtained, which would be 11.73%. Payments will be made through the payment of equal amounts at the end of each of the five years, for which we have based ourselves in Gabriel Baca Urbina's book, as seen in figure 20.

Figure 20 *Annual payment value for the loans Equation.*

$$A = p\left[\frac{i(1+i)^n}{(1+i)^n + 1}\right]$$

Source: (Urbina, 2010, p. 154)

From this knowledge, the loan will be made for a total of $ 144,000.41, with the interest of 11.73%, at 5 years, and that represents the annuity to be paid; we have obtained the results that we will present in table 30.

Table 30 *Annual loan payments*

Year	Interests	Annuity	Payment to principal	Debt after payment
0				$ 144,000.41
1	$ 16,891.25	$ 39,680.26	$ 22,789.01	$ 121,211.40
2	$ 14,218.10	$ 39,680.26	$ 25,462.17	$ 95,749.23
3	$ 11,231.38	$ 39,680.26	$ 28,448.88	$ 67,300.35
4	$ 7,894.33	$ 39,680.26	$ 31,785.93	$ 35,514.42
5	$ 4,165.84	$ 39,680.26	$ 35,514.42	$ -

Source: Authors.

4.5 Break-even Point

The break-even point is a technique that will allow us to analyze the relationship between fixed costs, variable costs and income. Although the break-even point does not help us evaluate the profitability of the investment, it gives us some clearer reference to the minimum production necessary for the company not to lose.

In order to find the break-even point, is necessary to divide costs into fixed and variable. Variable costs will depend directly on production, that is, that will be the raw material, inputs, and packaging costs; while fixed costs are those that are always there, regardless of production variations such as basic services, wages and salaries, office costs, sales costs, and international logistics costs: THC and the costs in land that are expenses that the company will assume when using terms of sale FOB. The fixed and variable costs are shown in tables 31 and 32.

Table 31 *Fixed costs per kilo*

Concept	Cost	
Salary	$	45.09
Basic services	$	0.47
Cost of office supplies	$	0.13
Maintenance costs	$	0.11
Sales cost	$	5.00
Material production costs	$	0.17
International logistics	$	0.79
TOTAL	$	51.76

Source: Authors.

Table 32 *Variable costs per kilo*

Concept	Cost	
Raw material and supplies	$	22.73
Packing costs	$	2.20
TOTAL	$	24.93

Source: Authors.

As shown in the tables above, the total fixed costs for each kilo of production is $ 51.76, and the variable costs are $ 24.93. These costs were obtained by dividing the total annual costs by the number of annual kilos of production. With all this baseline information, it is possible to apply the break-even formula (See figure 21). In order to use this formula, we need the fixed costs, the variable costs and the sale price. Through the formula we will determine the break-even point in quantity and price, taking into account that, as already demonstrated in chapter two, the sale price per kilo will be $ 249.90, as shown in table 33.

Figure 21 *Break-even point (u)*

$$\text{Break} - \text{even point } (u) = Fixed\ costs\ per\ kilo * (1 - \frac{Variable\ costs\ per\ kilo}{Sales\ per\ kilo})$$

$$\text{Break} - \text{even point } (u) = \$51.76 * \left(1 - \frac{\$24.93}{\$249.90}\right) = 46.6kg$$

Source: Authors.

Table 33 *Break-even point*

Concept	Value
Sales Price per kilo	$ 249.90
Fixed costs per kilo	$ 51.76
Variable costs per kilo	$ 24.93
Break-even point in quantity	46.60 kg

Source: Authors.

As can be seen in the previous table, the break-even point formula allowed us to show that the plant that produces ecological bar shampoos must sell 46.6 kilos of shampoo so that production is not wasted, and does not result in loss. During the first year, a monthly production of around 227 kilos is expected, so only with a monthly production would the

break-even point be exceeded, from 46.6 kilos of production, the surplus would represent profitability and profit for the company.

4.6 Pro-forma income statement.

The income statement or profit and loss statement has the purpose of calculating the net profit of the net cash flows of the project, that is, the real benefits of the operation in the production plant. The income statement is a table that synthesizes the information that has been obtained in previous sections and that gives us the profit by subtracting the income from all expenses. This state is also called a pro-forma state since it shows a projection of the economic results that the company will have. To finish the net cash flow, we rely on the Ecuadorian tax law and the taxes and values that it requires in sessions regarding determinations of costs and income that will be tax deductible (Urbina, Evaluación de Proyectos, 2010, pág. 140). The projected results statement for this project can be seen in table 34.

Table 34 *Projected results statement*

Concept	1st year	2nd year	3th year	4th year	5th year
Incomes	$ 682,042.23	$ 719,465.62	$ 1,135,333.52	$ 1,191,468.60	$ 1,663,471.58
Production costs	$ 71,816.24	$ 71,562.83	$ 112,996.99	$ 118,978.82	$ 166,403.01
Administrative cost	$ 135,982.59	$ 157,232.49	$ 161,207.53	$ 165,080.53	$ 169,026.34
Sales Costs	$ 13,639.65	$ 14,116.49	$ 18,878.98	$ 19,650.19	$ 25,157.20
Profit before taxes	$ 460,603.76	$ 476,553.81	$ 842,250.03	$ 887,759.07	$ 1,302,885.03
15% worker participation	$ 69,090.56	$ 71,483.07	$ 126,337.50	$ 133,163.86	$ 195,432.75
Profits before reserve	$ 391,513.20	$ 405,070.74	$ 715,912.52	$ 754,595.21	$ 1,107,452.27
10% reserve	$ 39,151.32	$ 40,507.07	$ 71,591.25	$ 75,459.52	$ 110,745.23
Profit before taxes	$ 352,361.88	$ 364,563.66	$ 644,321.27	$ 679,135.69	$ 996,707.05
22% Income tax	$ 77,519.61	$ 80,204.01	$ 141,750.68	$ 149,409.85	$ 219,275.55
Net profit	$ 274,842.27	$ 284,359.66	$ 502,570.59	$ 529,725.84	$ 777,431.50
Depreciation and amortization	$ 15,473.42	$ 15,473.42	$ 15,473.42	$ 14,573.78	$ 14,573.51
Capital payment	$ 22,789.01	$ 25,462.17	$ 28,448.88	$ 31,785.93	$ 35,514.42
Net cash flow	$ 267,526.67	$ 274,370.91	$ 489,595.13	$ 512,513.68	$ 756,490.58

Source: Authors.

4.7 Cost of capital or minimum acceptable rate of return

To start this company, the initial capital came, in part, from individuals or investors who contributed in different percentages, and a percentage of loan from a financial institution. By investing in the company, each of the shareholders will have a cost associated with the capital they contributed. The minimum acceptable rate of return (MARR) represents a rate of return on the investment that each one who contribute has in mind, meaning, it is the minimum profit that they hope to obtain by investing in a project. However, on what should individuals base themselves to set their MARR?

Although there is a mistaken belief that reference the minimum acceptable rate of return should be the maximum rate offered by banks for a fixed-term investment, this is not correct since the rates offered by banks are minimum to obtain a sustainable gain in inflation, so that in the end that gain would represent a loss in the purchasing power of the investor. Is for this reason that the MARR takes the inflation index as the main reference. However, it is not the only benchmark, since it is not attractive for an investor to maintain the same purchasing power that an investment has, but rather to make it grow. Investing in a business represents a risk for the shareholder, and in business the risk translates into money; This is why the second term to consider with the MARR is risk, which depends directly on the relationship of the company and its business model with the environment, and ultimately represents a reward or not for the investor for having risked its money in one or the other company. The equation for calculating the minimum acceptable rate of return is outlined in figure 22.

Figure 22 *Minimum acceptable rate of return*

$$MARR = i + f + if$$

Source: Authors.

In this formula the i represents the annual inflation of the country where the project will be elaborated, in this case, Ecuador. According to the Central Bank of Ecuador, in 2019 inflation was 0.6%, based on inflation from past years, a projection was made for the first year of the project, which will be used to make our calculation. The f, on the other hand,

represents the risk, which will be determined according to the investment and the type of company. In this case, to determine the risk we based ourselves on figures indicated in the market study carried out in Chapter 2, which is supported by secondary information sources on the organic shampoo market in Spain; As conclusions of the study, it was observed that although it is a growing market, the market is still relatively new and is not yet fully established in the minds of consumers, which represents a high risk since there is a lot of new competition and there are still no data to ensure the success of the product within the market, therefore the risk percentage was determined to be 35%, basing ourselves at the same time on the book by Baca Urbina, in which it is established that "The recommended profit rates are: low risk 1 to 10%; average risk 11 to 20%; high risk, TMAR greater than 20% without upper limit." (Urbina, 2010, p. 154) These data would be translated into figure 23.

Figure 23 *MARR*

$$MARR = 0.6\% + 35\% + (0.6\% * 35\%) = 35.81\%$$

Source: Authors.

As we can see in the previous equation, the minimum return that the company must have is 35.81%. It is here where we can understand what the MARR represents within a study and evaluation of projects; if the project does not meet its minimum acceptable rate of return, it could not operate, since it wouldn't be attractive to investors.

However, when having more than one source of investment, a weighting is necessary, in such a way that the percentage of return to which we want to achieve is clearer by including all the factors or sources of financing such as, in our case, the interest rate in the loan made to the bank, which is 11.73%. From these datas and taking an average of the MARR obtained in the previous table, we can obtain, in table 35, our minimum rate of return, 26.18%, which we will use for the following tools, such as the NPV and the IRR:

Table 35 *Minimum acceptable rate of return weighting.*

Shareholder	%	MARR	Weighting
Investor 1	30%	35.81%	10.74%
Investor 2	15%	35.81%	5.37%
Investor 3	15%	35.81%	5.37%
Bank Inst.	40%	11.73%	4.69%
	TOTAL		26.18%

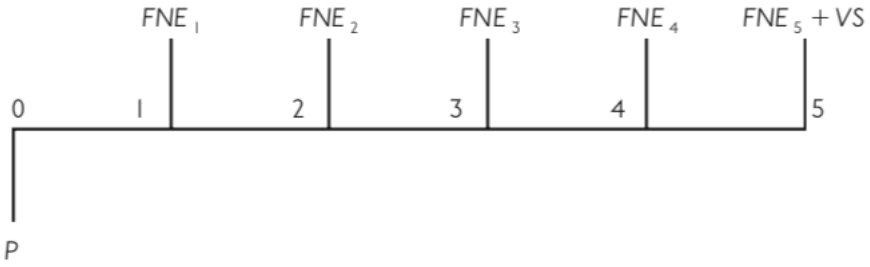
Source: Authors.

4.8 Net Present Value

As Gabriel Baca explains, "the Net Present Value (NPV) is the monetary value that results from subtracting the sum of the discounted flux from the initial investment in the product. That is, nothing more than adding the discounted flux in the present and subtracting the initial investment, which is equivalent to comparing all the expected profits against all the disbursements necessary to produce those profits, in terms of their equivalent value at this zero moment or time". (Urbina, 2010, p. 182)

In order to understand this explanation, we will present a cash flow diagram shown in figure 24, which represents the five years of the analysis, this time including year zero or initial investment. Each line represents a year where the final net cash flow can be seen. At the end of the five years, the salvage value for depreciation and amortization will be added to the fifth year.

Figure 24 *Cash flow diagram*



Source: (Urbina, 2010, p. 183)

In order to calculate the Net Present Value, we will need 3 main data, the initial investment, to which it will be necessary to change the sign to negative, since it represents a disbursement of money, as can be seen in the cash flow diagram, the flow net of cash that we previously obtained in the pro forma income statement, and the Minimum Acceptable Rate of Return, we will show this in figures 25 and 26.

Figure 25 *Net Present Value*

$$NPV = -P + \frac{FNE_1}{(1+i)^1}\frac{FNE_2}{(1+i)^2}\frac{FNE_3}{(1+i)^3}\frac{FNE_4}{(1+i)^4}\frac{FNE_5 + VS}{(1+i)^5}$$

Source: (Urbina, 2010, p. 183)

Figure 26 *NPV*

$$NPV = -\$290{,}313.09 + \frac{\$253{,}973.40}{(1+27.91\%)^1} + \frac{\$260{,}139.25}{(1+27.91\%)^2} + \frac{\$474{,}460.39}{(1+27.91\%)^3} + \frac{\$497{,}101.13}{(1+27.91\%)^4} + \frac{\$739{,}567.27+\$212{,}747.55}{(1+27.91\%)^5}$$

Source: Authors.

As we explained at the beginning of this chapter, for the study we used the help of TICS, so with the help of this tool we directly calculated the NPV of the project that turned out to be $ 803,051.69. The calculation is facilitated by being a company with a single product. At the same time, with the weighting of the MARR we already obtain a single interest value that will be the one with which we will carry out this calculation, so that we can have a clearer vision of the projections.

When comparing the value of the NPV, $ 803,051.69, against the value of the initial investment, without taking into account the working capital, which is $ 290,313.09, it can be clearly observed that income exceeds the expenses, and it wants to be covered in 5 years the necessary disbursements, including the initial investment; at the same time that a profitability and profit value will be obtained, which will be analyzed below with the Internal Rate of Return. The NPV result is favorable for our project, since it can be considered its absolute net profitability, which gives investors the confidence to risk their money here.

4.9 Internal rate of return

The internal rate of return, as the *Evaluación de proyectos* book tells us, "is the discount rate by which the NPV is equal to zero. It is the rate that equals the sum of the discounted flux to the initial investment." (Urbina, 2010, p. 184). Through the IRR it is possible to better observe the financial viability of a project. Based on what was previously calculated with the NPV, it gives us a clearer idea, in percentage terms, of the profitability of the plant. The following equation is used to calculate the IRR; and i is left unknown. The internal rate of return "is determined by trial and error (trial and error), until i equals the sum of the discounted flows to the initial investment; that is, the i of the equation is made to vary, until it satisfies its equality. Such denomination will allow knowing the real return on that investment" (Urbina, 2010, p. 184). The IRR obtained and its process is shown in figures 27 and 28.

Figure 27 *Internal Rate of Return.*

$$IRR = -\frac{FNE_1}{(1+i)^1}\frac{FNE_2}{(1+i)^2}\frac{FNE_3}{(1+i)^3}\frac{FNE_4}{(1+i)^4}\frac{FNE_5 + VS}{(1+i)^5}$$

Source: (Urbina, 2010, p. 184)

Figure 28 *IRR*

$$IRR = -\frac{\$253{,}973.40}{(1+i)^1} + \frac{\$260{,}139.25}{(1+i)^2} + \frac{\$474{,}460.39}{(1+i)^3} + \frac{\$497{,}101.13}{(1+i)^4} + \frac{\$739{,}567.27+\$212{,}747.55}{(1+i)^5}$$

Source: Authors.

Like the NPV, the internal rate of return was calculated with help of Excel, which allowed us to perform the calculations more accurately and quickly. The IRR we obtained was 107%. To know if an investment is acceptable or not based on the IRR, it has to be compared with the MARR. If the internal rate of return is higher than the minimum acceptable rate of return, then the project is viable, since it means that the profit will be higher than the minimum rate expected, which not only makes it attractive for investors, but It also allows us to better observe the possible profitability of the business.

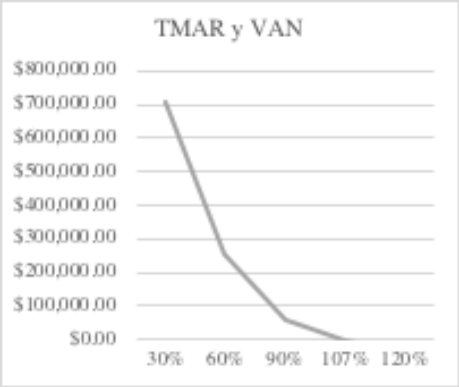
Another way to understand these financial analysis tools is to match profitability with income to the present value of expenses. Which means that the NPV will be equal to zero the result of this is the IRR, which is nothing more than the Percentage of rate of return to be obtained if expenses and income would be equalized. In the following table we will observe percentages of the TMAR, relating them directly to the net present value, so that it can be understood. At the same time, table 36 and figure 29 show the relation between the IRR and the NPV, in which we can observe the behavior of the curve that decreases the net present value, by increasing the desired rate of return.

Table 36 *Relation between MARR & NPV*

MARR	NPV
30%	$705,712.90
60%	$252,783.66
90%	$61,435.91
107%	$0.00
120%	-$36,625.28

Source: Authors.

Figure 29 *Relation between MARR & NPV*



Source: Authors.

4.10 Return on Investment (ROI)

The return on investment or ROI, is a numerical percentage, which indicates the return on investments of a company, that is, it reflects the result of a certain investment in a company (Phillips). In our case, we will analyze the entire project itself as the investment we were talking about earlier. ROI is important for financial analysis as it allows us to observe results and measure the return on investment. ROI is calculated using the following formula, shown in figure 30.

Figure 30 *Return on Investment.*

$$ROI = \frac{Investment - Income}{Income}$$

Source: (Phillips)

In our case, the investment is the total expenses of the company, which will be made with the data from the first year, that is, the initial investment plus the costs that involve the effective development of the institution, and the income is sales projected that we have obtained. That is, the investment that will be used to calculate the ROI will be our initial investment of $ 360,001.03; and the projected income for the first year is $ 682,042.23. Which gives us a ROI of 59%, as we can see in figure 31.

Figure 31 *ROI*

$$ROI = \frac{\$682{,}042.23 - \$360{,}001.03}{\$360{,}001.03} = 89\%$$

Source: Authors.

Obtaining a positive ROI indicates that the investment will have a return, no money will be lost, nor will expenses and income be equaled so that there is neither debt nor profit, but in this result it is confirmed that there is to be a significant return on investment. In our case, taking into account that the return obtained refers to the total amount invested in the project, a return of 89% is quite positive and demonstrates the feasibility and profitability of the project by verifying that there will be profits, and that this will be greater than the interest that could be obtained from the bank.

4.11 Payback Period

The payback period is a financial tool that helps us determine the number of periods, usually measured in years, that it will take us to recover the money invested in a project, that

is, in how long we will recover an investment. (Cruz, Urrutia, & Medina, 2011) In order to obtain the years it would take us to recover the investment, we need the projected net cash flow for the first 5 years, and the total investment, which would be the value that we placed in year 0 or base year. From the initial investment we add the monetary amount obtained in the FNE of each year, until the balance becomes positive as we observe in table 37.

Table 37 *Payback Period*

Year	FNE	Balance
0	$ (360,001.03)	$ (360,001.03)
1	$ 267,526.67	-$ 92,474.36
2	$ 274,370.91	$ 181,896.55
3	$ 489,595.13	$ 671,491.68
4	$ 512,513.68	$ 1,184,005.36
5	$ 756,490.58	$ 1,940,495.95

Source: Authors.

We already know that the first year we will recover the investment, however, if we want more precision we can add the year in which the money is recovered plus the balance and divide it for the value of FNE for the following year, that is, year 2, with which we got figure 32.

Figure 32: *Payback period*

$$Payback\ period = 1 + -\$92{,}474.36/\$274{,}370.91 = \ 1.34$$

Source: Authors.

The investment payback period for our project is 1.34 years, to be more precise, we transform this into time figures, which resulted in 1 year, 4 months and 1 day. From this result we can support all the previous results as it is demonstrated that it is a project that will recover its total investment in the first year, which demonstrates the feasibility and profitability of the business considering that recovering the money invested before the first 5 years of the project is already quite positive financially speaking

Conclusions:

The economic study allowed us to determine the monetary values necessary to find answers about the viability of the company. From the analysis of the numerical data obtained, it was possible to observe both the income and the actual expenses of the company to later be able to compare them with each other in the financial study or economic evolution

This chapter is the most important of the study because it encompasses all the previous chapters and gives us a clearer vision of the project's feasibility and projected profitability, that we determine if the project could really work or not. Although the data is projected into the future, and therefore could vary. This idea will allow us to start with the company knowing that investors will be calmer knowing that their money will be in a place with positive projections.

In this chapter we were able to determine the values of all our fixed and variable expenses, which are $ 221,438.47 in the first year, and of our initial investment, which will be $ 359,221.03. When obtaining these amounts we were able to choose the best financing methods taking into account several factors such as the opportunity cost, both for the shareholders and for the factory itself.

The financial evaluation was made with the help of 5 economic tools: TMAR, VAN, TIR, ROI and payback. Which show us that the company will be profitable and the investments will not be so risky.

CONCLUSIONS Y RECOMMENDATIONS

Conclusions:

Through the state of the art and planning of the project we were able to show that the market we are targeting, in this case is Spain. Even in their crisis, has always known how to maintain its stability. At the same time, the growing concern for the environment, which is directly beneficial for the product to be exported If the market becomes more eco conscious, this will lead to an even bigger growth of the organic market that belongs to our product directly. We were able to prove that the Spanish market is made up of people concerned with personal care and beauty. Although all these factors are of utmost significance, the most important fact that was found was cultural proximity, which helps when doing business between Ecuador and Spain and gives us an advantage in a certain way.

The market study that was carried out shows how the target market is ready for our product, backed by a notable growth year after year. There is a great interest in innovating, ecological and natural products and the population has the purchasing power to buy them. After considering data, such as our market share percentage and the current average price of the products in Spain, we come to the results that our future sales involve a projection of production during the first year of 2,729.26 kg of shampoo, an amount that means 150 109.33 units and $ 150 109.33 in sales.

After carrying out the technical study, it was concluded that Guayaquil is the most suitable place for the location of the company's manufacturing facility and office; this location have some advantages, especially in terms of logistics. The analysis also allowed us to reach the convenient technical process for our product, which involves 4 main steps to follow: collection of raw materials, preparation of the base, preparation of the shampoo, and final line. As for the company staff, we will need 8 employees in total. Also, it was found that the necessary materials do not include heavy machinery. Regarding our international logistics, we conclude that the term FOB will be used, since it's convenient for our company and for our future clients.

Finally, the economic study allowed us to determine the monetary values necessary to find that the viability of the company is positive and that the financial indicators are beneficial to us. In this chapter it was determined that the values of all our expenses, both fixed and variable, are $ 221,438.47 in the first year, and our initial investment will be $ 359,221.03; in this way, by relating these total expenditures to our projected income, with the help of the TMAR, the VAN, and the IRR it become evident that the company will be profitable and that the investments will not be risky by obtaining positive figures in this evaluation. ROI and Payback showed us that the investment will be recoverable in a short time and with a fairly favorable percentage, which helps us to show the future strengths of this project.

Recommendations:

It is recommended to improve the existing databases and generate more information on related topics to the country's economy, as well the industries and markets, so that they are accessible to all of society through official websites and advice from public staff trained and informed.

Is recommended to start an awareness movement in the country so that products such as the one, which are beneficial to health and the planet, are valued more and introduced into our culture. In this way, it would help small producers in the country to improve the economy in general and as a bonus, it would also help the environment.

It is also recommended that the country be a leading player in this area, so that, at the Latin American level, it can take advantage of the environmental issue, and spread and gain market before other countries create large industries that could take over. We need to keep in mind cannot be created by big industries since they would lose their ecological value.

It is recommended to consolidate existing treaties and try to negotiate better ones to make the exit of products easier and cheaper for entrepreneurs, since, thanks to our current agreement with the European Union, the price of the shampoo bar is more competitive in relation to those exported to Europe from countries that don’t have similar treaties.

As a recommendation, we suggest to improve the export and import processes so that they are friendlier to merchants, since there is an innumerable amount of paperwork and expenses that the entrepreneur must obtain in order to obtain the desired results. This means a considerable amount of waste time since, as previously mentioned, the entities are not always well advised and when the necessary procedures are carried out, the goals are not reached due to lack of information.

The creation of an entity or improvement of existing ones, is recommended to help entrepreneurs obtain the certificates they need so that their products become sellable and competitive in the market, since the entities currently in charge do not always have knowledge, or its staff is not trained.

Finally, Ecuador should lower the loan rates since it affects the entrepreneur, who finds lots of difficulties at the time of starting a business from scratch. The high interest rates that banks and cooperatives have, take away all the revenues that new entrepreneurships could obtain during the first months. Thanks to the loan rates, the long processes and the high costs, the vast majority of entrepreneurs are demotivated along the way, especially when they realize that beginning a entrepreneurship is one of the most difficult tasks for Ecuadorians.

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APPENDIX 1

Focus group

The focus group began with generalized questions regarding the use and consumption of biodegradable organic products, it is important to mention that the group was composed of a medium-high socio-economic level, with mixed gender and age from 21 years to 40 years. The reaction in the attendees was very positive, gesturing and physical expressions of joy and satisfaction regarding them. When asking where they buy their products, the answer was mostly in supermarkets of mass consumption such as: Supermaxi, Coral Centro, Tía. And when we asked the price they would pay, the public present agreed to products over five dollars and even some would be willing to pay 20% more of the retail price (PVP). However, the group associated organic products with food only, hinting that they are good for their health, and that their packaging is commonly environmentally friendly.

When they find out that the testing product was a bar shampoo, the expression was negative and rejection, the main argument of the group was that they consider that a shampoo with good quality is one that generates a lot of bubbles and produces a pleasant smell for each of them; they were passed a sample of around five aromas and they liked one that its fragrance was orange, the smell of the product as such was displeasing. The RRP was also a trigger for rejection, since they were told that each bar of around 7x7x4cm cost approximately fifteen dollars and finally the presentation, when looking at the prototype of the product, the facial expression was unpleasant, they indicated that it seems unhygienic and uncomfortable.

On the other hand, the consumption channel, they concluded as a group that they do not like to look for their products, but that they must be visible on

the hanger of mass consumption supermarkets, in addition poeple from 30 to 40 years explained that for entering a massive supermarket the cost is too high, however, one of the attendees of around 20 years said that the target should be for children since it does not matter much the appearance of the product and if the results are visible is sufficient, as a reply to this comment, an assistant around 28 years old indicated that the consumer is not the child, it its mother.

APPENDIX 2

Payment Roles

To obtain the workforce costs for the first year, we based ourselves directly on the 2019 sectoral minimum wage table, published by the Labor Ministry. The first role of payments has the unified basic salary of $ 394, corresponding to year 1, that is, 2019. Starting from this year's salaries, the unified basic salaries will be projected and the same percentage will be increased to the higher salaries. Holidays and reserve funds are not included in this payment role, since the employee must complete one year of work in order to receive these benefits. The first year represents a cost of $ 52,705.99 for the company as shown in the table:

Table 38 *Payment roles Part I*

Charge	Required staff	Salary per person	Salary per person annually	XIII Payment annual salary	Payment XIV annual salary	Total annual income	Employer Contribution 11,15%	IECE/ SECAP 1%	Personal contribution 9,45%	Total Cost per Employee	Total contributed IESS 21,60%	Total cost per charge
Management	1	$3,000.00	$36,000.00	$ 3,000.00	$ 394.00	$ 39,394.00	$ 4,014.00	$ 360.00	$ 3,403.80	$ 40,364.20	$ 7,777.80	$ 40,364.20
Accountant	1	$ 424.76	$ 5,097.12	$ 424.76	$ 394.00	$ 5,915.88	$ 568.33	$ 50.97	$ 481.93	$ 6,053.25	$ 1,101.23	$ 6,053.25
Production manager	1	$2,000.00	$24,000.00	$ 2,000.00	$ 394.00	$ 26,394.00	$ 2,676.00	$ 240.00	$ 2,269.20	$ 27,040.80	$ 5,185.20	$ 27,040.80
Foreign trade manager	1	$2,000.00	$24,000.00	$ 2,000.00	$ 394.00	$ 26,394.00	$ 2,676.00	$ 240.00	$ 2,269.20	$ 27,040.80	$ 5,185.20	$ 27,040.80
Marketing Manager	1	$ 394.00	$ 4,728.00	$ 394.00	$ 394.00	$ 5,516.00	$ 527.17	$ 47.28	$ 447.03	$ 5,643.42	$ 1,021.48	$ 5,643.42
Labour	3	$ 394.00	$ 4,728.00	$ 394.00	$ 394.00	$ 5,516.00	$ 527.17	$ 47.28	$ 447.03	$ 5,643.42	$ 1,021.48	$ 16,930.26
TOTAL		$8,212.76	$98,553.12	$ 8,212.76	$2,364.00	$109,129.88	$10,988.67	$ 985.53	$ 9,318.20	$111,785.89	$21,292.40	$123,072.73
SBU:	$ 394.00											

Source: own elaboration.

For the second year, within the payment role, two new values appeared; the first corresponding to 8.33% of employees' 12-month earnings, which corresponds to reserve funds, and the second, earnings of the year divided to 24, which corresponds to the 15-day vacation provisions of each employed under Ecuadorian law. Based on forecasts, based on past years, wages will increase by 3.21%, which gives us the result of a unified base salary of $ 406.67. The cost of labour for year 2 will be $ 63,410.56.

Table 39 *Payment roles Part II*

Charge	Required staff	Salary per person	Salary per person annually	XIII Payment annual salary	Payment XIV annual salary	Total annual income	Employer Contribution 11,15%	IECE/ SECAP 1%	Personal contribution 9,45%	Reserve Fund 8,33%	Holiday Provisions	Total Cost per Employee	Total contributed IESS 21,60%	Total cost per charge
Management	1	$ 3,096.45	$ 37,157.36	$ 3,096.45	$ 406.67	$ 40,660.47	$ 4,143.05	$ 371.57	$ 3,513.23	$ 3,095.21	$ 1,548.22	$ 46,711.96	$ 8,027.85	$ 46,711.96
Accountant	1	$ 438.42	$ 5,260.99	$ 438.42	$ 406.67	$ 6,106.07	$ 586.60	$ 52.61	$ 497.43	$ 438.24	$ 219.21	$ 7,311.97	$ 1,136.64	$ 7,311.97
Production manager	1	$ 2,064.30	$ 24,771.57	$ 2,064.30	$ 406.67	$ 27,242.54	$ 2,762.03	$ 247.72	$ 2,342.15	$ 2,063.47	$ 1,032.15	$ 31,412.42	$ 5,351.90	$ 31,412.42
Foreign trade manager	1	$ 2,064.30	$ 24,771.57	$ 2,064.30	$ 406.67	$ 27,242.54	$ 2,762.03	$ 247.72	$ 2,342.15	$ 2,063.47	$ 1,032.15	$ 31,412.42	$ 5,351.90	$ 31,412.42
Marketing Manager	1	$ 406.67	$ 4,880.00	$ 406.67	$ 406.67	$ 5,693.33	$ 544.12	$ 48.80	$ 461.40	$ 406.50	$ 203.33	$ 6,841.35	$ 1,054.32	$ 6,841.35
Labor	3	$ 406.67	$ 4,880.00	$ 406.67	$ 406.67	$ 5,693.33	$ 544.12	$ 48.80	$ 461.40	$ 406.50	$ 203.33	$ 6,841.35	$ 1,054.32	$ 20,524.06
TOTAL		$ 8,476.79	$101,721.49	$ 8,476.79	$2,440.00	$112,638.29	$11,341.95	$1,017.21	$ 9,617.77	$ 8,473.40	$ 4,238.40	$130,531.48	$21,976.93	$ 144,214.18
SBU:		64,081.22												

Elaborated by: Authors

For the third year, the unified basic salary, according to the forecast made with the Excel formula, will rise to 417.38, that is, 2.63%, a percentage that increases to all salaries. It is important to emphasize that within the increase in the SBU, certain annual factors are already foreseen, such as inflation, so that cost is not added within the other. In third year the cost of the payment roles will be $ 65,081.22.

Table 40 *Payment role Part3 III*

Charge	Required staff	Salary per person	Salary per person annually	XIII Payment annual salary	Payment XIV annual salary	Total annual income	Employer Contribution 11,15%	IECE/ SECAP 1%	Personal contribution 9,45%	Reserve Fund 8,33%	Holiday Provisions	Total Cost per Employee	Total contributed IESS 21,60%	Total cost per charge
Management	1	$3,178.03	$ 38,136.33	$3,178.03	$ 417.38	$ 41,731.74	$ 4,252.20	$ 381.36	$ 3,605.79	$ 3,176.76	$ 1,589.01	$ 47,942.66	$ 8,239.35	$ 47,942.66
Accountant	1	$449.97	$ 5,399.60	$ 449.97	$ 417.38	$ 6,266.94	$ 602.05	$ 54.00	$ 510.53	$ 449.79	$ 224.98	$ 7,504.61	$ 1,166.58	$ 7,504.61
Production manager	1	$2,118.69	$ 25,424.22	$ 2,118.69	$ 417.38	$ 27,960.29	$ 2,834.80	$ 254.24	$ 2,403.86	$ 2,117.84	$ 1,059.34	$ 32,240.03	$ 5,492.90	$ 32,240.03
Foreign trade manager	1	$2,118.69	$ 25,424.22	$2,118.69	$ 417.38	$ 27,960.29	$ 2,834.80	$ 254.24	$ 2,403.86	$ 2,117.84	$ 1,059.34	$ 32,240.03	$ 5,492.90	$ 32,240.03
Marketing Manager	1	$417.38	$ 5,008.57	$ 417.38	$ 417.38	$ 5,843.33	$ 558.46	$ 50.09	$ 473.56	$ 417.21	$ 208.69	$ 7,021.60	$ 1,082.10	$ 7,021.60
Labour	3	$417.38	$ 5,008.57	$ 417.38	$ 417.38	$ 5,843.33	$ 558.46	$ 50.09	$ 473.56	$ 417.21	$ 208.69	$ 7,021.60	$ 1,082.10	$ 21,064.80
TOTAL		$ 8,700.13	$104,401.51	$ 8,700.13	$2,504.29	$115,605.92	$11,640.77	$1,044.02	$ 9,871.16	$ 8,696.65	$ 4,350.06	$133,970.54	$22,555.95	$ 148,013.74
SBU:	$417.38													

Source: own elaboration.

This table corresponds to the role of payments that is projected for the fourth year. For this year, a rise of $ 10.71 in the unified basic salary was forecast, which gives us a total of $ 428.10; this represents, at the same time, an increase of 2.57% in the rest of wages. When carrying out all the calculations of the pertinent values to pay, as established in Ecuadorian law, the annual value required for the fourth year will be $ 66,580.44.

Table 41 *Payment roles Parte IV*

Charge	Required staff	Salary per person	Salary per person annually	XIII Payment annual salary	Payment XIV annual salary	Total annual income	Employer Contribution 11,15%	IECE/ SECAP 1%	Personal contribution 9,45%	Reserve Fund 8,33%	Holiday Provisions	Total Cost per Employee	Total contributed IESS 21,60%	Total cost pe charge
Management	1	$3,259.61	$ 39,115.30	$3,259.61	$ 417.38	$ 42,792.29	$ 4,361.36	$ 391.15	$ 3,698.35	$ 3,258.30	$ 1,629.80	$ 49,151.94	$ 8,450.86	$ 49,151.9
Accountant	1	$461.52	$ 5,538.21	$ 461.52	$ 417.38	$ 6,417.10	$ 617.51	$ 55.38	$ 523.64	$ 461.33	$ 230.76	$ 7,675.83	$ 1,196.53	$ 7,675.8
Production manager	1	$2,173.07	$ 26,076.87	$ 2,173.07	$ 417.38	$ 28,667.32	$ 2,907.57	$ 260.77	$ 2,465.57	$ 2,172.20	$ 1,086.54	$ 33,046.21	$ 5,633.91	$ 33,046.2
Foreign trade manager	1	$2,173.07	$ 26,076.87	$2,173.07	$ 417.38	$ 28,667.32	$ 2,907.57	$ 260.77	$ 2,465.57	$ 2,172.20	$ 1,086.54	$ 33,046.21	$ 5,633.91	$ 33,046.2
Marketing Manager	1	$428.10	$ 5,137.14	$ 428.10	$ 417.38	$ 5,982.62	$ 572.79	$ 51.37	$ 485.72	$ 427.92	$ 214.05	$ 7,180.42	$ 1,109.88	$ 7,180.4
Labour	3	$428.10	$ 5,137.14	$ 428.10	$ 417.38	$ 5,982.62	$ 572.79	$ 51.37	$ 485.72	$ 427.92	$ 214.05	$ 7,180.42	$ 1,109.88	$ 21,541.2
TOTAL		$ 8,923.46	$107,081.53	$ 8,923.46	$2,504.29	$118,509.27	$11,939.59	$1,070.82	$10,124.56	$ 8,919.89	$ 4,461.73	$137,281.03	$23,134.96	$ 151,641.8
SBU:	$428.10													

Elaborated by: Calderón, E; Calle, J

The fifth year, which was the last one to be analyzed, will have a cost for the company of $ 68,079.67 as it can be seen in the following table. This increase is due to the 2.5% increase in the salaries of 8 employees of the production plant and the administrative area. The unified basic salary could increase $ 10.71, being a total of $ 438.81.

Table 42 *Payment roles Parte V*

Charge	Required staff	Salary per person	Salary per person annually	XIII Payment annual salary	Payment XIV annual salary	Total annual income	Employer Contribution 11,15%	IECE/ SECAP 1%	Personal contribution 9,45%	Reserve Fund 8,33%	Holiday Provisions	Total Cost per Employee	Total contributed IESS 21,60%	Total cost pe charge
Management	1	$3,341.19	$ 40,094.27	$3,341.19	$ 417.38	$ 43,852.84	$ 4,470.51	$ 400.94	$ 3,790.91	$ 3,339.85	$ 1,670.59	$ 50,361.21	$ 8,662.37	$ 50,361.2
Accountant	1	$473.07	$ 5,676.81	$ 473.07	$ 417.38	$ 6,567.26	$ 632.96	$ 56.77	$ 536.74	$ 472.88	$ 236.53	$ 7,847.05	$ 1,226.48	$ 7,847.0
Production manager	1	$2,227.46	$ 26,729.51	$ 2,227.46	$ 417.38	$ 29,374.35	$ 2,980.34	$ 267.30	$ 2,527.28	$ 2,226.57	$ 1,113.73	$ 33,852.39	$ 5,774.91	$ 33,852.3
Foreign trade manager	1	$2,227.46	$ 26,729.51	$2,227.46	$ 417.38	$ 29,374.35	$ 2,980.34	$ 267.30	$ 2,527.28	$ 2,226.57	$ 1,113.73	$ 33,852.39	$ 5,774.91	$ 33,852.3
Marketing Manager	1	$438.81	$ 5,265.71	$ 438.81	$ 417.38	$ 6,121.90	$ 587.13	$ 52.66	$ 497.87	$ 438.63	$ 219.40	$ 7,339.24	$ 1,137.66	$ 7,339.2
Labour	3	$438.81	$ 5,265.71	$ 438.81	$ 417.38	$ 6,121.90	$ 587.13	$ 52.66	$ 497.87	$ 438.63	$ 219.40	$ 7,339.24	$ 1,137.66	$ 22,017.7
TOTAL		$ 9,146.80	$109,761.54	$ 9,146.80	$2,504.29	$121,412.62	$12,238.41	$1,097.62	$10,377.95	$ 9,143.14	$ 4,573.40	$140,591.52	$23,713.98	$ 155,269.9
SBU:	$438.81													

Elaborado por: Calderón, E; Calle, J.

APPENDIX 3

Conditions and total cost of credit and amortization table.

RUC: 1790010937001

Conditions and total cost of credit

Date:	**02/18/2020**	Product:	**SME Commercial Credit**
Term (months):	**60**	Payment frequency:	**Monthly**
Nominal interest rate:	**11.23%**	Rate type:	**Adjustable**
Amortization system type:	**French**	Solca contribution rate:	**0.5%**
Good / vehicle value:	**N / A**		

Data financing	Values	Frequency	Explanation
Amount requested (USD)	144000		Value requested by the client.

Liquid amount (USD)	143280.0		Amount credited to the account
Financial fee (USD)	3109.38	Monthly	Value corresponding to principal and interest
Total fee (USD)	3205.38	Monthly	Financial fee value
Term / number of dues	60	Monthly	Number of installments to be paid throughout the term of the credit
Interest rate nominal (%)	11.23	Annual	It is the annual interest rate.
Interest rate active effective referential for the segment (%)	10.43	Annual	It is the benchmark lending rate of the segment, allowed by the Central Bank from Ecuador.
Interest rate	11.83	Annual	(TEA) Equals effective annual interest, divided for initial principal. The Nominal and effective interest rates differ when the period of

annual effective (%)		compounding is other than one year. The effective interest rate is more high the shorter the compounding period
Sum of fees (USD)	192323.12	It is the sum of the installments to be paid throughout the term of the credit.
Financial burden (USD)	45109.6	It is the difference between the sum of interest, premiums minus the amount liquid that the client receives in the concession. Includes interest and premiums compulsory insurance
Relationship between total value and amount requested capital	1.34	Result of the division, of the total sum of installments for the amount financed.
Annual effective rate of the cost of financing	13.01	It is the effective annual interest rate plus the values corresponding to statutory taxes, compulsory insurance (credit and fire) and direct and indirect expenses.

Mandatory insurance	Expenditure	Periodicity	Justification
Levy (USD)	96.0	Monthly	Amount charged to cover death or incapacity of the debtor according to the type of contracted policy.
Fire (USD)	0.0	Monthly	Amount charged to cover loss of fire of the real guarantee according to the type of contracted policy.

Vehicle Insurance (USD)	0	Amount charged to cover loss of vehicle.

Expenses on behalf of third parties	Value in USD	Periodicity	Explanation
Pledge legalization	0		

Mandatory contribution	cost	Periodicity	Justification
Contribution to comprehensive cancer care (USD)	720.0	Only	It is the contribution to comprehensive care of cancer ordered in the general arrangement Fourteenth of the Monetary Organic Code and financial

Explanations

Kind of fixed rate / readjustable	The fixed interest rate is the one that remains the same during the term of the loan as long as the Adjustable interest may fluctuate during the term of the same.

Kind of table of amortization	French or equal dividends: One that generates dividends from equal periodic payments, whose values principal repayments are increasing in each period, and the interest values on the principal owed they are decreasing. German or equal capital installments: One that generates decreasing periodic payment dividends, whose Amortization values of the capital are the same for each period and the values of interest on the capital owed are decreasing.

Default rate table (according to the current regulations of the Tax system of Interest and Rates of the Central Bank of Ecuador)

Days of late payment	Surcharge for late payment until
0	0.0%
1-15	5.0%
16-30	7.0%
31-60	9.0%
61-999999	10.0%

Table differentiated financial services for collection management expenses extrajudicial

	DAYS PAST DUE				
Odds range (#)	1 to 30 days	31 to 60 days	61 to 90 days	91 to 120 days	> to 120 days
<$ 100	$ 6.38	$ 16.23	$ 23.17	$ 25.56	$ 25.56
> $ 100 <= $ 199	$ 7.35	$ 16.46	$ 23.85	$ 26.64	$ 26.64
> $ 200 <= $ 299	$ 7.92	$ 17.83	$ 25.27	$ 29.03	$ 29.03
> $ 300 <= $ 499	$ 8.32	$ 20.34	$ 27.43	$ 32.72	$ 32.72
> $ 500 <= $ 999	$ 8.63	$ 23.99	$ 30.34	$ 37.70	$ 37.70
> $ 1000 <= $ 4999	$ 8.88	$ 28.78	$ 34.01	$ 43.99	$ 43.99
> $ 5000	$ 8.88	$ 28.78	$ 34.01	$ 43.99	$ 43.99

Notes:

1. The information contained in this document is referential and has a validity period of 5 days, except when
   Within this period, the Monetary and Financial Policy and Regulation Board modifies the maximum reference rate.
2. The results that the simulator estimates are informative and do not constitute a pre-approval of the credit.
3. The extrajudicial collection values will be charged according to the corresponding table.
4. The values for credit insurance may vary in the event of additional co-debtors.
5. The client could contract the insurance company, at his choice.

Amortization table

Share	Date payment	Capital	Interest	insurance deg.	insurance fire / vehicle	Interest Grace	Value share	Balance
0	Feb 18-2020	0.0	0.0	0.0	0.0	0.0	0.0	144000.0
one	18-mar-2020	1761.78	1347.6	96.0	0.0	0.0	3205.38	142238.22
two	Apr 18 2020	1779.44	1331.11	94.83	0.0	0.0	3205.38	140458.78

3	May 18 2020	1797.28	1314.46	93.64	0.0	0.0	3205.38	138661.5
4	Jun 18 2020	1815.3	1297.64	92.44	0.0	0.0	3205.38	136846.2
5	Jul 18, 2020	1833.5	1280.65	91.23	0.0	0.0	3205.38	135012.7
6	Aug 18 2020	1851.88	1263.49	90.01	0.0	0.0	3205.38	133160.82
7	18-sep-2020	1870.44	1246.16	88.78	0.0	0.0	3205.38	131290.38
8	Oct 18 2020	1889.19	1228.66	87.53	0.0	0.0	3205.38	129401.19
9	Nov 18 2020	1908.13	1210.98	86.27	0.0	0.0	3205.38	127493.06
10	Dec 18 2020	1927.26	1193.12	85.0	0.0	0.0	3205.38	125565.8
eleven	18-jan-2021	1946.58	1175.09	83.71	0.0	0.0	3205.38	123619.22

12	Feb 18-2021	1966.1	1156.87	82.41	0.0	0.0	3205.38	121653.12
13	18-mar-2021	1985.81	1138.47	81.1	0.0	0.0	3205.38	119667.31
14	Apr 18 2021	2005.72	1119.89	79.77	0.0	0.0	3205.38	117661.59
fifteen	May 18 2021	2025.82	1101.12	78.44	0.0	0.0	3205.38	115635.77
16	Jun 18 2021	2046.13	1082.16	77.09	0.0	0.0	3205.38	113589.64
17	Jul 18, 2021	2066.64	1063.01	75.73	0.0	0.0	3205.38	111523.0
18	Aug 18 2021	2087.36	1043.67	74.35	0.0	0.0	3205.38	109435.64
19	18-sep-2021	2108.29	1024.13	72.96	0.0	0.0	3205.38	107327.35
twenty	Oct 18 2021	2129.42	1004.41	71.55	0.0	0.0	3205.38	105197.93

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twenty-one	Nov 18 2021	2150.77	984.48	70.13	0.0	0.0	3205.38	103047.16
22	Dec 18 2021	2172.33	964.35	68.7	0.0	0.0	3205.38	100874.83
2. 3	18-jan-2022	2194.11	944.02	67.25	0.0	0.0	3205.38	98680.72
24	Feb 18-2022	2216.11	923.49	65.78	0.0	0.0	3205.38	96464.61
25	18-mar-2022	2238.32	902.75	64.31	0.0	0.0	3205.38	94226.29
26	Apr 18 2022	2260.76	881.8	62.82	0.0	0.0	3205.38	91965.53
27	May 18 2022	2283.43	860.64	61.31	0.0	0.0	3205.38	89682.1
28	Jun 18 2022	2306.32	839.27	59.79	0.0	0.0	3205.38	87375.78
29	Jul 18, 2022	2329.44	817.69	58.25	0.0	0.0	3205.38	85046.34

30	Aug 18 2022	2352.79	795.89	56.7	0.0	0.0	3205.38	82693.55
31	18-sep-2022	2376.38	773.87	55.13	0.0	0.0	3205.38	80317.17
32	Oct 18 2022	2400.2	751.63	53.55	0.0	0.0	3205.38	77916.97
33	Nov 18 2022	2424.26	729.17	51.95	0.0	0.0	3205.38	75492.71
3. 4	Dec 18 2022	2448.57	706.49	50.32	0.0	0.0	3205.38	73044.14
35	18-jan-2023	2473.11	683.57	48.7	0.0	0.0	3205.38	70571.03
36	Feb 18-2023	2497.91	660.43	47.04	0.0	0.0	3205.38	68073.12
37	18-mar-2023	2522.95	637.05	45.38	0.0	0.0	3205.38	65550.17
38	Apr 18	2548.24	613.44	43.7	0.0	0.0	3205.38	63001.93

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	2023							
39	May 18 2023	2573.79	589.59	42.0	0.0	0.0	3205.38	60428.14
40	Jun 18 2023	2599.59	565.51	40.28	0.0	0.0	3205.38	57828.55
41	Jul 18, 2023	2625.65	541.18	38.55	0.0	0.0	3205.38	55202.9
42	Aug 18 2023	2651.97	516.61	36.8	0.0	0.0	3205.38	52550.93
43	18-sep-2023	2678.56	491.79	35.03	0.0	0.0	3205.38	49872.37
44	Oct 18 2023	2705.41	466.72	33.25	0.0	0.0	3205.38	47166.96
Four. Five	Nov 18 2023	2732.53	441.4	31.45	0.0	0.0	3205.38	44434.43
46	Dec 18 2023	2759.92	415.83	29.63	0.0	0.0	3205.38	41674.51

47	18-jan-2024	2787.59	390.0	27.79	0.0	0.0	3205.38	38886.92
48	Feb 18-2024	2815.54	363.92	25.92	0.0	0.0	3205.38	36071.38
49	18-mar-2024	2843.76	337.57	24.05	0.0	0.0	3205.38	33227.62
fifty	Apr 18 2024	2872.27	310.96	22.15	0.0	0.0	3205.38	30355.35
51	May 18 2024	2901.07	284.08	20.23	0.0	0.0	3205.38	27454.28
52	Jun 18 2024	2930.15	256.93	18.3	0.0	0.0	3205.38	24524.13
53	Jul 18, 2024	2959.53	229.5	16.35	0.0	0.0	3205.38	21564.6
54	Aug 18 2024	2989.19	201.81	14.38	0.0	0.0	3205.38	18575.41
55	18-sep-2024	3019.16	173.83	12.39	0.0	0.0	3205.38	15556.25
	Oct 18							

56	2024	3049.43	145.58	10.37	0.0	0.0	3205.38	12506.82
57	Nov 18 2024	3080.0	117.04	8.34	0.0	0.0	3205.38	9426.82
58	Dec 18 2024	3110.88	88.22	6.28	0.0	0.0	3205.38	6315.94
59	18-jan-2025	3142.06	59.11	4.21	0.0	0.0	3205.38	3173.88
60	Feb 18-2025	3173.88	29.7	2.12	0.0	0.0	3205.7	0.0

Steps to get a credit:

1. Approach the nearest agency.
2. Collect the requirements requested and address them to the Business Officer.
3. Once your information has been analyzed, the result will be communicated to you.

(Banco del Pichincha, 2020)

APPENDIX 4

Export process.

- How is the Exporter Registration obtained?

Once the RUC has been managed in the Internal Revenue Service, you must:

Step 1

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

Central Bank of Ecuador: http://www.eci.bce.ec/web/guest/

Security Data: http://www.securitydata.net.ec/

Step 2

Register on the ECUAPASS portal :(http://www.ecuapass.aduana.gob.ec)

- Here you can:
  1. Update database
  2. Create username and password
  3. Accept the use policies
  4. Register electronic signature

Check the bulletin 32-2012, in which there is a demonstration video on registering for the ECUAPASS portal.

The National Council for Foreign Trade and Investments (COMEXI) established that exporters additionally register with the Ministry of Industries and Competitiveness when they refer to:

Exports of scrap metal and ferrous and non-ferrous metal waste. Resolution 400 of September 13, 2007 and published in the Official Gazette Supplement 233 of December 17, 2007.

Leather and fur exports. Resolution 402 of September 13, 2007 and published in the Official Register 222 of November 29, 2007.

(Aduana del Ecuador, 2020)

- Export process

It begins with the electronic transmission of a Customs Export Declaration (DAE) in the new ECUAPASS system, which may be accompanied by an invoice or proforma and documentation that is available prior to shipment, such declaration is not a simple intention of shipment but a declaration that creates a legal link and obligations to comply with the National Customs Service of Ecuador by the exporter or declarant.

- The data to be entered in the DAE are:
    - From the exporter or declarant
    - Merchandise description by invoice item
    - Consignee data
    - Destination of the cargo
    - Quantities
    - Weight; and other data related to the merchandise.

  The digital documents that accompany the DAE through the ECUAPASS are:

    - Original commercial invoice.
    - Prior authorizations (when the case warrants it).
    - Electronic Certificate of Origin (when the case warrants it)

  Once the DAE is accepted, the merchandise enters the Primary Zone of the district where it is shipped, as a result of which the temporary deposit registers and stores it prior to export.

  When exporting, you will be notified of the assigned capacity channel, which can be:

- Automatic Capacity
- Documentary Capacity
- Intrusive Physical Gauging

When the DAE has an Automatic Capacity channel, the exit authorization, meaning the authorization for the merchandise to be shipped, will be automatic when the cargo enters the temporary warehouses or primary areas.

When the DAE has a Documentary Capacity channel, the official in charge of the process will be designated, at the time the cargo enters the temporary deposit or primary area, after which it will proceed to review the electronic data and digitized documentation; and will proceed to closing if there are no news. It is necessary to indicate that if there is an observation to the procedure, it will be registered through the electronic notification scheme. Once closed, the DAE will change its status to authorized departure and the cargo can be shipped.

When the DAE has an Intrusive Physical Gauging channel, proceed as described in the previous point and additionally, a physical inspection of the cargo is carried out, corroborating it with the electronic and digitized documentation sent to the DAE.

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