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龍碧雅寶農：綠色農業專家，社區與農民之友
**Lombriabono: helping farmers and communities using green
agriculture**

Student: Jose B. Astorga Solano

Advisor: Professor Weichieh Su

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June 2015

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研究生：蘇和

Student: Jose B. Astorga Solano

指導教授：蘇威傑

Advisor: Weichieh Su



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Abstract

Lombriabono: Helping Communities and Farmers with the Use of Vermicomposting

By

Jose B. Astorga Solano

Social enterprises are the solution to many of today's global problems. Although great efforts have been made by nongovernmental organizations and charity, there is still a gap between the world's most fortunate and less fortunate.

In Nicaragua two of the biggest issues are malnourishment and waste management. Both reinforced by the amount of poverty in the country. LOMBRIABONO looks to bridge the gap in malnourishment while alleviating waste management in the country.

LOMBRIABONO will involve the communities of the state of Carazo in waste management. The people of Carazo will recycle food waste and hand it to one of our partners in the markets. They in turn will receive payment in the form of food for their efforts and their waste. We will then collect the food waste, process it and turn it into vermicomposting, which is an organic fertilizer made with the use of red worms that presents many benefits to the soil, crops and overall health of the population, later selling the vermicomposting, vermicomposting tea and red worms to sustain our business model.

The time is now for our product as people are catching on to the benefits of green agriculture. With the industry being in its embryonic stage, with the proper use of marketing and advertising we will reach thousands of households and bridge that gap caused by poverty all while inspiring other entrepreneurs to start similar ventures.

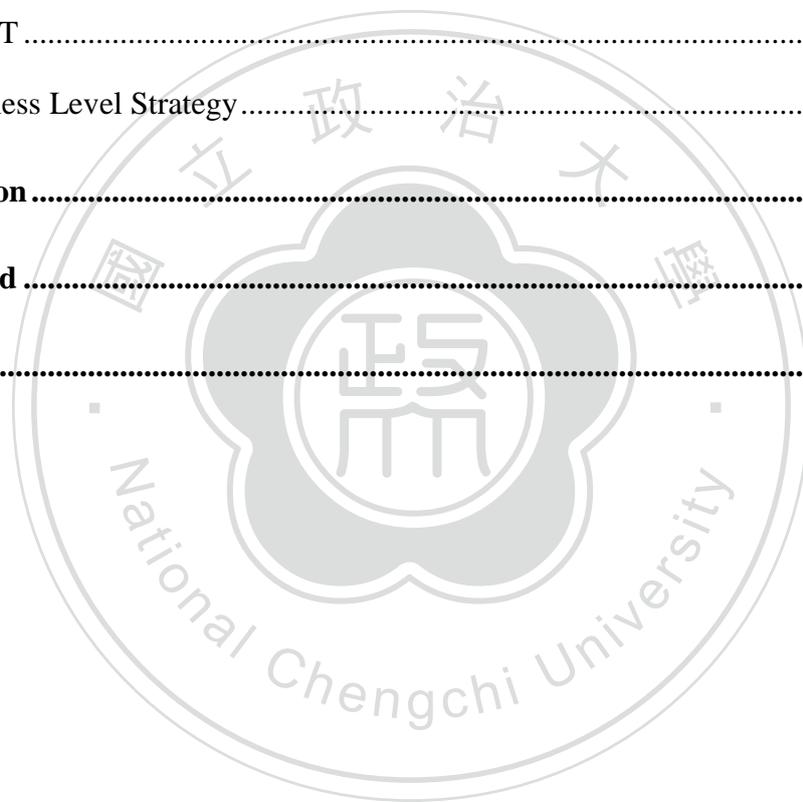
Keywords: Vermicomposting, Food Waste, Red Worm

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1. Introduction

Nicaragua has gone through more chaos and turmoil than most nations. Surviving two dictatorships, two wars that oversaw both dictatorships stepping down, two earthquakes, and a hurricane in 1998 that left 20% of the population homeless and billions of dollars in losses, has left Central America's biggest country in a pit that has taken a while to get out of. Nicaragua has been classified by the World Bank as the second poorest country in Latin America and the Caribbean, making it as well the second poorest country in the western hemisphere (World Food Programme, 2015). Nicaragua's GNI per capita was estimated at \$1,790 by the World Bank in 2013 (The World Bank, 2014). Despite recent efforts and policies that have led to a 4.2% GDP growth in 2014 and the deal with the Chinese government for the construction of an interoceanic canal, the vast majority of the population is in poverty (The World Bank, 2014). It is estimated that 48% of the population lives on less than \$1 a day and 76% live on less than \$2 (World Food Programme, 2015).

Having the title of the second poorest country in the western hemisphere brings many problems by association, but none greater than that of food deficit. Nicaragua is a low-income food deficit country and it is ranked 115 out of 169 in the United Nations Human Development Index (World Food Programme, 2015). A total of 23% of children under the age of 5 suffer from chronic under nutrition, with the North and Atlantic parts of the country experiencing numbers as high as 28%-38% (World Food Programme, 2015). In 2007, the FAO (Food and Agriculture Organization) estimated that 19% of the population is undernourished. The Nicaraguan family diet has suffered with the economic standing of the country, leading to a reduction of meat and dairy consumption. This in turn is one the reasons why stunting in Nicaraguan children under the age of 3 is estimated to affect 30% of the population (World Food Programme, 2015).

The lack of food has various negative consequences besides the imminent hunger. Families are often forced to see education as an alternative for richer families, sending their teenage boys (sometimes younger) to work the fields and forcing their daughters to stay helping around the house. The poorer families in the cities who cannot send their kids to the fields are left with no choice but to beg on the streets.

Nicaragua's economy has mainly relied on agriculture to sustain itself. As of late, tourism has seen a big lift, but agriculture is still accountable for 31% of the labor force, being coffee, beef, banana, shrimp and lobster, tobacco and sugar amongst the strongest exports (Central Intelligence Agency, 2015). It was estimated in 2014 that agriculture in Nicaragua accounted for 14.9 % of the GDP, third to services and industry (Central Intelligence Agency, 2015). Despite Nicaragua's relatively low unemployment rate of 7.4% (richer neighbor Cost Rica has an unemployment rate of 8.5%) underemployment rate in 2008 was at 46.5% (Central Intelligence Agency, 2015). This means that in 2008, 46.5% of the population was not receiving proper compensation for their work. This has changed since 2008 as the government has incorporated minimum wage increases, but the cost of living in the last two years has also been at an all-time high. The basket of goods in Nicaragua is currently at 12,253 Cordobas, which is equivalent to US\$454 (Alvarez, 2015). This means that on average a family of six will spend 12,253 Cordobas on monthly supplies covering the basics. This doesn't sound like much by world standards, but when you factor in that the minimum wage for a worker in the agriculture sector is \$3,014.41 (US\$112) (EL Nuevo Diario , 2015), that leaves a big gap in the cost of living and minimum wage. Even if both parents work, they are still only capable of covering half of the basket of goods, leading to looking for help from relatives, second jobs and many times malnutrition.

2. Literature Review

2.1. A Social Enterprise

Harvard Business School defines social entrepreneurship as “the pursuit of an opportunity to create pattern-breaking social changes regardless of the resources you currently possess” (Grossman, 2015). Three things differentiate a social enterprise from other forms of businesses.

- ✓ Directly addresses a social need
- ✓ Commercial activity is a strong revenue driver
- ✓ It serves the common good (Social Enterprise Alliance, 2015)

Social Enterprises can be non-profit or for-profit. The non-profit organizations are created with the objective of generating income to further their social mission. The profit organizations are created with the objective of returning value to shareholders but the business strategy is designed to solve a social issue.

To have a better understanding of social entrepreneurship, we can divide the word into two concepts, social and entrepreneurship. Entrepreneurship refers to “one who organizes, manages and assumes the risks of a business or enterprise” (Nelson, 2012). Entrepreneurship requires finding the opportunities as well as the resources to take advantage of those opportunities (Brooks, 2015). It is important to have in mind that even with a great idea or concept, a great initiative can lead to disappointment without the proper resources to foster it.

The social aspect of social entrepreneurship stems after we have already defined entrepreneurship. What differs between a social entrepreneur and an entrepreneur is that the latter is motivated by money and the former by altruism (Martin, 2007). In reality, neither the social entrepreneur nor entrepreneur is motivated by money, as the risks of failure are greater than their chances of success and most are never fully compensated for the time and effort that they put into their work. In reality they are motivated by the opportunity they identify and psychic reward that they receive from seeing it implemented (Martin, 2007). So if this is the case, where does the distinction between the social entrepreneur and entrepreneur lie?

It is believed that the difference is in the value proposition that they offer. Whereas the entrepreneur value proposition caters to markets that can comfortably afford their service or product, therefore, creating financial profit, the social entrepreneur does not anticipate to create substantial profit for his or her investors or him or herself. Instead, the social entrepreneur aims for value at a large scale, promising a big a change for a significant segment of society that is currently under catered (Martin, 2007). In essence, what distinguishes these two is their first goal, which for the social entrepreneur is to improve one aspect of society.

2.2. The Process of Creating a Social Enterprise

The process of forming a social enterprise can be divided in three steps. The first step is to identify an unjust equilibrium that causes exclusion and neglect for a segment in society that lacks the finances or government support to take care of a specific need of its people. The second step is to identify an opportunity, a game changer, which can restore the unjust equilibrium and cater to those that have been neglected. The third step is to forge this new equilibrium through partnerships and the implementation of the idea.

2.3. Boundaries of Social Entrepreneurship

There are two terms that are often confused with social entrepreneurship: social activism and social service. Social service differs from social entrepreneurship in its outcome. Social service unlike social entrepreneurship is limited. It is normally not auto sustainable, does not reach large scales, and does not launch various replicas in other markets. Other characteristics include implementation only at the local level, having limited global impact and they show a lot of vulnerability.

Social activism in theory can have the same outcome as social entrepreneurship, but its implementation is very different. Social activism is restoring the unjust equilibrium in society, but through indirect action. For example, social activists will target NGO's, governments, companies and other people to implement the necessary changes. A social activist is someone like Gandhi or Martin Luther King Jr (Martin, 2007).

With clear distinctions and definitions of how social entrepreneurship, social activism and social service, it is also important to note that pure models are rarer to find. Most social models are hybrids conforming a combination of more than one of the concepts mentioned above.

2.4. Characteristics of a Social Entrepreneur

A social entrepreneur is defined by having a strong sense of opportunity, out-of-the-box thinking and determination (Martin, 2007). However, in many cases people are considered social entrepreneurs only until their idea is successful. Before that, their ventures are known as business failures (Martin, 2007).

With this in mind we need to consider the traits that will lead to a social entrepreneur's success. In David Bornstein's book "How to change the world," he interviews and studies various social entrepreneurs and concludes that there are six traits that successful entrepreneurs have in common. (Renjie, 2010)

Successful social entrepreneurs need to have a willingness to self-correct. 90% of social business ideas start with the wrong business plan. It is crucial that the entrepreneur is focused and attached on a goal rather than a plan (Renjie, 2010). This allows for him or her to modify the plan according to results rather than a passion for an idea.

A successful social entrepreneur must have a willingness to share credit. We look at the case of IkoToilet, an initiative to build toilets in Kibera, Kenya's biggest slum. At first, David Kuria the founder, encountered that government regulations would impede an aggressive expansion plan, but after including the city council's logo in all of the toilets he built, the government was very supportive of the initiative as they were taking credit and the people of Kenya felt that the government was attending to their needs (Renjie, 2010).

A successful entrepreneur must also have a willingness to cross disciplinary boundaries. This means that he or she must be willing to mix ideas, experiences, skills as well as current initiatives being implemented in other countries and restructuring these sources into one solution. In many cases this requires configuring the natural order of the unjust balance that

has already been set in place. Hand in hand with this comes the entrepreneur's willingness to break free from established structures and create a new path, in many cases without the help of the government and already established nongovernmental organizations.

One of the least obvious characteristics stated by David is the willingness to work quietly. Most social entrepreneurs put in years of hard work in obscurity without much exposure on their projects or themselves. This is where the entrepreneur that wants to do something as opposed to the one who wants to be someone has an edge.

The last characteristic that David stresses is strong ethical impetus. This means that the social entrepreneur must be driven by a want to make a difference, to change the current unjust balance that exists in society. When it comes down to it, it depends on having a clear distinction of what's right and wrong and wanting to enforce that.

2.5. Why the Need for Social Enterprises

Governments try their best to resolve social issues of their citizens, but their reach and at times their intentions aren't enough. Not only do governments lack the resources to tackle all of the problems, but in the cases where the resources are plentiful, corruption typically results in only 30% of that aid being seen by the people who need it the most (Mike Valente, 2010). As a result, we are seeing a growing involvement of businesses as a solution to the social needs of a people. Nowhere is this more evident than in developing countries, where the need for infrastructure and basic services creates a market for the social enterprises to thrive in (Mike Valente, 2010).

Not only do social enterprises assist Governments in addressing the needs of its people, but many times social enterprises are more efficient and run smoother than Government agencies and NGOs (Mike Valente, 2010). Social enterprises are motivated by the goal of raising capital, which is a good incentive for better management. Former UN Secretary General Kofi Annan said it best "At a time when more than \$1 billion people are denied the very minimum requirements of human dignity, business cannot afford to be seen as the problem." (Mike Valente, 2010)

Even with the current increase in social enterprises, the world still faces many trials and tribulations. Infant mortality rate remains high, children around the world lack access to basic education and health care, and 2 billion people live on less than \$2 a day (Mike Valente, 2010).

Regardless of social enterprises creating a greater sense of equity, many times are overlooked as unimportant factors contributing to the economy of a nation, when in reality their contribution is significant. In the US alone, a 2012 census estimated that social enterprises employ 14,000 people in 28 states and speaks for over \$300 million dollars of revenue a year. It is worth mentioning that the census is believed to not be too representative as many companies can be considered social enterprises and were not included in the data (Thornley, 2012). Although these numbers in themselves are not impact worthy when measuring the whole economy of the US, the census also determined that 60% of social enterprises in the US have been created after 2006, and 29% from 2011, only a year before the census was taken. This information clearly shows a trend in starting social enterprises in the US (Thornley, 2012).

Not only do social entrepreneurs create jobs and employment, but they are responsible for some of the greatest innovations and social capital, as is the case of the Grameen Bank created by Nobel Prize winner Muhammad Yunus.

2.6. The Problems That Social Enterprises Face

One of the biggest issues that social enterprises face is the hard task of garnering support for their initiatives. Many believe that social enterprises constitute radical new problem solving ideas that in theory may not sound feasible. This is part of the reason why movements such as the Clinton foundation, Bill and Melinda Gates Foundation, and Hult Prize Foundation have been implemented; in hopes of creating more exposure and support for social business.

Another issue that social enterprises face is they are barely beginning to scratch the business surface. Social entrepreneurship is a relatively new word and concept, and like all new ideas, it is hard to accept at first. With its relatively short life comes the problem of institution or rather lack off. Governments looking to turn a quick buck, in many cases rule against

environmentally or socially friendly policies that would affect the greater good, and these social enterprises need to compete with business who have less social responsibility and manage to have more government support because of their longevity and at many times, their profit. Social enterprises, especially in developing countries do not count with much government support or government resources (Martin, 2007).

Relating to the issue of government support is the lack of capacity building for social entrepreneurs. Some of the best ideas come from social entrepreneurs who lack the formal education to maximize their reach, and without the government or other organizations backing them, they will never do so. If the social entrepreneur manages to start his enterprise, he or she is also met with implementation issues and not having the appropriate partners, whether it be governmental or not, to ensure success.

What social entrepreneurs are in dire need of is investment and seed money, a friendly policy environment that favors them or at the very least doesn't favor companies who are looking to only turn a quick buck, better access to government resources, better cooperation from the government and responsible entities of the state, and recognition and visibility and a grand scale.

2.7. Business Model of a Social Enterprise

The social enterprise business model looks for a synergy between for profit and non-profit organizations where the profit earned by the for-profit company is reinvested directly into the community by the non-profit organization (35 Years of using the Social Enterprise Business Model, 2014).

Due to the differences between a business and social enterprise, the business canvas of a social enterprise is different. Following are the sections to a Social Business Canvas (Social Lean Canvas, 2014).

- ✓ Value Proposition (Social Value Proposition, Impact Measures, Customer Value Proposition)
- ✓ Customer Segments (customers and beneficiaries)

- ✓ Channels
- ✓ Revenue Streams
- ✓ Key Partners
- ✓ Key Activities
- ✓ Key Resources
- ✓ Cost structure: how much will it cost to deliver your solution at scale?
- ✓ Surplus
- ✓ Type of Intervention

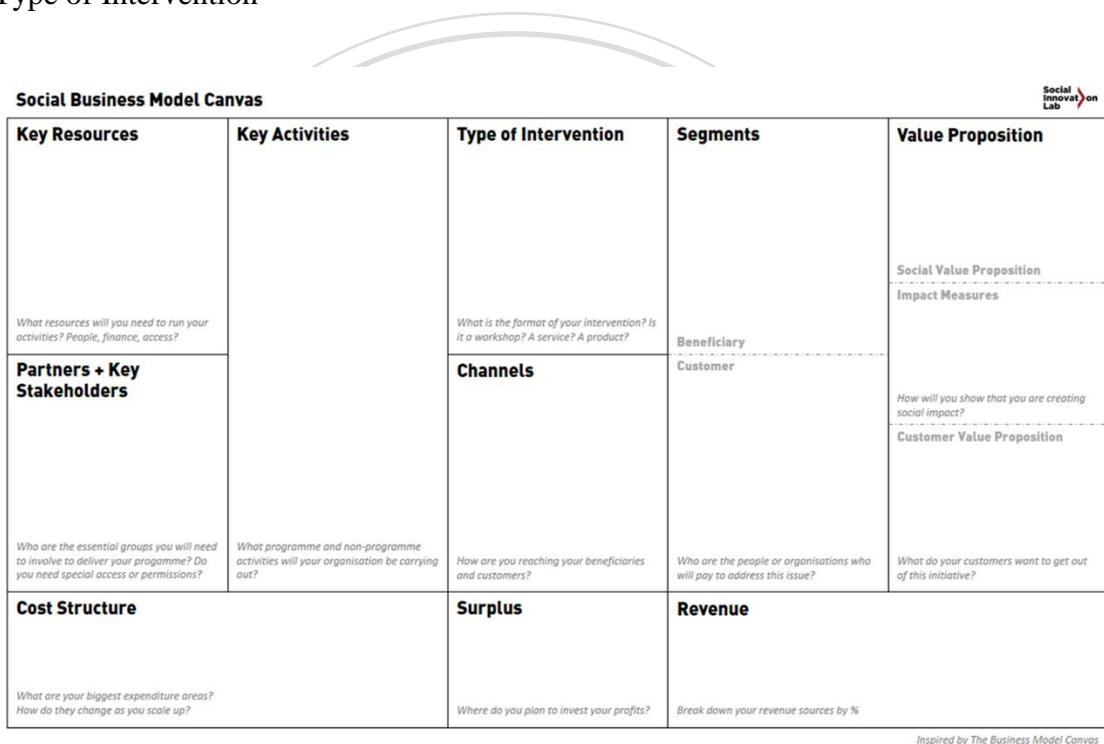


Figure 1: Social Business Model Canvas

2.8. Examples of Social Entrepreneurship

Ecotact’s IkoToilet

One of the most interesting cases of social entrepreneurship that I have stumbled across in recent months is the case of Ecotact’s IkoToilet. IkoToilet stands for “there is a toilet” and it is revolutionary initiative started by David Kuria in Nairobi Kenya. David is an architect as well as having years of experience in community assessment and urban environment. In Nairobi, bathroom facilities exist, but they are unsanitary and often locations of crime and

drug abuse. Not to mention that the government had not built a new facility for the past 20 years before IkoToilet (HydrateLife.org, 2012).

This led to a culture of defecating in the open (as the current facilities were unsafe and unsanitary), bagging the feces and littering. These were called flying toilets as people would leave the bags wherever they felt like. David Kuria saw an opportunity and he capitalized on it. IkoToilet is a bathroom that provides water free sanitation system (thanks to their partner Roto Moulders) for a low cost of \$0.06 per use. Not only do IkoToilet's provide toilets, but they include showers, urinals and soap as well. With the growth and acceptance of IkoToilet, they have not only become areas of sanitation but business has been built around them. IkoToilets today include convenience stores, salons, shoe shine stations, and ATM's. Not only was there a social and environmental impact with the introduction of IkoToilets, but David was able to change the way the Kenyans viewed these sanitation centers.

Along with cleaning the environment and promoting a safer community, each IkoToilet employs on average 10 people. By 2011, there were 34 IkoToilets through 12 municipalities in Kenya, and they have reached 10 million people. This in terms of environmental impact is huge. David has one various awards and is currently expanding into Uganda.

- ✓ Value Proposition: provide sanitation services to Kenya's population. Only 50% of the population had access to proper sanitation services (Acumen, 2015). Create a culture of proper usage of sanitary facilities. Impact measures included amount of people that their services reach. Amount of usage per year. Customer service satisfaction in the use of surveys (currently they have a 67% satisfaction) (Karugu, 2011). "Ecotact strives to develop innovative answers to the growing environmental sanitation cry in Africa and globally." (ecotact, 2013)
- ✓ Customer segments: Customers are the users of the facilities, people that if not for this service will have to solve using less sanitary means. The beneficiaries are the same customers and communities who see a cleaner environment and see diminishing health risks. Another segment that is benefited is the low income segment which this creates jobs for. Partners and investors include the municipalities, which allow them to use the land

rent free for five years, acumen fund, Global Water Challenge, eabl foundation, Kepsa, Ashoka, Schwab Foundation, The Dutch Government, amongst others. (Karugu, 2011)

- ✓ Channels: Since this is a service people need to walk to or have access to their IkoToilets. With 34 units in 12 municipalities in Kenya, large communities have access to them.
- ✓ Revenue stream: Their Initial Capital has come in the form of investment from various sources such as Ashoka and Schwab Foundation and awards like \$200,000 from Global Water Challenge. As far as their revenue model is concerned, IkoToilet generate income from user fees (\$0.06 for toilet usage and \$0.125 for shower usage), advertising from different corporate clients, and rent from micro-entrepreneurs using their facilities to run businesses. This income covers operational and administrative costs. They are currently starting to franchise their model at \$6,500 per franchise per year. They have 4 franchisees running 8 facilities. (Karugu, 2011) A facility earns on average \$30,000.
- ✓ Key Partners: The Government as well as NGOs such as Schwab Foundation and Ashoka.
- ✓ Key activities: Creating of centers, leasing of store space, and management of a clean environment.
- ✓ Key resources: financing as well as governmental help. Entrepreneur spirit.
- ✓ Cost structure: Each IkoToilet facility needs a \$25,000 investment. \
- ✓ Surplus: from franchising and charging of services as well as leasing store space.
- ✓ Type of intervention: Part of their impact starts with the image change that sanitation in Africa is having, especially in Kenya. Ecotact is making sanitation fashionable and clean. Another one of the main impacts that IkoToilets have is the innovation aspect, which includes the complete “Dry-Toilet System,” a bio-digestion system and urine harvesting system, which saves water. It is estimated that 10,000,000 people have used an IkoToilet since its start in 2007, and the amount of urban pollution reduction and employment generated (260) is of significance.

3. Company Overview

3.1. Purpose

A large part of Nicaragua's population suffers from malnourishment. LOMBRIABONO has the potential to close the unfair gap that has been created in food consumption encouraged by the differences in salaries and the price of the basket of goods.

3.2. Mission

LOMBRIBONO is an organization dedicated to bridging the food gap in Nicaraguan families while promoting recycling of food waste.

3.3. Vision

Start a recycling revolution in Nicaragua that will not only clean the environment, but will provide food to thousands of underprivileged Nicaraguan families. Have the LOMBRIBONO name represent a cultural change in Nicaragua where it is possible to make a business and help others at the same time; starting a social revolution in the process.

3.4. Objectives

3.4.1. General

- ✓ Introducing Nicaraguans to vermicomposting, assuring products of excellent quality meeting all the standards and nutrient content of a top fertilizer.
- ✓ Make a big impact not only in the way Nicaraguans view recycling, but how they view social enterprises.
- ✓ Alleviate those whose salaries are not enough to support their family's consumption needs.

3.4.2. Specific

- ✓ Be the number one brand of organic fertilizer in the country by the end of the third year.
- ✓ Have four farms running vermicomposting centers by the end of the first year.
- ✓ Start shipping to other Central American countries before the end of the fifth year.
- ✓ Place LOMBRIBONO with the largest distributor of agriculture products in Nicaragua, DISAGRO as well as supermarket chains La Colonia, La Union, and Pali.

3.5. Key Success Factors

Trained personal: It is important to train our personnel on the proper procedures of vermicomposting. It also important for them to know how to test for quality and pest control. Vermicomposting is a simple process, but it still requires some care when it comes to the amount of moisture in the food waste pile and making sure the red worms have enough to eat.

Focus on quality: LOMBRIBONO will have the best quality in regards to local fertilizer with higher Nitrate Nitrogen, Phosphorous and Potassium levels, all vital for plant growth and provided by the decomposition of food waste by the red worms.

Support from the masses: We will depend on support from the agriculture sector that will produce the vermicast, as well as support from the markets that will be in charge of collecting the waste and paying the depositors in crops. We will also count on the support from the population who will provide their food waste to the markets in exchange for food.

Logistics and Distribution: It is important to optimize the resources to ensure that the product and the food waste is transported as cost efficiently as possible. It is also key to have to product as available to the customers as possible, having it in various points of sale.

Branding: Probably the most important key success factor. The proper branding will ensure the support that we need from our key partners as well as the image that we hope to attain in Nicaraguans as one of the few social brands in the country.

3.6. Brand and Product Overview

The name LOMBRIBONO was chosen as a portmanteau of Lombriz and abono. “Lombriz” means worm and “abono” means fertilizer in Spanish. The idea was to keep the name simple enough for people to associate it quickly with our product and our movement. By using the Spanish name for worm, we hope to create a curiosity from customers towards our product. The simple name was chosen as well with the hopes if it being easy to memorize, which in turn will help people remember the brand as well as the social motivation behind it.

LOMBRIBONO will sell three products: vermicomposting, vermicomposting tea, and red worms. All of them are results of the process of composting done by the feeding of red worms

on food waste. The vermicomposting will be sold in two different packages, a 5kg bag for recreational gardeners and 50kg bag for larger projects and farms. Both the 5kg and 50kg packages will be made of paper instead of the typical plastic to keep with the recycling theme. The vermicomposting tea will be sold in plastic 1 gallon containers and the worms will be sold by the kilogram in Styrofoam containers.

3.7. Logo

The logo was made with the objective to represent the industry (agriculture) as well as the differentiation of our product, which is the use of red worms to produce organic fertilizer. The colors also represent organic as well as growth. The slogan is “Abono organico socialmente responsable,” which translates to “Socially responsible organic fertilizer.”



Figure 2: Lombriabono Logo

3.8. Process of Vermicomposting

Vermicomposting is the process by which red worms feed on food waste and produce organic fertilizer of premium quality once it is secreted as feces. In the process, vermicomposting is produced as well as vermicomposting tea, which is the liquid that is secreted. The food waste that is selected must meet certain requirements. Vermicomposting can also be done from animal dung, but it must first go through a normal process of composting before it can be used as feed for the red worms.

The red worms weigh approximately a gram and need that same amount of food to survive. The red worm consumes about 40-60% of the food for its own energy and the remaining is excreted as vermicomposting. The vermicomposting tea results from keeping the concentration at an 80% moisture. If the water that comes out of the mix is still clear, it is

placed in the mix again until it comes out dark. When the vermicomposting tea has achieved the right color, the substance is placed in barrels and left there for 1-3 months.

When the stalls are full of vermicomposting, we stop adding food to the pile for a few days. This is done for two reasons, first to make sure that the red worms eat the food that is already there and not the new waste that is being added and two, to make sure that when the separation process starts, the worms will head to the new pile of waste. The separation process is how we separate the worms from the already processed vermicomposting. To do this, a space is created in the middle of the pile and fresh waste is added, to which the worms will all migrate to the middle, leaving the already processed vermicomposting almost worm free and ready to be collected.

The red worms reproduce at accelerated rates, doubling in population every 3 months. As long as they are properly taken care of, the life span of a worm can be up to 5 years.

The advantages of vermicomposting are macro and micro nutrients added by the worm's digestion system, as well as the saliva, which helps keep moisture in plants.

3.9. Waste for Food Program

Not only are our products organic, beneficial for soil and crops, and of high nutrient content, but thanks to the waste for food program we will be able to bridge the hunger gap in Nicaragua. People of the cities of Carazo will be able to deposit their food waste in our collection centers in the cities' markets and will in exchange receive credit with those markets for food.

With the waste for food program we are cleaning the environment and feeding underprivileged families who have a hard time putting food on their tables.

4. Business Model

4.1. Value Proposition

LOMBRIBONO looks to provide quality organic fertilizer recycling food wastes from households and in turn providing food as form of payment to the households for their contribution.

4.1.1. Social Value Proposition

LOMBRIBONO looks to promote the recycling of food waste as well as bridging the hunger and malnutrition gap that exists in the country. We also look to produce organic fertilizer, which is better for the soil and the crops, increasing the overall health of the population.

4.1.2. Impact Measures

- ✓ Amount of food waste recycled per month.
- ✓ Number of households participating in the recycling and receiving food.
- ✓ Amount of food handed out monthly by our program.

4.1.3. Customer Value Proposition

LOMBRIBONO will provide the best organic fertilizer in Nicaragua thanks to the help of the added value that worm processing on food wastes has. In turn, using our products the farmer or gardener will be improving the quality of his soil and crops by using fertilizers that are not harmful to them. As well as the quality of the product, the customers will rest assure knowing that their purchase will help feed thousands of households in the nation as well as promote the recycling of food waste.

4.2. Customer Segments

4.2.1. Customers

- ✓ **Small farms:** In many states you can find small farms commonly known as “quintas.” These “quintas” range from an acre up to a couple dozens of acres and they specialize in fruits and vegetables or raising small animals such as goats, chickens and pigs.
- ✓ **Recreational gardeners:** The adult that wishes to keep his or her garden tidy with organic products that maximize plant growth while helping the community.

- ✓ **Large farms:** Nicaragua relies on agriculture and has a lot of different types of large farms that use fertilizer. Some examples are cattle farms in the south and central regions, coffee farms in the north, sugar cane and rice farms in the west region, etc.
- ✓ **Large corporations in the agriculture sector:** Corporations like AGRICORP and Compañía Licorera de Nicaragua, SA sow, reap, process, package and sell rice and rum, which uses fertilizer to optimize their crops.
- ✓ **Fishermen:** These will be our main clients for the excess red worms from reproduction.
- ✓ **Owners of pet stores and bird farms:** They will be our secondary purchasers of the excess red worms.

4.2.2. Beneficiaries

- ✓ **Underprivileged households:** Underprivileged households will be able to exchange their food waste for food.
- ✓ **Restaurants and supermarkets:** Restaurants and supermarkets will also have the option to deposit their excess food waste in one of recollection centers. Waste management is an issue in Nicaragua.

4.3. Channels

- ✓ **Supermarket chains:** Various supermarket chains all across the country. These include La Union, La Colonia, Pali, and Pricemart.
- ✓ **Small agriculture shops:** Various hardware and agriculture shops across the country.
- ✓ **Large agriculture shops:** This will be another access point for large agriculturist who wish to buy our product in larger quantities. An example would be DISAGRO.
- ✓ **Vermicomposting centers:** Customers can purchase directly are at our centers for larger quantities.
- ✓ **Pet shops and bait shops:** the red worms will be purchasable at these locations.

4.4. Revenue Streams

Our three sources of revenue will be from the LOMBRIABONO fertilizer, the vermicomposting tea, and from the excess red worms that are reproduced in the vermicomposting centers.

4.5. Key Partners

The first partner in the social enterprise is CAÑAS BLANCAS, a 10 acre fruit farm located 5 km from Jinotepe, the capital of Carazo. The owner Maria Lydia Medina has agreed to start the first vermicomposting center here.

We will also require assistance from the markets near cities as they will be responsible for recollecting the food waste as well as distributing food to those participating households who provide their food waste. We will also need to create a partnership with underprivileged households who desire to receive food in exchange for their food waste. They are the most essential partner of ours.

Another one of our important partners will be the supermarkets, restaurants and malls that have excess food and wish to donate it to our enterprise.

4.6. Key Activities

- ✓ **Personnel training:** Training will be implemented in the vermicomposting farms in order to ensure the best quality product and optimization of resources.
- ✓ **Inventory management:** It is important to have proper control of the vermicomposting that is being produced at the vermicomposting centers as well as control on the food waste that is being received from each household at the recollection centers (markets).
- ✓ **Distribution:** Manage the best and most effective way to get the food waste to the vermicomposting centers as well as getting the final product out to our different points of sale.
- ✓ **Quality control:** Ensure that the vermicomposting is of greatest quality, controlling the PH and moisture levels as well as testing samples to determine the amount of nutrients in the batch.

4.7. Key Resources

- ✓ **Physical resources:** The physical resources will be all the equipment and infrastructure we will need at our food waste recollection centers and our vermicomposting farms. These include: roofed stalls where the vermicomposting will take place, the red worms, tools to sort the worms and trash and collection bins in the markets.

- ✓ **Intellectual resources:** The know-how on the process of vermicomposting that has been obtained via research for my Hult Prize project as well as consultations with Mr. Huang, an owner of a vermicomposting farm in Tainan, Taiwan. Will also work with experts in the field of fertilizer and farming in Nicaragua.
- ✓ **Human resources:** This is the most important asset of the company and includes the underprivileged homes that will provide their food waste, the market owners that will participate in the collection of food waste and distribution of food, and the farmers that will provide their land for vermicomposting as well as the employees that will manage the vermicomposting stalls and packaging.

4.8. Cost Structure

The cost structure is a mix between value-driven and cost-driven. The idea is not to sacrifice quality of the final product, vermicomposting, while still finding the best and most cost-efficient ways to operate the company. The cost structure can be divided into variable and fixed costs, with costs being incurred in both the recollection centers and the vermicomposting farms.

- ✓ **Variable costs:** Includes feed (food waste), bedding, labor to feed, harvest labor, packaging, advertising, cost to operate the system (electricity and water), others.
- ✓ **Fixed costs:** Includes the food waste collection bins in the markets, the materials to build the stalls at the farms and the initial investment of red worms.

4.9. Surplus

The surplus that remains after all costs are accounted for will be reinvested to ensure growth in the enterprise. This translates to starting new operations in different markets and different farms with hopes of reaching more underprivileged households with our program. This will also be reinvested in the form of marketing expenditures and contacting big corporations who will want to join the LOMBRIABONO movement.

4.10. Type of Intervention

LOMBRIABONO intervenes in two ways: the first by transforming food waste into vermicomposting, an organic fertilizer with high concentration of valuable nutrients, the

second by providing food vouchers as payment to the households that deposit their food waste in our collection bins in their local markets.



5. Marketing Plan

5.1. Market/Competitor Analysis

5.1.1. Market Description

According to FAO, a fertilizer is a simple or formulated, organic or synthetic product that when applied to soil or land it provides plants with the vital nutrients that they need to grow (acodeco, 2015). With this definition, we look at the agriculture sector as our main market for our product.

Despite the rise in other sectors such as tourism, agriculture is still accountable for 31% of the labor force in Nicaragua, with coffee, beef, banana, tobacco and sugar being the strongest industries in the agriculture sector (Central Intelligence Agency, 2015). Agriculture represents an estimate of 19% of the country's GDP (acodeco, 2015). Nicaragua as well has shown great potential in the crop index, where the current production is compared with the 2004-2006 period. For the year 2013 the crop index in comparison to 2004-2006 was at 140% (El banco mundial, 2015). The index of animal production as well shows increases in regards to the same period. In 2013 it was 130% in comparison to 2004-2006 (El banco mundial, 2015). The index of food production shows promising numbers as well with a position of 141.2% in comparison to the 2004-2006 period (El banco mundial, 2015).

Despite the importance that agriculture has in the national gross product, it is only until recently that the Nicaraguan farmers have realized the importance of fertilizers. Nicaragua has shown a growth towards the usage of fertilizer to better crop production. Information from the World Bank, shows that in 2010, 34.7 kg were used on average per acre of cultivatable land. That number has risen to 53.7 kg in 2012 (El banco mundial, 2015). This response comes at the hands of competition from imported goods which are cultivated with higher technology, which helps improve their costs. At times, the national product cannot compete with imported goods (acodeco, 2015). From the period of 2003-2008, on a yearly average, the chemical fertilizer market in Nicaragua alone was estimated at US\$58,563,780 with a consumption of 61,482 tons of it (acodeco, 2015).

These indicators along with the fact that 42.1% of the land is designated to agriculture (El banco mundial, 2015), support the claim for the growth of the fertilizer market over the coming years. At the moment, there isn't much use of organic fertilizers in the market when compared to chemical fertilizers, but organic fertilizers have shown to be taking over a larger portion of the market share, further emphasized with the notion that inorganic fertilizers are hazardous in the long run.

It is also worth mentioning that we would move our product across Central America in a later stage. In 2010, it was estimated that Guatemala imported over 600,000 tons of chemical fertilizer, El Salvador 289,756 tons, Honduras 169,808 tons, Nicaragua 148,466 tons, Costa Rica 373,001 tons, and Panama 136,438 tons (acodeco, 2015).

In Central America DISAGRO is the strongest player for chemical fertilizers. Along with FERTICA who has the second largest share, together they command 62% of the market share for chemical fertilizers (acodeco, 2015).

In Nicaragua, the chemical fertilizer industry resembles a monopoly. It is classified as so due to the concentrations of presence and establishments and economies of scale. DISAGRO is accountable for 74% of the market share of chemical fertilizers (acodeco, 2015). The remaining market share is divided amongst three other companies AGRO ALFA, RAMAC and ALABLINISA, the latter belonging to the government (acodeco, 2015). In order for AGRO ALFA and RAMAC to import their products, they need to have access to DISAGRO's brokerage, which means that DISAGRO purchases the products for them and resells it at whatever price it chooses to. Needless to say, the market growth of competitors is subject to a specific quota, determined by DISAGRO. ALBALINISA has only imported urea from the Venezuelan government and is only a competitor in that product (acodeco, 2015). ALBALINISA has tried to stabilize the prices, but its efforts haven't had much impact as they are subject to donations from the Venezuelan government.

Regarding organic fertilizer, data about the market is very limited with the small data coming from farms that produce their own organic fertilizer at a local level. The two main farms that do vermicomposting are EBENEZER and LA GARNACHA. For the rest of the document we

will focus mostly on these two as competition as our initial target is to be the leader of organic fertilizer in the country.

5.1.2. Target Market

LOMBRIBONO's initial target market will be farmers who are currently using organic fertilizer in their farms in the state of Carazo. However, we do estimate to have sales as well from those farmers that are currently using chemical fertilizers, but are becoming more aware of the benefits of using vermicomposting on their crops as well as their soil. A secondary target market will be the households that wish to garden with our products. We will also target the poultry and fishing industry as possible purchasers of our red worms.

One of the reasons we are focusing on Carazo is that our first vermicomposting center CAÑAS BLANCAS, is located in El Rosario, a municipality of Carazo. Carazo is a state located close to the capital Managua, approximately a forty five minute car drive, and is bordered by Masaya and Granada, some of the most important and busiest states of Nicaragua.

Carazo has a total area 1081.40km², responsible for 0.8% of the nation's total land. It has a population of 166,073 habitants, 102,522 of them living in urban areas and 63,551 in rural areas. Carazo is made up of 8 municipalities (San Marcos, Diriamba, Dolores, Jinotepe, El Rosario, La Paz de Carazo, and Santa Teresa). Out of all 8, San Marcos, Diriamba, Dolores, and Jinotepe are the most populated (MAGFOR, 2015). According to surveys, 48% of Carazo's total area is designated to agriculture (MAGFOR, 2015). Most of it being used for sugar, rice, corn, beans, livestock raising, fruits and coffee. Despite Carazo only being 0.8% of the national territory, it represents 2.91% of all the farms nationwide (7,959 farms) (MAGFOR, 2015). It is also worth mentioning that 88.53% of the farmers own small farms ranging from 0.86 to 35 acres (MAGFOR, 2015). The total land currently used for agriculture is approximately 206,491.16 acres (MAGFOR, 2015).

In regard to fertilizer, 542 of the cattle farms that undergo raising crops as well use fertilizer. This is equivalent to 6.11% of the nation's total. Of the total farms dedicated solely to agriculture, 3122 use fertilizers (equivalent to 3.35% of the nation's total) and 918 use organic

fertilizer (equivalent to 5.14% of the nation's total) (MAGFOR, 2015). It is estimated that in Carazo 23,816 acres of land use organic fertilizer and 78,050 acres use chemical fertilizers.

If we use the national average of 34.7 kg of fertilizer used per acre per year, we estimate that in Carazo 826,415 kg of organic fertilizer and 2,708,335 kg of chemical fertilizer is used a year. We believe that by the end of the fifth year we will be able to have attained a 50% of the market share for organic fertilizer and a 10% for chemical fertilizer in the state of Carazo. This gives us a target market of 19,713 acres in the state of Carazo alone.

5.1.3. Competitor Analysis

In an initial stage during our growth we would compete against small farms EBENEZER and LA GARNACHA. These two are the only sellers of vermicomposting in Nicaragua.

EBENEZER is located in Niquinomo, Masaya. It operates in 11.9 acres and produces vermicomposting from the same waste it produces within the farm. It reuses the vermicomposting in its own crop production and any excess vermicomposting left is sold to nearby farms. EBENEZER is focused on sustainability and offers housing overnight at affordable prices to anyone who wishes to learn more about their procedures and operations. They have productions of roughly of 9,000 kg a month (Núñez, 2012).

LA GARNACHA is located in Esteli, approximately 140 km from Managua, the capital. It too is similar to EBENEZER in the sense that it provides sustainable agriculture with the use of vermicomposting. The vermicomposting that is produced is used within the farm and sold to nearby farmers. LA GARNACHA constitutes more of a community as it lies on 22,000 acres of land and has a cheese factory as well within its land (Vianica, n.d.). Production of vermicomposting is small barely surpassing the 100 kg a month.

5.1.4. Competitive Advantage

The biggest competitive advantage of LOMBRIABONO is our involvement of the community. Unlike LA GARNACHA and EBENEZER who involve and benefit few farmers surrounding them, we will include the markets in the urban areas as well as the population of these said urban areas.

Another competitive advantage we have is that we plan on starting different vermicomposting centers across many areas of Carazo and later other states. This will spread the practice of vermicomposting, which is beneficial to the soil, across various farms in Nicaragua. Following our business model, in turn we also benefit various populations of different cities who will join the handing in food waste in exchange for food.

Our location compared with LA GARNACHA is much better. LA GARNACHA is located 9 km on a dirt road from Esteli, which in turn is 140 km away from the capital. LOMBRIABONO is located 5 km from Jinotepe, which is the capital of Carazo and is 10 km from Diriamba, 16 km from Masatepe, 13 km from Santa Teresa and 45 km from the capital of Nicaragua, Managua. It is also 24 km from Masaya and 41 km away from Granada.

Our location compared with EBENEZER is still favorable despite EBENEZER being close to the capital as well 43 km, 10 km from Masaya and 24 km from Granada. LOMBRIABONO is centrally located in Carazo, one of the most fertile lands in Nicaragua and one of the states that shows the highest usage of organic fertilizer (MAGFOR, 2015). Carazo also has higher density population than Masaya (MAGFOR, 2015).

Another competitive advantage lies on the impact of recycling that LOMBRIABONO will present to these cities. Waste management is a big issue in Nicaragua and incorporating proper food waste management to produce organic fertilizer will alleviate some of the necessary pressure that waste has on the environment. Our impact will not only reach farms, but will have a direct effect on urban populations as well.

Yet another advantage that LOMBRIABONO has over the competition is the waste for food program, which will help promote recycling and feed families. EBENEZER and LA GARNACHA do not have anything similar to this.

A factor that LOMBRIABONO can take advantage of is the fact that both EBENEZER and LOMBRIABONO have not done proper marketing and branding. Very few people know about their great efforts and even the product that they sell has no official name other than “Lombrihumus,” which translates to vermicomposting.

5.1.5. Positioning Map

The positioning Map will be based on the attributes that are the strongest competitive advantages for LOMBRIABONO in regards to LA GARNACHA and EBENEZER. These attributes are the ones that will be responsible for our quick expansion.

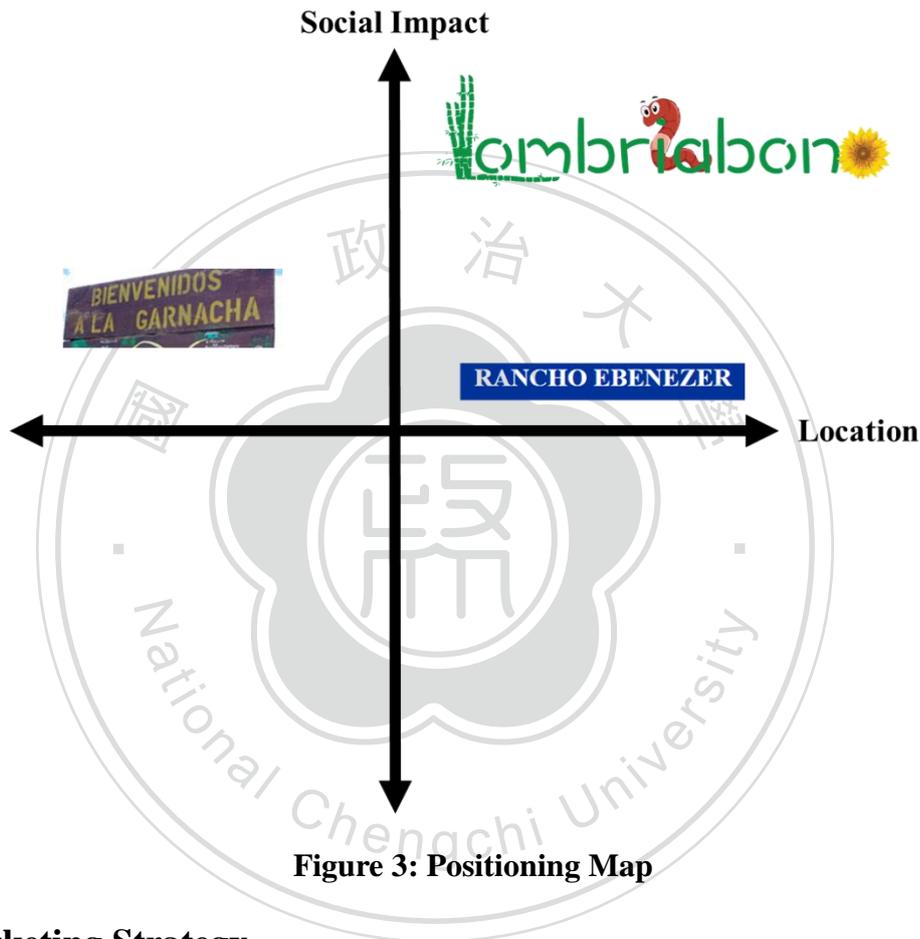


Figure 3: Positioning Map

5.2. Marketing Strategy

5.2.1. Product

LOMBRIABONO will offer Grade A vermicomposting in packages of 5kg and 50kg as the main product. Samples of the product will be taken periodically to a laboratory ensuring that it has 2-3% nitrogen, 1.85%-2.25% potassium and 1.55-2.25% as well as the necessary micronutrients and microbes that make vermicomposting such a great organic fertilizer (Am-Euras).

The packaging of our product will also promote recyclability. Both the 5kg and 50kg bags will be paper which in turn promotes recycling as it itself can be used as material to feed the red worms.

The image that we want the product and packaging to express is that of recyclability, equity, and organic. The packaging is paper and the logo has red and green, green associated with recycling and organic and red with the actual red worms themselves.

Our product is innovative because it represents a change to organic agriculture, promoting sustainability of our lands and soil as well as improving the quality of our crops.

Our second product is vermicomposting tea, which is the residue in liquid form that is left from the vermicomposting process. This will be sold by the gallon in plastic bottles and it is mixed with water and applied on plants as fertilizer.

Our last product, is the excess worms that are produced due to the high rate of reproduction of red worms. This product will be sold to the different sectors particularly fishing and aviculture. The red worms will be sold in cardboard containers to ensure that they survive the shipping process.

5.2.2. Pricing

The three products: vermicomposting, vermicomposting tea, and red worms, will be sold at market value. The average price for vermicomposting is estimated at 200 Córdoba (USD\$7.66) for 50kg (Núñez, 2012). The 5kg bag will be sold at USD\$2. The gallon of vermicomposting tea is sold for 266 Córdoba (USD\$10.18) (Núñez, 2012). The average price of red worms is estimated at USD\$22 per kilogram (3 (Núñez, 2012).

5.2.3. Placement

LOMBRIABONO products will be easily accessible thanks to the use of intensive distribution, which will ensure that our customers have the option to purchase our product at various outlets. LOMBRIABONO's vermicomposting and vermicomposting tea will be stocked at groceries stores, small independent agriculture stores, and with large distributor DISAGRO. LOMBRIABONO's red worms will be available for purchase at pet stores, bait shops and

veterinaries. To place our products in the different outlets at first we will count on third party agreements and later we will invest in our own delivery trucks.

Apart from intensive distribution, customers will also be able to purchase the products directly at the vermicomposting centers. This option will be more convenient for those farmers who are close to the vermicomposting centers.

5.2.4. Promotion

The idea is to stress the impact of the product in terms of recycling and value to families who join the waste for food program as well as the added nutritional value that vermicomposting presents to crops and the soil. We plan on getting the LOMBRIABONO name out there by the use of advertising, public relations, personal selling, and sales promotion.

We will use various media for advertising, relying heavily on social media as well as traditional media such as television ads, radio ads, static ads (such as billboards) and newspaper ads. We consider social media a powerful tool for marketing, but we will also rely heavily on traditional media as social media in Nicaragua is in a developing stage. The last study done in 2005 determined that the amount of households with either televisions (680,426) or radios (674,174) heavily outnumbered those with PCs (39,596) (Zuniga, 2013). However, it has been estimated that in 2011 the number of households with at least a PC went up to 95,130 (Zuniga, 2013), showing a nearly 300% increase from 2005. Combined with our customers (farmers) being more likely to see our ads in newspapers, televisions, and radio as internet is not available in the majority of rural areas, we will use traditional media more heavily. Radio ads will be one of the means most frequently used as it is cheaper and extends the furthest across the whole country (42). We will also use the three biggest newspapers in the country La Prensa, Nuevo Diario, and Hoy to inform people about what LOMBRIABONO is doing.

Regarding Social Media, we will have a Facebook page as well as an Instagram account. As mentioned before social media is developing in Nicaragua at an astonishing rate. According to a study done in June 2011, 32% of radio stations, 14% of tv stations, and 10% of newspapers had online presence (Zuniga, 2013). These numbers are sure to keep growing. Social media

will also play an important role in getting our word out internationally in hopes of not only inspiring other countries to do the same, but bringing partners and benefactors for future expansion. The type of advertisement that will be used in Social Media will target consumers in the 18-34 age range as it represents 80.5% of all males and 92.6% of all females in Nicaragua that are online (Ortega, 2014). We will also advertise via email as 89.7% of users get online for this purpose, close to the 92.1% that get online to browse social media (Ortega, 2014).

Another one of our efforts will be targeted at establishing a working relationship with the government and large corporations who are looking to increase their corporate social responsibility. The Sandinista government has shown tendencies to be pro movements that benefit the less privileged and we will use that to our advantage. Large companies such as Casa Pellas, Grupo Coen, and Don Pan have also shown a tendency towards more corporate social responsibility. It is calculated that in 2012, USD\$600,000,000 were designated for CSR in Nicaragua (Guerrero, 2015).

Regarding promotions, discounts will be given to large purchases and contract buys will be available to farmers who wish to use on a yearly basis. The 50kg bag of vermicomposting presents a large discount from the 5kg individual bag. We will also use social media shares as a form of promotion. Any customer who shares one of our online ads will receive a 10% discount on their purchase of any of our products.

Last but not least, we will use efficient customer service and free consultations to our customers as a way to build our brand. The customers will have support from us even after their purchase.

6. Strategic Plan

6.1. External Analysis (Opportunities and Threats)

One of the major Opportunities that LOMBRIABONO wants to cease is the growth for environmental consciousness. Most countries, Nicaragua included, are aware of the catastrophes that are happening worldwide due to companies disregarding environmental issues and bypassing proper procedures to earn a quick buck. We wish to remind people about the dangers of chemical fertilizers and stress the advantages that our products will have regarding soil, crops, and overall health to farmers and consumers alike.

Another opportunity that we wish to work on is the increase for corporate social responsibility. In 2012 it was calculated that \$600 million dollars was invested in the form of CSR in Nicaragua, more than any other year (Guerrero, 2015).

We also wish to capitalize on the growth of social media in Nicaragua. We believe that marketing via this mean will increase our exposure to the population. Increasing the demand for our product as well as influencing others towards a cultural change that will ignite the fire for a better Nicaragua.

Last but not least, we are aware that the rising price off the cost of living is an opportunity for LOMBRIABONO. The harder it is for families to cover their basic needs, the more likely they are to recycle and join the waste for food program.

Such as we are aware of the opportunities that can arise, we are also aware of the threats. One of our biggest threats comes from the form of competitors. It doesn't require much of an initial investment to start our business, meaning that it is easily replicable. However, we hope to have the government backing us to counteract this effect. Another threat that we foresee is people starting to do vermicomposting on their own instead of purchasing our products. However, if that happens we will still make profit from selling the red worms and we would modify our operations accordingly. Last, but not least we see a possible threat in the form of the population refusing to participate in the waste for food program.

6.1.1. Porter's Five Forces Analysis

Risk of entry by potential competitors (3/5) – Due to the nature of the industry in the beginning the risk is elevated, but it is still not significant because of capital requirements, land requirements, and switching costs, all of which are relatively medium to high. However, once established we believe that our brand equity and differentiation will mark the difference. LOMBRIABONO is a social enterprise like no other in Nicaragua and that should guarantee customer loyalty once the brand name is popular. We also believe that distribution is key as the penetration of our products in various points of sales will diminish the risk of entry by potential competitors.

Due to the nature of the industry, economies of scale will further guarantee our position as the leading vermicomposters. We will enjoy economies of scale with the amount of people joining the waste for food program as well as from the distribution networks and from producing larger quantities of product.

Last but not least, governmental support will further our lead as the dominant producer of vermicomposting in the nation.

Substitute products (4/5) – This is the force that we must be most careful about in this industry, starting with the buyer's propensity to substitute. Most buyers are not informed about the benefits of vermicomposting and organic agriculture and further more are not informed about the long term effects that chemical fertilizers have the soil, crops, and ultimately health of a population. Our task will be to remind the buyer of the benefits of organic agriculture and the benefits of vermicomposting, such as its high nutrient content, its ease and safe use, and the added benefit that it is providing to the community thanks to the waste for food program. Another way that we will fight the buyer's propensity to substitute is by keeping the prices of our products competitive and close to what the market determines is what people are willing to pay for them. We do not plan on charging a premium, at least not before the name brand is established and we can determine that we can charge a little more.

We also need to take into consideration the number of substitutes available in the market, starting with other forms of organic fertilizer and ending with chemical fertilizers. Other types

of organic fertilizers include bokashi compost, compost, and gallinaza (hen droppings). Here is where differentiation and quality will be key. We hope to not only differentiate with the actual product itself, generating vermicomposting of great quality and ensuring consistency, but also with the mission to feed families. We want to stand out as a product that isn't just making profit, but returning some of the profit back to the communities.

Unfortunately and fortunately in this industry the switching costs are very low. Unfortunately, because it means that our customers can switch without much hassle, fortunate for us however, is that we can easily convert users of other fertilizers into our customers reminding them of the advantages that our product and our program will bring to Nicaragua.

Bargaining power of buyers (3/5) – The bargaining power of buyers is a medium force because although there are many existing substitutes, there are other measures that are to our advantage. For example, the concentration ratio is at our favor with only three suppliers of vermicomposting in all of Nicaragua the competition for this specific product is limited. We also plan on minimizing the dependency of existing channels of distribution by placing our product in many different points of sales and having the option to distribute the product ourselves independent of any distributor. Another advantage is that we have low fixed costs and high variable costs meaning that we can choose to diminish the output of vermicomposting if the buyers wish to force the prices down. Lastly we would want to counteract any measures by creating customer loyalty by giving discounts for purchasing large quantities.

Power of suppliers (1/5) – This is the weakest force to our business. Our only supplies are water and waste, which both are found in abundance in Nicaragua. We are certain that we will have no issue coming across people who would want to join the food for waste program as well as companies who have problems dealing with food waste management and would like us to take care of that for them.

Rivalry among established companies (2/5) – This factor is of medium threat. The competition in the organic fertilizer industry is weak and even more so in the vermicomposting business with only one other local competitor (EBENEZER) and one other

national competitor (LA GARNACHA), both producing small quantities of the product. We plan on excelling in this area by taking advantage of marketing and the masses for food waste and production of vermicomposting. The competition in the chemical fertilizer industry is higher with major player DISAGRO as the main competitor, but at an initial stage they are not our focus. Besides marketing and the masses, we will innovate to ensure that our message, our impact and our product keeps growing to meet the demands of our people.

6.2. Industry Life-Cycle Analysis

Vermicomposting as a product and a process finds itself in embryonic stage in Nicaragua. We expect to take the necessary steps to make sure that we provide the necessary exposure for a healthy life-cycle.

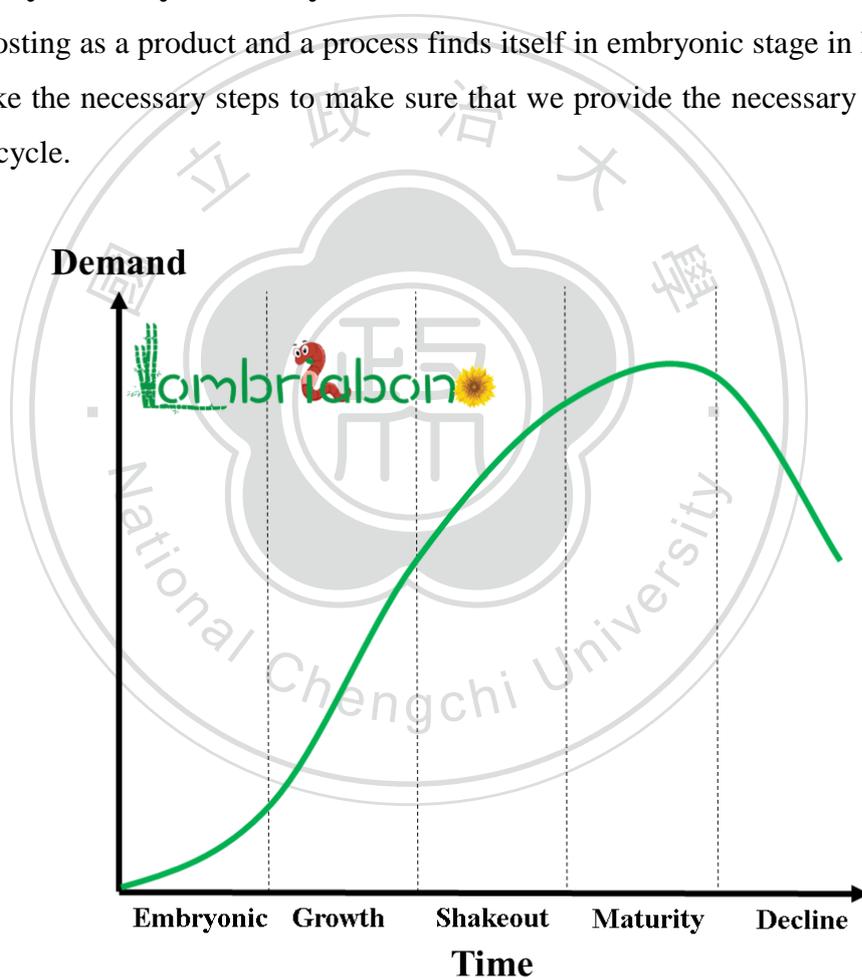


Figure 4: Industry-Life Cycle

6.3. Internal Analysis (Competencies and Competitive Advantage)

The main competencies that LOMBRIABONO relies on are the know-how of vermiculture that has been attained during my last year of my MBA in Taiwan as well as counting on the consultations of Mr. Huang who owns a vermicomposting business in Tainan, Taiwan. I also

have experience in the agriculture industry in Nicaragua working over 4 years as Operations Manager in a cattle farm in central Nicaragua. For competitive advantages please see 6.1.4 Competitive Advantage.

6.4. SWOT

The SWOT map represents the information mentioned in the internal and external analysis. For more information read sections 6-1 external analysis and 6-3 Internal Analysis.

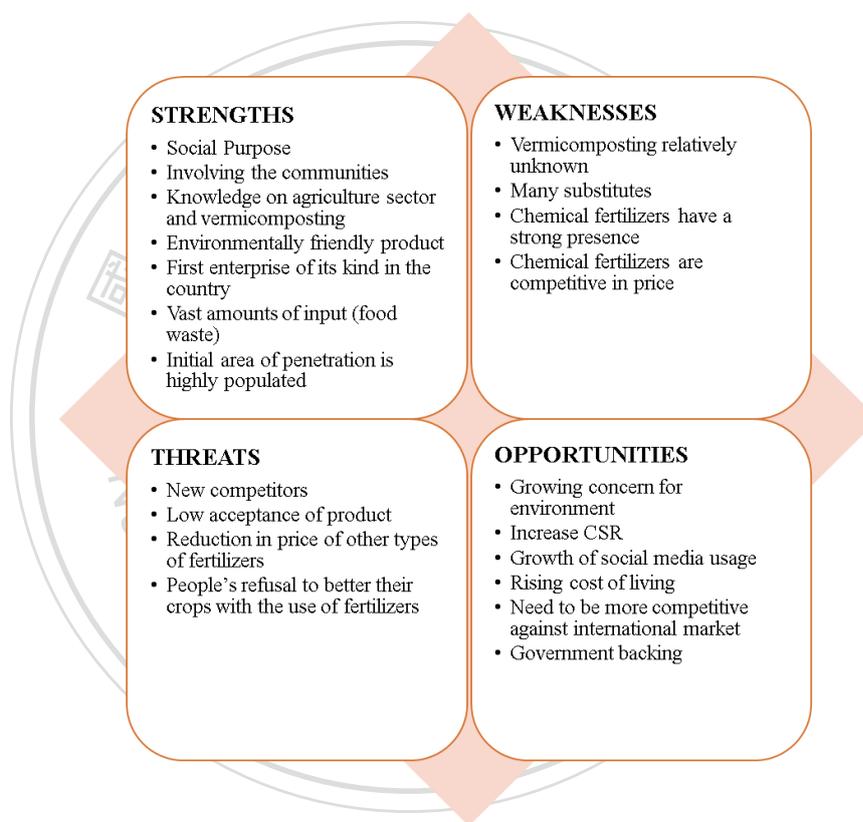


Figure 5: Lombriabono SWOT Analysis

6.5. Business Level Strategy

At the growth stage we must strengthen our business model. This means getting the right partnerships and establishing the means to grow. Our first step will be to run the waste for food program in Jinotepe, the closest city to our first vermicomposting center. We would also start communications with supermarkets, small shops and large distributors to place our products. After we have successfully implemented the program in Jinotepe, we will head to the other cities nearby such as Diriamba, Masatepe and Santa Teresa.

Needless to say marketing and advertising will be a constant task. We plan on getting exposure through traditional media and social media management. We believe getting the word out not so much as a product but more as a social movement is key to differentiate us from the competition. We also need to inform people on the benefits of organic agriculture.

Another key strategy is to present our project to the government. The current government has been known to support projects with social benefits and we believe that with an ongoing successful business model we will get their support and this will help our expansion tenfold.



7. Conclusion

The time is now for a project of this nature. Nicaraguans suffer from a food deficit being the poorest country in Central America and the second poorest in the western hemisphere. The country also suffers from poor waste management and signs of a recycling culture are nowhere to be found. To top it off, practices on soil and crops are subpar with the use of chemical fertilizers or no fertilizer at all. This in turn limits our chances of competing with international markets as well as the slow deterioration of our soils and general health with chemical infected crops.

The time to introduce vermicomposting and its products is now as people are showing more concerns for their health and are taking notice of the benefits of going green and organic. Our product meets these new needs that are arising in the Nicaraguan culture and our waste for food program will also meet the increased demand for social responsibility being seen all across the nation.

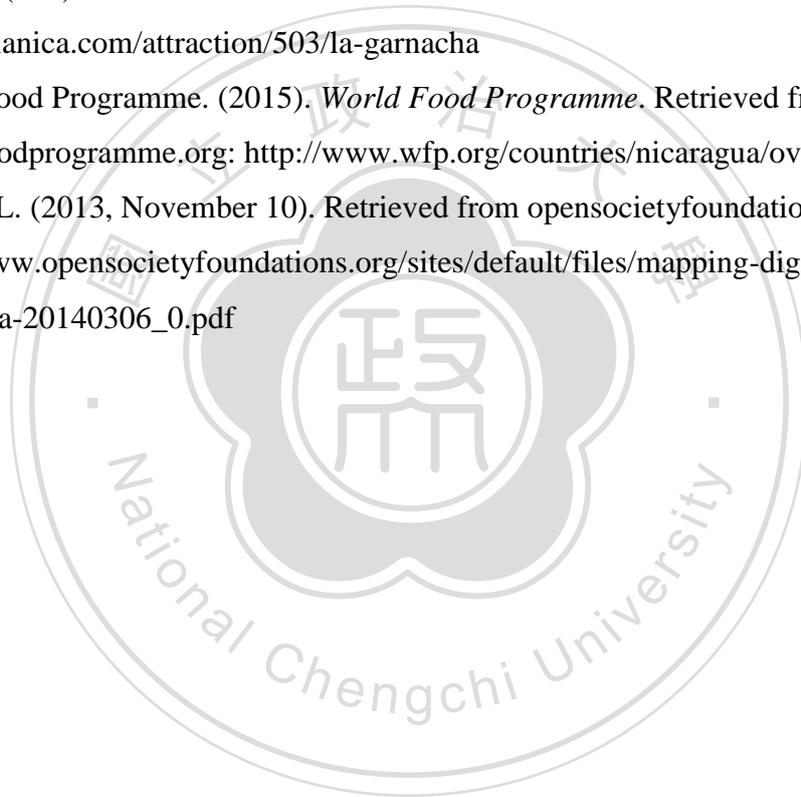
With an aggressive marketing plan and the support of the community, LOMBRIABONO will be the first enterprise of its kind, paving the way for the much needed future social enterprises that are sure to come after us.

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Appendix

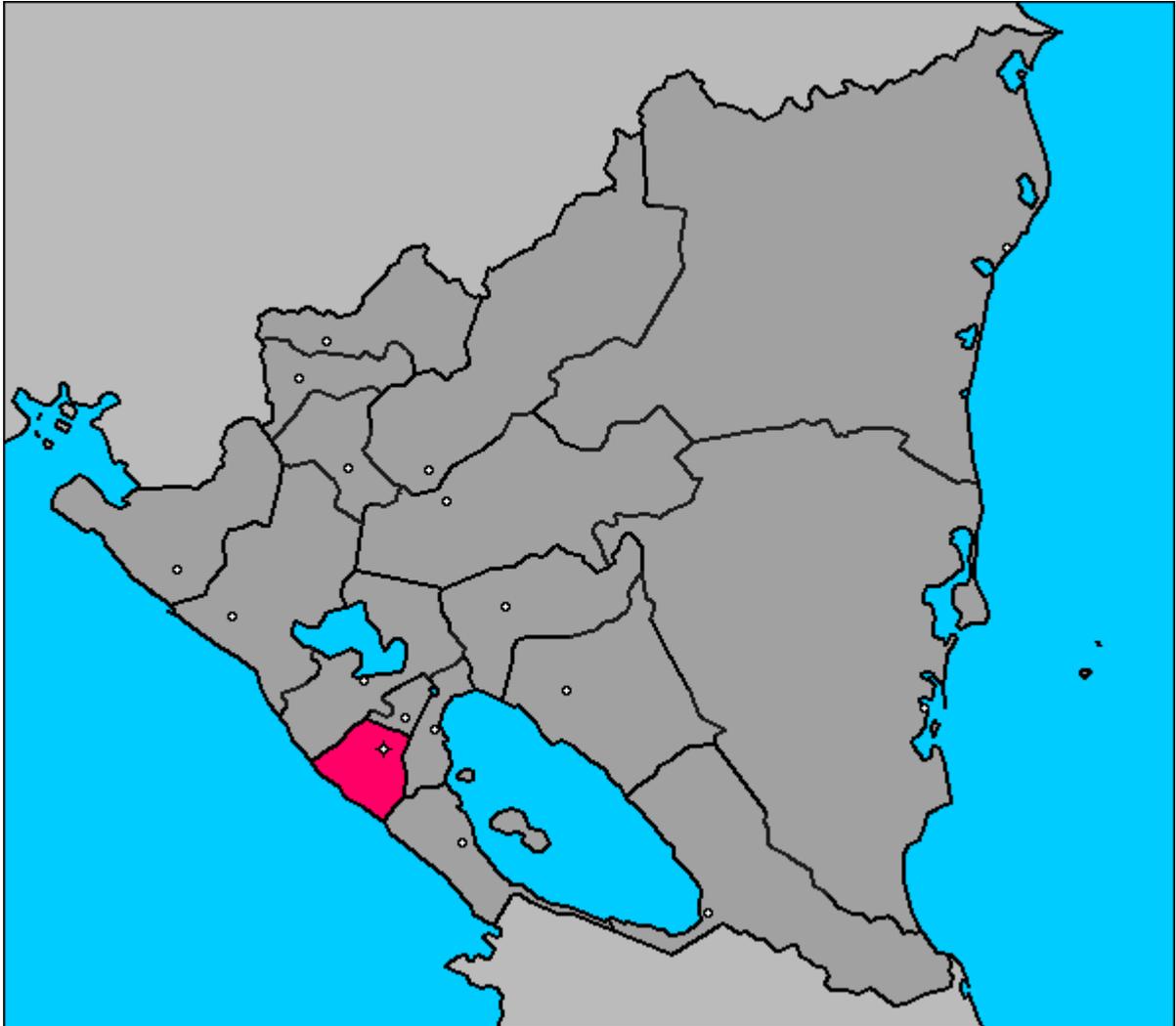


Figure 6: Carazo's Location

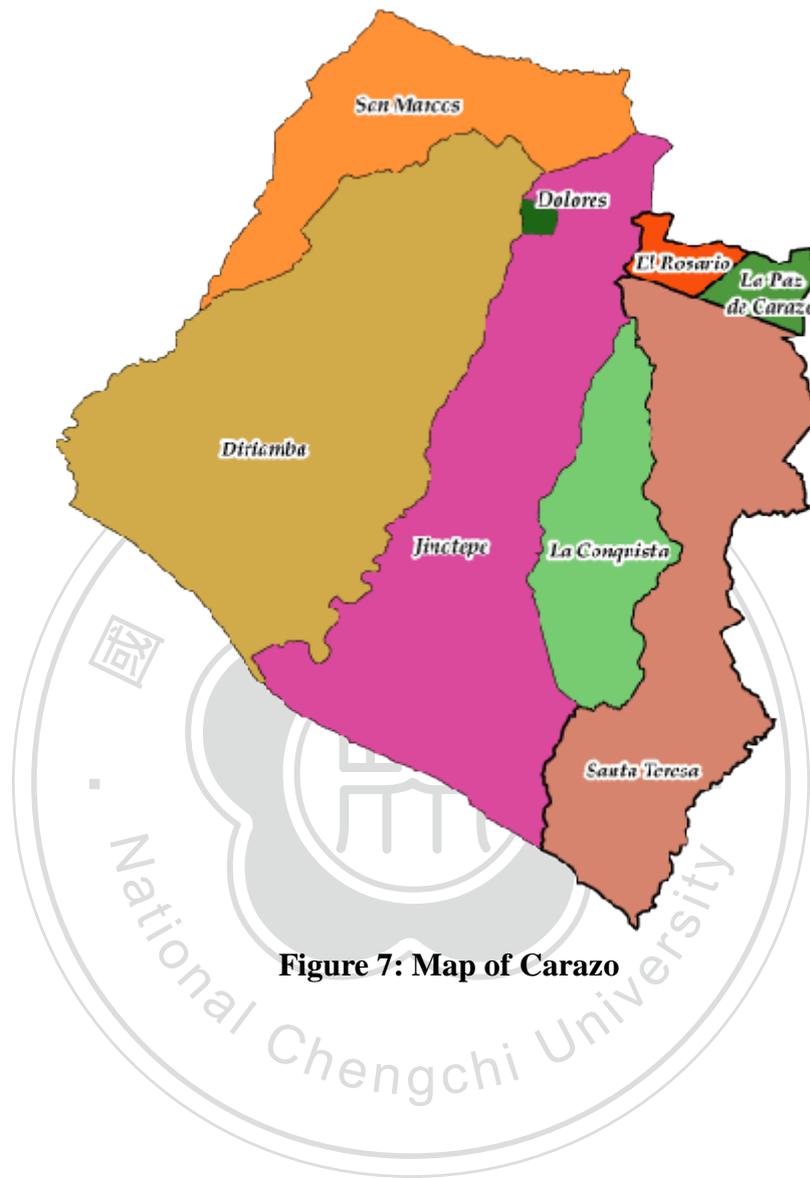


Figure 7: Map of Carazo