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**FAIR TRADE SANTIAGO MATATLÁN, OAXACA MEZCAL  
ECONOMIC ALTERNATIVE FOR LOCAL PRODUCERS**

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## Thesis Declaration

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## Resumen

El maguey (Agave), es la materia prima para la producción de mezcal, bebida destilada mexicana. El mercado de esta bebida está teniendo cambios importantes. La producción, consumo y distribución han crecido significativamente (CRM, 2016). Esta situación atrae la atención de distribuidores y compañías multinacionales, agentes externos a la producción de mezcal en Oaxaca, los cuales promueven la industrialización y distribución masiva del producto para satisfacer su creciente demanda internacional. El problema de este modelo convencional de comercio, con lógica capitalista de ganancias, economías de escala y larga cadena de intermediarios, es la falta de: conexión productor-consumidor, procesos tradicionales de producción, uso sustentable de la materia prima y la valorización real del trabajo de los productores (Bautista, Ramírez Juárez, & Smit, 2015; Bowen, 2015). Situación que fuerza la búsqueda de formas de negocio alternativo e inclusivo, para la autogestión de los productores. Un ejemplo de negocio alternativo es el comercio justo, que tiene entre sus propósitos, mejorar la distribución de las ganancias en la cadena de valor, valor compartido, diálogo e igualdad entre los actores del comercio internacional, poniendo particular atención en criterios sociales y ambientales en la producción (WFTO, 2015).

La metodología utilizada se dividió en tres etapas: 1) Recolección de información por revisión literaria y entrevistas semiestructuradas, con productores y otros actores clave de la cadena de valor del sistema agave-mezcal. Las entrevistas se realizaron de febrero a junio del 2016 en las ciudades de Colonia, Alemania, Oaxaca y el municipio de Santiago Matatlán. 2) El análisis y esquematización de la información recolectada se realizó con las herramientas PESTLE y FODA, contextualizando el modelo alternativo de la comercialización justa en el sistema agave-mezcal. 3) Interpretación de datos y conclusiones.

Al terminar la investigación, se pudo concluir que en Santiago Matatlán, Oaxaca, la problemática del mezcal está relacionada con factores políticos, socioeconómicos y ambientales. El comercio justo aparece como una herramienta para redefinir el modelo actual, dando una alternativa a la problemática, ya observada en otras agroindustrias. Esta estrategia, basada en la capacidad, cualidad y fortaleza del sistema agave-mezcal, es viable debido a la naturaleza del producto y existencia de un mercado interesado (Bautista & Melchor, 2008; Sanchez López, 2005). Para dicho modelo, es importante la participación de los consumidores, entes públicos y privados, y más importante aun la organización de los productores. Los consumidores empiezan a darle relevancia a aspectos socioeconómicos y ambientales de producción, siendo el comercio justo una alternativa que se necesita para productos con alto valor cultural y producción artesanal, como el mezcal de Santiago Matatlán, donde puede ser utilizado como opción para el desarrollo socioeconómico, conservación ambiental y cultural de la localidad, al tiempo que se ofrece un producto de calidad.

**Palabras clave:** Agave, Capitalismo, Comercio Justo, Mezcal, México, Santiago Matatlán.

## Abstract

Maguey (Agave) is the mezcal raw material; mezcal is a distilled Mexican drink. Now a days, the drink is subject of substantive changes. The production, consumption and distribution increased significantly in the last years (CRM, 2016). This situation has attracted the attention of distributors and multinational alcohol corporations, externals agents to the Oaxaca mezcal production, which propel industrialization and massive production to meet the demand. The problem of this conventional trade, with capitalist logic of profit, economies of scale and long chain of intermediaries, is the lack of linkage producer-consumer, traditional production process, sustainable use of the raw materials and proper valuation of the workers and producers work (Bautista, Ramírez Juárez, et al., 2015; Bowen, 2015). This situation forces to look for alternative and more inclusive business models. An example is the fair trade, which has among its purposes, to encourage better profits distribution In the value chain, shared value, dialogue and equity between the international trade actors, with particular attention to social and environmental criteria in the production processes.

The methodology used was divided into three stages: 1) Data collection by literature review and semi-structured interviews with producers and other key actors of the agave-mezcal system value chain. The interviews were done from February to June 2016 in the cities of Cologne, Germany, Oaxaca and the municipality of Santiago Matatlán. 2) The analysis and schematization of the collected information was made using the PESTLE and SWOT tools, contextualizing the alternative model of fair trade in the mezcal agave-system. 3) Data interpretation and conclusions.

After the research, it was concluded that in Santiago Matatlán mezcal industry, the problem is related to political, socio-economic and environmental factors. Fair trade appears as a tool to redefine the current model, giving an alternative to the problem, as observed in other agribusinesses. This strategy, based on the capacity, quality and strength of the agave-mezcal system, is feasible due to the nature of the product and existence of a market (Bautista & Melchior, 2008; Sanchez Lopez, 2005). For this model, it is important to involve consumers, public and private entities, and more importantly the producers organizations. Consumers begin to give importance to economic and environmental aspects of production, being the fair trade an alternative for products with high cultural value and artisanal production, such as Santiago Matatlán mezcal. Fair trade mezcal can be used as an option for socioeconomic development, environmental and cultural preservation of the town, while a quality product is offered.

Keywords: Agave, Capitalism, Fair Trade, Mezcal, Mexico, Santiago Matatlán.

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## **List of Abbreviations**

ATO	Alternative Trade Organizations
CONABIO	Comisión Nacional para el Conocimiento y Uso de la Biodiversidad
CEO	Chief Executive Officer
CIIDIR	Centro Interdisciplinario de Investigación para el Desarrollo Integral Regional, Unidad Oaxaca
CJM	Comercio Justo México A.C.
COMERCAM	Consejo Mexicano Regulador de la Calidad del Mezcal, A.C.
CONAPO	Consejo Nacional de Población
CRM	Consejo Regulador del Mezcal
DO	Denominación de Origen / Denomination of Origin / Designation of Origin
DOF	Diario Oficial de la Federación
DOM	Denominación de Origen Mezcal
FLO	Fairtrade Labelling Organizations International
FND	Financiera Nacional de Desarrollo Agropecuario Rural, Forestal y Pesquero
IMPI	Instituto Mexicano de la Propiedad Industrial
INAFED	Instituto Nacional para el Federalismo y el Desarrollo Municipal
NAFTA	North American Free Trade Agreement
NOM	Norma Oficial Mexicana
PESTLE	Political, Economic, Sociocultural, Technological, Legal and Environmental Analysis
PDO	Protected Designation of Origin
SAGARPA	Secretaría de Agricultura, Ganadería, Desarrollo Rural, Pesca y Alimentación
SEDESOL	Secretaría de Desarrollo Social
SEGOB	Secretaría de Gobernación
SWOT	Strengths, Weaknesses, Opportunities and Threats Analysis
TLCAN	Tratado de Libre Comercio de América del Norte
UNCTAD	United Nations Conference on Trade and Development
WFTO	World Fair Trade Organization
WFTOLA	World Fair Trade Organization Latino America

## Introduction

### Background

Mezcal is a distilled maguey (*Agave*) spirit that has been produced in Mexico for at least four hundred years and has a deep connection with the Mexican culture (Bowen & Danny, 2014). Currently, mezcal is experiencing a transformation and accelerated market growth. Mezcal has gone from being recognized as poor, cheap and even dangerous booze to a premium and with excellent quality product (SAGARPA, 2011). This drink that used to be almost unknown outside of Mexico, now a days is sold in more than 48 countries (CRM, 2016).

Just as tequila, the most famous and successful example of a Mexican spirit in the market, mezcal have a DO (Denomination of Origin) created to protect the product by establishing where it can be produced and how; It's supposed to promote local development, even though this is not actually happening, the small producer and farmers are the ones that get the less paid, some stay outside of the DO established area or can not afford the regularization prices. This is because in general, the alcoholic beverage industry in Mexico is controlled by huge companies with industrial models of production, most of the times owned by multinational liquor companies trying to protect their own interests (Bowen & Valenzuela Zapata, 2009). This situation is associated with the NAFTA Mexico inclusion in the 1990 and the promotion of institutional policies that follows the productive industrialization, modernization of technological processes and transnational corporations preference that leads to marginalize the peasant craft production systems (Bautista, Orozco Cirilo, & Terán Melchor, 2015).

The mezcal industry is building bigger distilleries with industrial methods, to mass-produce mezcal, for example the Beneva and Zignum brands. The transnational corporations and modern technological processes have displaced traditional technology and caused the socioeconomic and productive exclusion of small farmers and peasants (Bautista, Orozco Cirilo, *et al.*, 2015).

Neoliberalism influences the production, branding, and regulation of local foods and drinks, the mezcal industry it is not an exception (Bowen, 2015). The problem with this conventional trade, with an innate capitalist desire for profit and a long chain of intermediaries, is the lack of linkage between producer-consumer, low sustainability and lack of appreciation of the work of the producer. The problem with the lack of linking these producers with mezcal trading companies contributes to product placement at an unfair price (FND, 2011), which does not cover the cost of sustainable production, the value that repays the producer and assists in their economic development. These conventional trade models, which are

becoming part of the distribution of mezcal are poorly sustainable and do not ensure the rights of small producers like Santiago Matatlán *mezcaleros*, among others.

In the last years, the situation and problematic that Oaxaca's mezcal industry is facing now a days has been studied, the inconsistencies in the NOMs, limitations of the certification and exclusiveness of the DOM (Mezcal Denomination of Origin), loss of traditions and marginalization of the peasant work force, high taxation, high production costs and low mezcal price in the market, environmental impacts by the intensive maguey cultivation and industrialized mezcal production, the incursion of the tequila industry in the mezcal agave fields, the raw material (maguey) shortage, deficiency of integral development political decisions and the lack of economic viability and social justice between the different actors of the industry, are just some of the topics that are derivate from different global and political process that promote the agribusiness development, foreign investment and modern technological processes, situations totally external to the traditional mezcal production (Bautista & Melchor, 2008; Bautista, Orozco Cirilo, *et al.*, 2015; Bonfil Batalla, 1991; Bowen, 2015; Porter & Kramer, 2011).

The Official Standard for mezcal production, the DOM and the CRM (Regulatory Mezcal Council), were created by the impulse of the current economic model, fundamentally a neoliberal model, and are part of an effort to consolidate the power of political and economic elites within the industry and enable better access to global markets (Bowen, 2015). This promotes the proliferation of mezcal brands in the market, intensification of the production, the *maquila* (manufacture) production and the incursion of non-traditional mezcal agents (like political agents with economic potential) that promote the industrialization and commercialization of mezcal, prejudicing the real mezcal producers that become only *maquiladores* of the big companies. Even the external investment and industrialization produce jobs, they retain most of the profits and can control the job and price market (Bowen, 2015). The creation of the business and industrialized mezcal production model has damaged to artisanal producers due to the unfair competition (Bautista & Melchor, 2008).

The industrialization associated with the attractiveness of the mezcal demand has resulted in the displacement of traditions and the abandonment of the artisanal mezcal production. This situation is associated with the promotion of neoliberal policies to promote globalization processes, development, productive industrialization and marginalize the peasant craft production systems, stimulating socioeconomics inequalities and polarization (Bautista *et al.*, 2015; Bautista *et al.*, 2007; Bowen, 2015).

In Santiago Matatlán, Oaxaca, the mezcal agroindustry crisis is attached to political, cultural, technological, socioeconomic and environmental factors. A small group of producers with economical resources to commercialize, together with the government, get the benefits and concentrate the power

(against the “*usos y costumbres*” normative model) and the majority of producers with limited resources to develop their production and even less the commercialization stay in commercial disadvantage (Bautista *et al.*, 2007). This has provoked the division of the society, authoritarianism and corruption; break in the municipality infrastructure development and the ethic sense of the community service, losing the autonomy of the producers over their own products and way of production (Bautista *et al.*, 2007; Bonfil Batalla, 1991) The impoverishment of communities, resulting from the loss of their best land and unequal trade that has been imposed by the dominant economic interests, is something previously mentioned and investigated (Bonfil Batalla, 1995).

The social exclusion, environmental deterioration and autonomy, traditional and cultural lost; are the reflection of the capitalism and globalization process into the rurality (Barkin, 1991). This situation leads the social, cultural and economical decline. There is no evidence of commitment to ensure fair business and just working conditions for producers and farmers (Bowen, 2015). Organization and union of the involved social sectors is required (Bautista & Melchor, 2008).

There has being options studied and proved for this critical problems that affect more than one agroindustry, fair trade or the new value shared business ideology are just some of the examples that attempt to redefine capitalism approach as a non exploitative system that should protect people and look for the development of the communities (Bowen, 2015; Porter & Kramer, 2011). There is a market for justice prices and producers payment, but the market is not just, not in the traditional market (Bowen, 2015)

A subsistence strategy, based on the capacities, qualities and strengths, has to be developed by the producers to be available to persist as a social group in the globalization context (Bautista & Melchor, 2008). It is important to avoid the industrialization of the mezcal production and to look for the honest investment and the producers association for the production and distribution of high quality traditional mezcal with unique characteristics and the proper distribution of the benefits and development for them and their communities.

The mezcal industry has potential as long as it has “spectrum of value” of the *terroir* and the artisanal production, values that have gained recognition in the global market (Bowen, 2015). But the market-base models do not ensure the social justice, environmental sustainability and the traditional preservation, there is a need of change in the whole value chain, producers, state institutions, companies and the consumers have to helped in the empowerment of small producers and their production practices.

The consumers and institutions have to push the companies to be more just with the prices they pay to agave farmers and mezcal producers (Bowen, 2015). The companies have to understand the benefits that the shared value have for them but more specifically for the development of the people and the community, that at the end would result in a industry advantage (Porter & Kramer, 2011). The producers have to organize and established a price that cover completely their production costs and gives them a socially acceptable remuneration (in their local context) (WFTO, 2015; Williams, 2013)

The valorization of the mezcal production is the first step to get a fair prize of artisanal mezcal, and this have to come from the mezcal producers and from the reorientation of the state to recover their autonomy, in other words from the bottom to the top and backwards with autonomy, inclusion, dialogue and equality as the decisions background (Bonfil Batalla, 1995). It might be better to protect traditional practices, because consumers value these practices (Bowen, 2015) and because this benefits the industry (Porter & Kramer, 2011; Sanchez López, 2005).

An alternative for this conventional trade model is the fair trade. Trading system that seeks greater equity in international trade with attention to social and environmental criteria (WFTO, 2015). It is important to evaluate the possibility of “alternative” markets that consider socioeconomic and environmental aspects in the logic of mezcal system as a business, this to safeguard local products and the communities involved in the system. With the tendency and increasingly demand of handcraft-artisanal products (Bowen, 2015), fair trade becomes an alternative and its evaluation as a business model for the mezcal is required.

This leads to the questions: How mezcal is produced? How are the small producers, farmers, and workers are being paid for their mezcal? Can the fair trade mezcal lead to an alternative for local producers from Santiago Matatlán to improve their economic situation?

### **Justification**

It is necessary to analyze the mezcal industry in order to propose an alternative business model like mezcal fair trade. This alternative seeks for the socioeconomic development as well as the ecological conservation of the area while reducing inequality and economic relegation without leaving behind standards of cultivation and respect for the resources used as well as the environment.

It is important to note that this study-proposal is significant because of the socio-cultural, economic and ecological importance that mezcal industry have. The alternative has to include the limitations of the production of artisanal products, the conservation of species and the organization to reach and distribute

benefits along the value-chain, proposing a different way of business approach for the mezcal industry that ensures the correct ethical and equitable mezcal market is necessary.

The craftsmanship of mezcal, cultural importance and the fact that it is a beverage 100 % natural, are an invaluable heritage that must be respected and preserved; along with this, the importance that consumers give to socio-economic and environmental aspects of production (Dahmann & Mendoza, 2012), are some of the reasons (and benefits) to propose an alternative business approach for export of mezcal with a philosophy of justice and fairness.

## Objectives

### General Objective:

- Analyze and apply the theoretical and technical concepts of fair trade to the context of the mezcal industry in Santiago Matatlán Oaxaca, Mexico, as an economic alternative for the conventional trade of mezcal.

### Specific Objectives:

- Analyze the production, distribution and consumption of mezcal industry.
- Describe the actual situation of the production of Santiago Matatlán mezcal industry.
- Describe the theoretical and technical concepts of the fair trade, the actual situation of fair trade maguey products and the fair trade distilled alcoholic beverages.
- Analyze the advantages, disadvantages, opportunities and challenges of the alternative of fair trade of Santiago Matatlán mezcal.

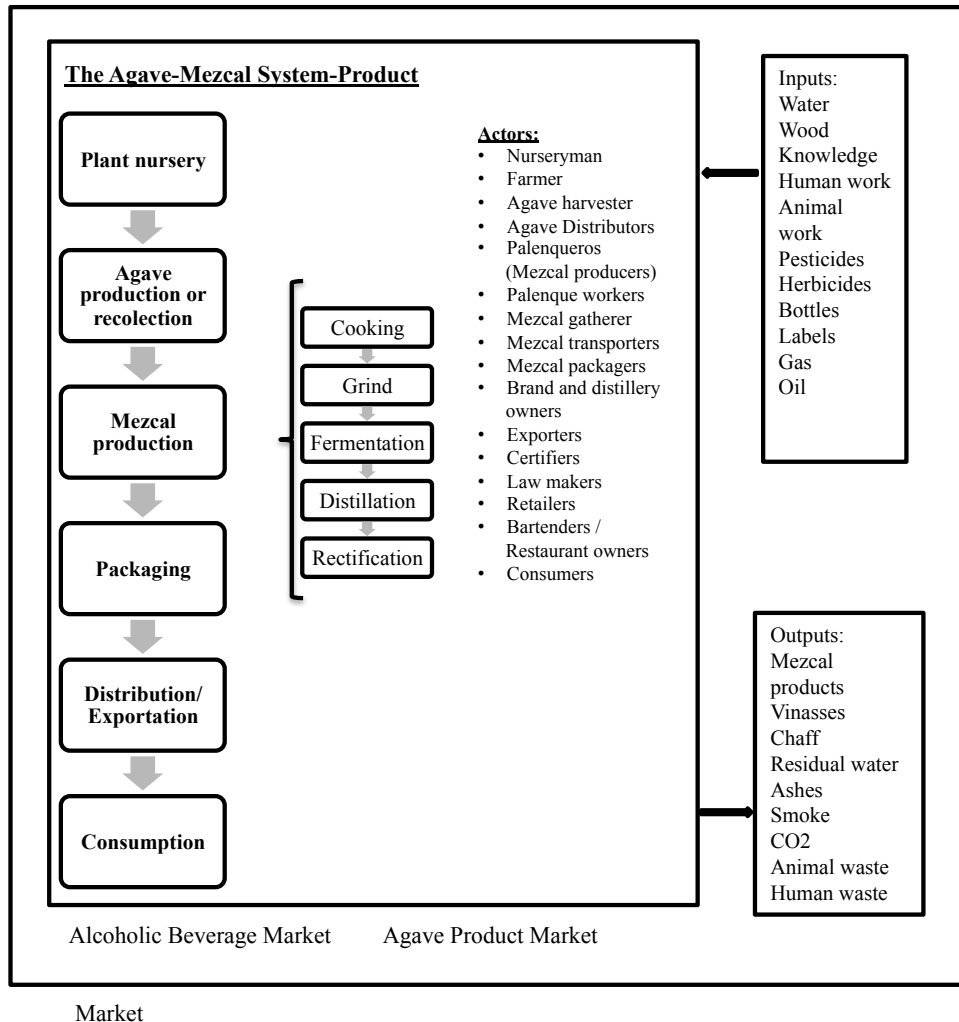


## **Theoretical Framework**

### **Agave-Mezcal System**

Based on the systems theory (Van Gigch, 1987; Von Bertalanffy, 1968), the research of the Agave subsystem (Sanchez López, 2005) and the system theory managerial application (Mele, Pels, & Francesco, 2010), is highly relevant for this research work to recognize the different elements of the agave-mezcal system that goes from the cultivation/recollection of the agave plant to the mezcal distribution for its consumption. For a scientific approximation and representation of the mezcal industry reality, organization, functioning, complexity and interdisciplinarity, the understanding of the agave-mezcal system is necessary.

As a system, the agave-mezcal system is dynamic, has hierarchy nature, inputs and outputs flows and plurality of actors and elements that co-exist inside and outside the system. These elements are represented and explained as a background for the research and the development of an alternative market for the agave-mezcal system (Figure 1).



**Figure 1 Agave-Mezcal System**

The systems theory, global-specific approach, in the Agave-Mezcal system could help to the structural adjustments to guarantee the survival of the whole system (Mele *et al.*, 2010), especially when mezcal production has so many characteristics for not being sustainable (growing demand, long time growing raw material, tradition lost, low-income producers, exclusionary laws, etc.). This is looking for an adaptive and proactive behavior of the industry for a long-lasting performance, specifically talking about the distribution of the profits.

After saying all this we can conclude that the mezcal industry is part of the agave-mezcal system and includes the maguey production as the raw material for the mezcal, the agave commercialization, the mezcal production and the commercialization, the stakeholders and the state as the entity that rules and protects the system (Sanchez López, 2005).

## Agave – Maguey

To the Mexican plant named originally in nahuatl as *metl*, the Swedish botanist Carl von Linnaeus gave the name *Agave*, “admirable” in Greek, in 1753. Now a day is commonly known as maguey, name taken from the Antilles by the Spanish conquerors, XV century. In Mexico there are different names for the plant depending in the language spoken in the region (Conabio, 2006). For this research, the names agave and maguey were used indistinctly and assuming is the same generic plant name.

*Agave*, is the largest genus of the of the *Agavoideae* subfamily from *Asparagaceae* family (The Plant List, 2013), it is a succulent and about 288 species have been identified from the South of the United States to Colombia and Venezuela, including all the Caribbean islands, from 34<sup>0</sup> North latitude to 6<sup>0</sup> South Latitude (García Mendoza, 2007; Sanchez López, 2005). Around 75 % of the species can be found in the 75 % of the Mexican territory (with asymmetric distribution) and the great majority of them are endemic of this country, reason that Mexico is considered the center of origin of the genera (Conabio, 2006; CRM, 2016; García Mendoza, 2007; Zamora *et al.*, 2010). This situation can be explain by the ecological heterogeneity of the Mexican region (García Mendoza, 2007).

Depending on the specie, agaves can live five to 70 years; when the plant matures, a long flower stalk, called *quiote*, sprout from the middle of the agave and in it endpoint flowers spring, after this the agave dies; this is know as monocarpic behavior and these is the most common one in agaves, but there can be found polycarpics as well (Conabio, 2006; Sanchez López, 2005).

Agave is a multi-annual plant with organized leaves around a central stem, rosetophyllus form that varies in shape and size. The leaves or *pencas* are succulent and fibrous; the *pencas* shape varies from linear to oval and it is possible to found thorns along the margin and also in the apex, their color can be yellow and green or red and violet, depending on the agave specie it can have from 5 to 200 *pencas* by plant (García Mendoza, 2007).

Most of times maguey can be found in arid, semi arid or tropical dry areas with long dry seasons, high temperatures and high level of evaporation, having a C<sub>3</sub> or most commonly CAM (Crassulacean Acid Metabolism) metabolism type as physiologic specialization for this areas (García Mendoza, 2007).

The agave’s reproduction can be sexual by pollination made by bats, insects and birds; spreading around 65,000 mature seeds by plant dispersed by the wind. The second reproduction way is the asexual through vegetative multiplication that produce clones that surround the agave rosette or born in the inflorescence as bulbils (García Mendoza, 2007). Clones are also called *hijuelos* or *vástagos* and rise around the plant from the second or third year of the plant life, the mother plant can produce from 10 to 20 *hijuelos* (Sánchez Lopez, 2005). On the other hand, bulbils or clones growing in the inflorescence develop in the flowers (Garcia Mendoza, 2007).

The agaves can be grown cultivated in crop plantations or in wild environments. Originally all agaves were wild, however, some agaves with specific characteristics and high productivity have been selected to be cultivated and domesticated (Mora-López *et al.*, 2011; Sanchez López, 2005).

The most common cultivation technique is called "cultivation by *deshije*", done by removing the *hijuelos*, and exposing them to the sun to heal their roots and then planted. Another technique that has become important, is the use of the growth bulbils in the inflorescence, once the agave has developed inflorescence, the base of the flowers is cut before the petals open, over time, small agaves born. The agaves are taken when reach 3 to 5 cm, planted in seedbeds and then transplanted into the fields. With this technique, it can be obtained 500-3 500 agaves per plant (Sanchez Lopez, 2005).

It have been developed laboratory techniques as well, in which plant material is used to achieve reproduction and obtain thousands of plants that retain the characteristics of the plant of origin (Sanchez Lopez, 2005).

Since pre-hispanic times the use of agave has been notorious, it was essential for subsistence and provisioning of the society. From food, drink, construction, agriculture, fiber, domestic use to ornament material, agave has had a large number of uses and some still until our days (García Mendoza, 2007; Sanchez López, 2005; Torrentera, 2001; Vela, 2014). The maguey has had an important status in the life of the habitants of Mexico even before the Colony, it was even considered a Goodness called *Mayahuel* (Sanchez López, 2005). But it not was until the first half of the seventeenth century when large, modern and intensive plantations of various species, including agave, began to develop in Mesoamerica, being necessary to select the optimum agaves for this purpose, which they were cultivated intercropped with legumes and grasses. At least three agave products were officially recognized: fibers, mezcal and pulque (Valenzuela Zapata, 2006). Since then and until now, the agave has being really important for the communities in Mexico and has a big economical potential.

Historically, maguey has been part of the productive-culture of thousands rural communities, and its full potential has not being realized yet (Bautista & Melchor, 2008; Blomberg, 2000). Its economic, social and cultural importance has been expressed by its wide range of uses; currently is useful for making *agua miel* (literally honeywater), *pulque* (fermented honeywater), distilled spirits and for producing fibers, clothing, footwear, paper, medicine, food, ornamental, agricultural and construction tools, among others (Colunga-García Marín *et al.*, 2010; Comité Nacional Sistema Producto Maguey Mezcal, 2011; Reyes Samilpa, 2016)

## Mezcal

The name Mezcal is derived from the Nahuatl terms *metl*=maguey and *ixcalli*= cooked (Aguirre Rivera, Charcas Salarzar, & Flores Flores, 2001; SAGARPA, 2012). Mezcal is a Mexican spirit, obtained from the distillation of the fermented agave juices with yeasts, spontaneous or cultivated ones, extracted from the

agave heads that have been previously cooked and harvested in the territory that have being authorized in the Denomination of Origin of Mezcal (Sanchez López, 2005; Secretaría de Comercio y Fomento Industrial, 2016). At the moment the NOM-070-SCFI-1994 allows two different types of mezcal:

1. Mezcal Tipo I: 100 % agave
2. Mezcal Tipo II: At least 80 % agave and no more of 20 % of other carbohydrates

The project PROY-NOM-070-SCFI-2015, still not valid, just recognizes the mezcal type one 100 % mature agave.

Mezcal is an alcoholic beverage of different aromas and flavors depending from the species of agave used for the production, the process and the *terroir* (Trubek *et al.*, 2010; Zarebska, 2011), the qualities of the soil, weather where and when the agave was cultivated, topography, water quality and quantity in the cultivation of the agave and in the production process (fermentation and ABV adjustment), the producers knowledge, alcoholic percentage, yeasts, and other factors that define every single lot of mezcal, giving it an specific character and organoleptic distinction (Secretaría de Comercio y Fomento Industrial, 2016; Serra Puche, 2009).

### Mezcal Production

Mezcal traditional production involves the following steps: agave production or recollection, piña or agave heart cut, baking, milling, fermentation, distillation (possibly introduced by the Spanish) and packaging (Comité Nacional Sistema Producto Maguey Mezcal, 2011). An important thing to note is that the packaging, marketing and even exportation are made in companies outside the agricultural processing and manufacturing of raw mezcal, raising the possibility of existence of monopolists in the process (SAGARPA, 2012a).

The processes of mezcal production is really diverse and it changes depending in the place or the producer, but the production can be resumed in the following steps (Bautista, Orozco Cirilo, *et al.*, 2015; CRM, 2016; Serra Puche, 2009; Torrentera, 2001):

1. Agave production or gathering
2. Agave harvesting (from crop plantations) or gathered (from wild populations): When the maguey is physiologically mature, a *quiote* shoots out of the maguey, trying to avoid the drawing of the starches and concentrate them in the stem of the agave, the stalk is cut. After a time of maturation the leaves (*pencas*) of the maguey are cut with a long wooden stich with a blade attached; this is done with different tools according to the customs of the area. If a maguey gets harvested before a proper maturation the mezcal gets a bitter flavor. The already harvested

maguery is taken to the mezcal factories; commonly know as “*palenque*”, “*vinata*” or “*tabernas*” depending in the communities.

3. Cooking, backing or roasting, covered and uncovered: In the factory, the maguery is cooked. There are three common maguery cooking methods for mezcal production, but the uses varies from producer to producer.

- The most traditional is the one called pit or ground ovens and it is a cone-shaped oven into the ground with a diameter and depth of 4 and 4 m respectively, it is heated with wood and river or volcano stones are thrown into it, after that the maguery is introduced and placed directly to the rocks or separated by a layer of *bagazo* (agave crushed fibers) to avoid the direct heat into the agave heads; finally the agave is covered with more *bagazo* or other fibrous material and finally the oven is encased with the ground. The oven reaches temperatures of 400 - 1,200 ° and the agave gets cooked for 3 to 7 days. The capacity of the ovens varies a lot but commonly they have a capacity of 1-15 tons. Then the oven is uncovered and empty manually.
- The masonry oven, it is a thick walls room that is usually built with stone, adobe blocks or bricks, maguery is place inside and cooked by injected steam that is produced by wood fire. This kind of ovens can hold up to 20 tons, and they take around three days to cook the maguery.
- The third method is the autoclave, based on hot pressure water cooking, it is identified as a modern process or an industrial one and it can hold up to 30 tons and can take less than 18 hours to fully cook the maguery.

4. Milling: once the maguery has been cooked, it gets pounding and grinding to release the juices that will be fermented. There are different milling methods.

- The most traditional ones are the hand milling with axe or machete for cutting the maguery in small pieces and then is milled with wooden hammers or mauls against a wooden canoe for pounding the cooked maguery.
- Another method is the *tahona*, a circular millstone that weights from 200 - 1,000 kilograms and is pulled by animals or tractors around a 5 m diameter base and 60 cm walls that contains the maguery.
- The mechanical shredders use a motor that grinds the maguery and are being used lately for reducing the time and effort of the producers in the milling.
- Milling train, an industrial production line with a series of mechanical shredders and presses where the maguery pass through several times and the juice is extracted, this milling process is the most efficient in the industry.

5. Fermentation: process by which microorganisms (yeasts) convert sugar into alcohol. In the artisanal production of mezcal, after the milling of maguey, the fibers and juices obtained are poured into containers, mixing them with water and the fermentation takes from 3 to 10 days, depending in the weather (the high temperature accelerate the fermentation process). The containers for fermentation process are quite diverse.
  - The most common containers are the pinewood ones; nevertheless, there are stone ones, masonry, plastic and even animal skin ones. The tubes are filled until three quarters of its capacity and complete with hot clean water. This takes 5-8 days depending on the ambient temperature. During this time the contents are removed to have uniformity.
  - In the industrial process the stainless steel tanks are used and only the juice is fermented, this allows the producers to control the temperature and the population of the yeasts, making the fermentation process even faster, taking just 18 hours or even less.

When the fermentation is over the mixture is called *tepache*.

6. Distillation: Involves heating the *tepache* or ferment (fibers and juices or just juices) until it boils, then capturing the vapors generated through a cooling system that lowers down its temperature and condense it. There is a big diversity of stills; this is one of the factors that create such a big organoleptic diversity in the mezcal. The stills can be classified in three categories.
  - Ancestral stills, rustic stills based on a firebox heated by wood and a clay pot, on top a wooden spoon to collect and channel the condensed mezcal to the cane tubes and finally to the container.
  - The artisanal stills, the most common ones, made of copper and with capacities of 200-500 liters. They have a boiler, hat, swan neck and condenser coil. In some areas the hat is made of wood to add flavors during the evaporation. Distillation is done by lots, this means that every distillation have to be loaded and unloaded, this operations needs a heavy handwork.
  - Finally the modern stills, this include continues operation stainless steel stills or fractional distillation columns, also known as *coffey* or *patent still*, that permit less use of human work, bigger capacities and grater efficiency in the separation of the alcohols.
7. Packaging
8. Commercialization: this stage comprises the price and marketing channels that the producer states to sell their handmade production.

In Matatlán mezcal production, two elements characterize it: 1) the biophysical resources of the region; and 2) the traditional knowledge of local peasant producers. However, this process has been displaced by industrialized plants established in the region and the use of other products for the mezcal production (Bautista, Orozco Cirilo, *et al.*, 2015).

## Mezcal Designation of Origin, Normative and Regulation Council

To compete with the international standards, obtain export opportunities and therefore more income index, the producers have organized and obtained the designation of origin of mezcal (DOM), the mezcal normative (NOM-070-SCFI-1994) and created the Mezcal Regulation Council (CRM).

### Designation of Origin

Designation of Origin of Mezcal (DOM) was published in the Official Journal of the Federation (DOF) on November 28, 1994 granting the DOM (despite the fact that mezcal is a generic term for distilled agave spirits). On the issue of the declaration of the designation of origin mezcal in 1994, states considered were: Guerrero, Oaxaca (only seven municipalities), Durango, San Luis Potosi and Zacatecas. Since then, several states have been included in this declaration. In 2001 and 2015 the state of Guanajuato (two municipalities) were included, in 2003 the state of Tamaulipas (10 municipalities), in 2012 Michoacán (29 municipalities) and finally in 2015 the state of Puebla (115 municipalities) (IMPI, 2015)

The “designation of origin” categorization begins in France (Bowen, 2015) and it can be defined as “the one that uses the name of a region or geographic location of a country to designate an original product whose quality or characteristics are exclusively of the geographical environment resulting from natural and human factors” (Carrillo Trueba, 2007).

The first designation of origin in Mexico was granted to tequila in 1978. Now a day 14 products produce in the country have designation of origin, including mezcal (Trueba, 2007). Thanks to the DOM only Mexico can produce spirits with the name of mezcal (Huertas Rosas & Luna Zamora, 2015).

Unlike other countries, in Mexico the designation of origin only defines a geographic area where a given product can be produced and the quality standards are regulated separately. The Mexican government owns the designations of origin and authorizes the producers who can produce it and establish the regulations (Bowen, 2015).

An important aspect to note is that only certain regions that produce distilled agave are favored by the appellation of origin of Mezcal, these rules do not reflect the Mezcal tradition of Mexicans, as the benefits of the designation of origin exclude many regions and most of the states which produce maguey distillates of excellent quality (Maldonado, 2013; Serra Puche & Lazcano Arce, 2006). Examples of this are the states of Colima and Jalisco where mezcal has been produced since the beginning of the colony using Asia n distillation technology (Colunga *et al.*, 2007; Valenzuela Zapata *et al.*, 2008) or Tlaxcala, where last studies have declared the possibility of pre-hispanic distillation process based on the similarities of the tools, stills made of local materials and ancient ovens used for cooking agave (Serra Puche & Lazcano Arce, 2008,



2006; Vizcarra, 2013). These states that are not protected by the appellation of origin are forced to trade with other names, denying them the benefits that the name brings. International marketing channels and positioning in the domestic market are blocked.

Even the DOM and the NOM-070-SCFI-1994 are one of the main points for the international legal protection and development of the mezcal industry, some mezcal production states and municipalities still not get benefit out of this even they produce excellent quality mezcal (Sanchez López, 2005). This situation does not express with fidelity the diversity and complexity of Mexican mezcal traditions.

The production of mezcal is a cultural and economical activity extended around all the country even the distillation of agave receive other names: Oaxaca, Guerrero, Durango, Zacatecas, San Luis Potosí, Guanajuato (mezcal and tequila), Jalisco (tequila, raicilla and mezcal), Michoacán (mezcal and tequila), Estado de México, Morelos, Chihuahua, Sonora (bacanora), Tamaulipas (mezcal y tequila), Nuevo León, Sinaloa, Nayarit (mezcal and tequila), Baja California, Colima (tuxca), Chiapas (comiteco), Coahuila and Querétaro. Mezcal production can be found in 28 states and even in other countries (Illsley Granich *et al.*, 2005). There is more mezcal production areas outside than inside the DO (Carrillo Trueba, 2007) and that's why the authorities and owners of the DO have to keep including all this areas and promoting the diversity of productions process.

#### **Mezcal Normative: NOM-070-SCFI-1994**

The Norma Oficial Mexicana NOM-070-SCFI-1994 defines the mezcal, their types and characteristics of production, packaging, storage, marketing and labeling.

After the mezcal designation of origin was established, the "Norma Oficial Mexicana NOM-070-SCFI-1994, Bebidas Alcoholicas-Mezcal-Especificaciones" was created for the regulatory standards of mezcal production and whose latest version was posted on June 12, 1997 (Aguirre Rivera *et al.*, 2001). Currently the NOM-070-SCFI-1994 is in renovation process, and the "Proyecto Norma Oficial Mexicana PROY-NOM-070-SCFI-2015, Bebidas Alcoholicas-Mezcal-Especificaciones" has been published and waiting to be approved (Secretaría de Comercio y Fomento Industrial, 2016).

The NOM establishes the characteristics and specifications to be met by people authorized to produce and/or market mezcal. This is applicable for alcoholic beverages produced in areas which establishes the designation of origin and which are obtained from the following species of agave:

1. *Agave angustifolia* Haw.
2. *Agave asperrima* Jacobi
3. *Agave weberi* Cels. ex Poisson
4. *Agave potatorum* Zucc.

5. *Agave salmiana* Otto ex Salm-Dyck ssp. *crassispina* (Trel.) Gentry
6. Other species of agave, provided they are not used as raw material for other drinks with designations of origin in the same State

Note: Some agave species in the NOM are not properly written or they are not use commonly used for mezcal production (Aguirre Rivera *et al.*, 2001; Carrillo Trueba, 2007).

The NOM also specifies the types of mezcales based on its content of distilled agave, categories of mezcal, the percentages of minimum and maximum alcohol that may contain, market, labeling and sampling and the tests techniques to determine the mezcal composition.

The NOM basically describes the limitations of commercialization for an agroindustry of high volumes based on the market demand and do not consider the communities rights to conserve and get a benefits out of their own resources that are basic to the local people and let the outsiders to be available to get advantage out of it (Bowen & Valenzuela Zapata, 2009; Carrillo Trueba, 2007). This situation put in danger the traditions and diversity of the mezcal industry, taking away the strongest characteristics of the distillate.

#### **Mezcal Regulatory Council – CRM**

With the creation and establishment of the Designation of Origin Mezcal and the NOM-070-SCFI-1994, the creation of a regulatory body, to monitor the NOM and the mezcal certification process implementation, was required (Bowen, 2015; Carrillo Trueba, 2007). In 1997 the Mezcal Regulatory Council (CRM), a non-governmental and non-profit organization was created. In 2003, the CRM was certified as an entity capable of providing certifications to mezcal producers that met the standard (Bowen, 2015)

The CRM is responsible of conserving the authenticity and the quality of mezcal that gets into the market. Once the distillation is complete, the mezcal is lab-tested and certificated by the CRM before bottling, this ensures the quality and the security of the product. Currently the CRM has became the institution that leads the industry by exercising control tasks and since 2005, only mezcal officially labeled by CRM can be marketable(CRM, 2015) Mezcal DOM and NOM are supposed to be made for protecting the mezcal as a product, the producers and use it as a local development tool, unfortunately the growth of the industry is not helping the farmers, workers, or communities where mezcal is produce. Even though the mezcal market is one of the fastest alcoholic beverages growing segment, the price that farmers are being paid for their product has often been below the costs of production (Bowen, 2015).

The certification given by the CRM is necessary to ensure the normative and standards establish by the NOM and the DO, even sometimes this do not meet the real porpoise of protecting the local producers. Added to this problem, the costs of mezcal certification have a high price to the small producers, this

trigger the clandestinely, illegality, corruption and the abuse of intermediaries by the creation of mezcal manufacture with out the possibility of the added value of production and commercialization for the local producers, letting these benefits and the profits to the capitalists and corporations (Carrillo Trueba, 2007).

The DO, the organic production, slow food movement and fair trade, are just some example of protection for local production if done properly, mezcal industry can have them all, but it needs a real revalorization and proper government support. This is the strongest characteristic that differentiate the mezcal, because there is a growing consumers market niche that prefers the artisanal, local, organoleptic particularity and traditional products that are exclusive from a original territory (Bowen, 2015; Carrillo Trueba, 2007)

### Mezcal Market

Mezcal as beverage exists since the 1500s, when the Spaniards introduce the distillation together with the colonization process. The first occidental literary reference of mezcal came in 1621 when Domingo Lazaro Arregui describes an alcoholic beverage with the same characteristics of the mezcal (Luna Zamora, 1991; McEvoy, 2014; Sanchez López, 2005). Since then, artisanal mezcal have being produced in the same way (with small changes). In the 1990s mezcal began to have recognition and appreciation in a larger scale than regionally, the DOM, NOM-070-SCFI-1994 and the CRM have being establish and the demand (nationally and internationally), production and brands have being grown since then.

### National Mezcal Market

The mezcal market is part of the alcoholic beverage national and international market (Table 1). In Mexico, the alcoholic beverages market is lead by the beer category with 94 % of the market; just follow by the spiritual drinks category (mezcal is part of this category) with 4 % of the market shared. In the spiritual drinks national market segmentation, mezcal have the 1 % of this market. The main national market area of mezcal is concentrated in the Mexico Valley region (Mexico City and part of State of Mexico) with 47.15 % (CRM, 2016).

**Table 1. Spiritual beverages national market segmentation percentage in Mexico (CRM, 2016).**

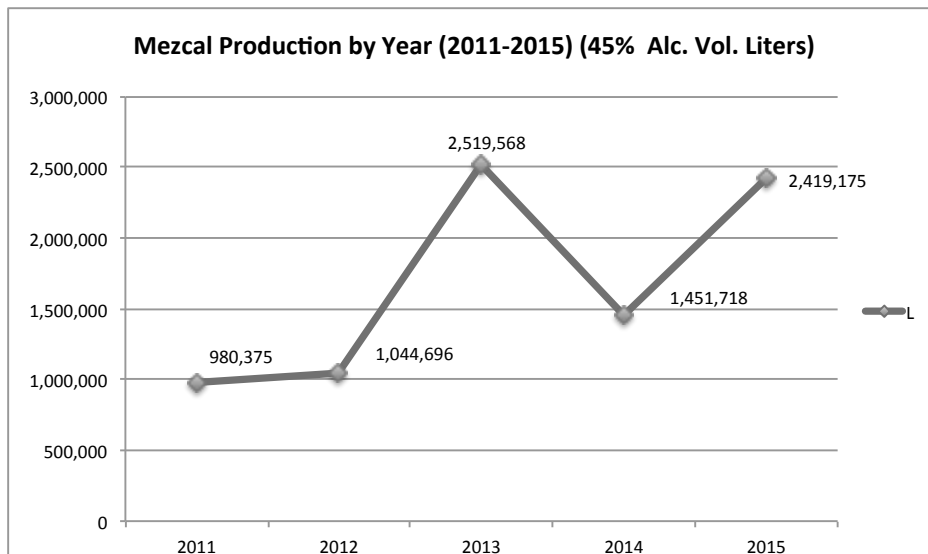
Category	2010	2011	2012	2013	2014
Tequila	30	29	29	28	28
Aguardiente	19	21	21	22	23
Whisky	9	10	12	13	14
Brandy	12	12	11	10	9
Ron	9	8	9	8	8
Others	9	8	7	7	7
Vodka	6	6	5	5	5
Mix	5	5	5	5	4
Mezcal	1	1	1	1	1
Gin	0	0	0	0	0

Mezcal has a 750 ml. presentation average price of \$ 353.65 Mexican pesos with a growing behavior, being the most valued national drink in comparison with the tequila or *aguardiente* (Table 2) (CRM, 2016). This situation can be perceived as a benefit or a problem for the industry, the market valued mezcal as a high price and premium product but it has a lot of cheaper options.

**Table 2. Alcoholic beverages 750 ml presentation average national price in Mexican pesos (CRM, 2016)**

Alcoholic Beverage	2012	2013	2014	2015
Mezcal	240.70	279.20	304.20	353.65
Whisky	284.70	282.72	280.70	269.63
Gin	149.80	169.30	185.70	254.31
Tequila	127.40	132.10	137.50	155.46
Brandy	134.50	135.60	135.90	133.76
Vodka	124.70	126.40	126.30	126.93
Rum	106.60	107.80	107.60	108.40
Aguardiente	25.00	24.60	24.90	24.46

In the last four years (2011-2015) the production of certified mezcal has grown 147 %; in 2015, 2,419,175 certified mezcal liters were produced (Figure 2).



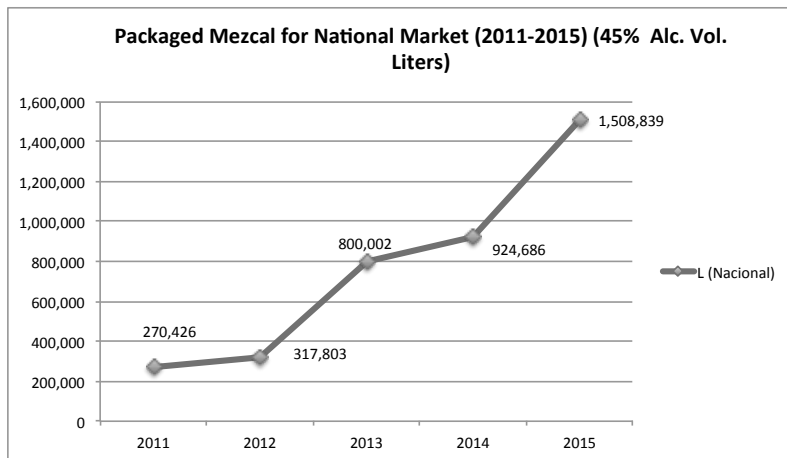
**Figure 2. Liters of mezcal production by year (CRM, 2016).**

Maguey espadín (*A. angustifolia*) represent 85 % of this mezcal production (Table 3) (CRM, 2016). This is because maguey espadín is the only one intensive cultivated; it have a high sugar concentration, short maturation time (5-8 years) and it have a relatively easy *hijuelos* propagation system (Bautista *et al.*, 2015; Conabio, 2006).

**Table 3. Mezcal p production by Specie in Mexico 2015 (CRM, 2016).**

Agave specie	2015
Espadín ( <i>A.angustifolia</i> )	85.0 %
Blends (Ensamblés of different <i>Agave</i> species)	4.5 %
Tobalá ( <i>A. potatorum</i> )	2.5 %
Chino ( <i>A. cupreata</i> )	1.4 %
Cuishe ( <i>A. karwinskii</i> )	1.2 %
Tepeztate ( <i>A. marmorata</i> )	1.1 %
Barril ( <i>Agave</i> sp.)	0.8 %
Others	3.5 %
<b>TOTAL</b>	<b>100 %</b>

The packing for national has grown 458 %. Not just more mezcal is produced but also more is being packed (Figure 3). Oaxaca is the main packager state of Mexico with 81.3 % for national market. The second area of packaging is outside de DOM with 13.5 % national market, mezcal is being bulked sold and packed outside of the production area (CRM, 2016).



**Figure 3. Liters of packaged mezcal for national market (CRM, 2016).**

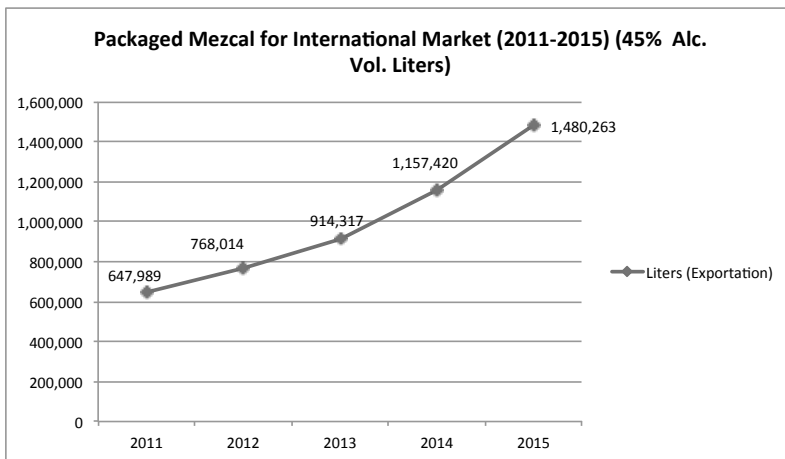
The mezcal “*Joven*” category demand has grown in the last two years over the “*Reposado*” and “*Añejo*” categories (Table 4). The 88 % of mezcal production for national market is packaged as “*Joven*”. In the last mezcal NOM modification, "Proyecto Norma Oficial Mexicana PROY-NOM-070-SCFI-2015, Bebidas Alcohólicas-Mezcal-Especificaciones", there is a new mezcal category. The “Glass Maturation” will be recognized for the next market analysis.

**Table 4. Annual percentage of packaging of types of mezcal for national market by category (CRM, 2016)**

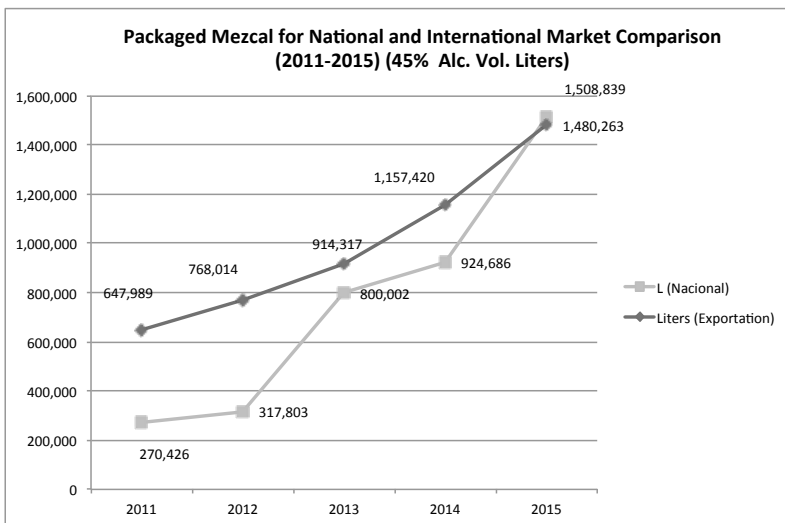
Category	2011	2012	2013	2014	2015
% Joven	66	64	60	82	88
% Reposado	25	32	33	16	10
% Añejo	8	4	7	2	2

**International Mezcal Market**

Mezcal exportations have grown in the last years (Figures 4 and 5), now a day’s mezcal is exported to 48 countries. In the 2015 the production of certified mezcal for exportation was 1,480,263 liters, the exportation market has grown 128 % since 2011, 95.2 % of the production comes from Oaxaca but just 84 % of this production is packaged in Oaxaca (CRM, 2016).



**Figure 4. Liters of packaged mezcal for international market (CRM, 2016)**



**Figure 5. Liters of packaged mezcal for national and international comparison (CRM, 2016).**

Mezcal drunk in the international market is 100 % agave, the “*Joven*” category represent 91 % of the bottled production and this behavior of the market still growing, taking over the place of the “*Reposado*” and “*Añejo*” (Table 5).

**Table 5. Annual percentage of packaging for international market by category (CRM, 2016).**

Category	2011	2012	2013	2014	2015
% <i>Joven</i>	83	64	60	82	88
% <i>Reposado</i>	25	32	33	16	10
% <i>Añejo</i>	8	4	7	2	2

Something to mention is the change of the preference of international market for the *abocado* mezcal to without *abocado* mezcal (Table 6). The market is not drinking the warm mezcal anymore; mezcal is losing the souvenir status for a premium alcoholic beverage perception (SAGARPA, 2011).

**Table 6. Percentage of *abocado* and without *abocado* “*Joven*” mezcal (CRM, 2016).**

	2011	2012	2013	2014	2015
% Without <i>abocado</i> “ <i>Joven</i> ”	32	36	51	53	68
% <i>Abocado</i> “ <i>Joven</i> ”	68	64	49	47	32

In the 2011 mezcal was exported to 29 countries, today the amount has increase to 48 countries in the five continents, being the United States the biggest mezcal consumption market after Mexico (Table 7) (CRM, 2016).

**Table 7. Top ten mezcal exportation countries (CRM, 2016).**

Top 10 Exportation Countries (2015)	(%)
USA	64
Chile	7
Spain	7
England	6
Germany	5
Australia	3
Panama	2
Italy	2
Canada	1
Netherlands	1

The exported number of mezcal brands and product exportation are still growing because of the benefits and incentives that the international market offers, less taxation and higher prices for product are some of this benefits. The last year, 750 ml mezcal presentation average price in the international market was

\$632.80 Mexican pesos and the 2015 category estimated value was \$1,338,159,131.68, this is \$627,997,820.76 more than the national market (Table 8) (CRM, 2016).

**Table 8. National and international market category estimated value 2015 (CRM, 2016).**

<b>Packaged Market</b>	<b>Liters</b>	<b>Bottles</b>	<b>Price (Bottle in Mexican Pesos)</b>	<b>Total</b>
National	1,508,839	2,011,785	\$353	\$710,160,310.92
International	1,408,263	2,114,662	\$632.80	\$1,338,158,131.68
Category Estimated Value 2015				\$2,048,318,442.60

Mexico, Oaxaca and Santiago Matatlán municipality have an economical opportunity with mezcal. Mezcal is a product with demonstrated potential and growth. The recent expansion in production and distribution in Mexico and different countries around the world, 48 countries in the 2015 (CRM, 2016), make this product a motor of economic development, especially in rural areas of Mexico with high and very high marginality index, like Santiago Matatlán municipality (SEDESOL, 2014). It is estimated that this activity generates about 30,000 jobs, of which more than 5000 are directly benefited. These data show the big social value that this industry represents in Mexico (SAGARPA, 2011).

The use of agaves and the process of distillation are changing from artisanal to industrial processes; this provokes biodiversity and sustainability risks to the agroindustry and the environment. The distillation obtain in an industrial way have less quality and diversity cooperated to artisanal ones (Valenzuela Zapata *et al.*, 2008). One of the main differentiators of mezcal is the origins of the raw material, the quality and singularity of the productions methods, giving to this product the option to be part of premium markets and better prices in the international market (Sanchez López, 2005).

### **Santiago Matatlán, Oaxaca Mezcal Market**

The State of Oaxaca, Mexico has about 30 species of agave already registered, being the richest area of this genus. Inside the Oaxaca's mezcal region, Sola De Vega has the highest Agave diversity (Garcia *et al.*, 2004; Sanchez López, 2005). Oaxaca is the State with more diversity of agaves used for mezcal production (Zarebska, 2011).

Currently, Oaxaca has more than 97 % of national production (Table 9) and 95.2 % of the exported mezcal comes from this area; it has 84 % of the packaging for the export market and 81.3 % in terms of packaging for domestic market (the packaging situation varies from the production situation because the bottled outside the origin area). Based on this information, it can be concluded that Oaxaca holds the preponderance of the mezcal industry (CRM, 2016).



**Table 9. State mezcal production percentage (CRM, 2016)**

State	2011	2012	2013	2014	2015
Oaxaca	77.4	93.0	99.4	93.7	97.3
Guerrero	0.3	1.6	0.4	0.9	1.1
Durango	0.0	0.6	0.0	0.4	0.5
San Luis Potosi	0.0	0.0	0.0	0.0	0.2
Zacatecas	22.2	4.5	0.1	4.4	0.5
Guanajuato	0.0	0.2	0.1	0.0	0.2
Tamaulipas	0.0	0.0	0.0	0.0	0.0
Michoacan	-	0.0	0.0	0.5	0.2
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

In Oaxaca, mezcal production began in the area known as “Region del mezcal”, integrated by seven districts, distinguished by their climate conditions that favor the maguey cultivation (Bautista, Ramírez Juárez *et al.*, 2015). Santiago Matatlán municipality is part of one of these districts, Tlacolua, and its known as “ Capital mundial del mezcal”, because it have 70 % of the national production, 90 % of the state production, 70 % of state distilleries and 80 % of the state commercial brands (Bautista, Ramírez Juárez, *et al.*, 2015; Sanchez López, 2005).

Mezcal production in Oaxaca have different markets, almost all are local and with small demand. In the production areas, indigenous and mestizos most of them, the production and distribution are based on the local celebrations and for their own consumption. There is production for selling as well for an extra income or as main family business. In the last years, institutions and association have develop the mezcal market and organized for the brands generation. This has provoked the industrialization of the production to meet the national and international demand (Serra Puche, 2009).

The Santiago Matatlán maguey agroindustry began in 1940, mainly wild magueys were used, but because of growing demand the wild species scarcity started and the cultivation of maguey began to be common. With the increased consumption, the traditional production process couldn’t meet the demand and needed economical resources that they didn’t have. Outside capital came, take the production and distribution in their hands (Bautista, Ramírez Juárez, *et al.*, 2015).

In the 1990 the industrialization process began and the traditional processes were displaced by new technologies. The mezcal agroindustry is relevant for Oaxaca because its economical importance. There are around 11,000,000 ha of cultivated maguey and 5,300 mezcal producers in the “Region del mezcal” (Bautista, Ramírez Juárez, *et al.*, 2015)

The Santiago Matatlán mezcal industry have socioeconomic and productive importance, it is the main economical activity of the municipality. From 1930 to 1980, Matatlán used to be the main area of mezcal distilleries and mezcal production. This was result of the advantages of the municipality: agroclimatic

conditions, available labor force, communication media and geographic location. This helps in the local and regional development, through job opportunities, local and regional income, diversification and establishment of other economical activities related to the mezcal production. (Bautista, Ramírez Juárez, *et al.*, 2015) In Oaxaca, the agave-mezcal system is really important. In 60 % of the 146 towns in the 9 districts where mezcal is produced; the activities related to agave are the main economical income and jobs source. More than 25 thousand families depend direct and indirectly from the agave production, mezcal production and other products derivative from the agave, other stakeholders like the intermediaries, transporters, mezcal bottlers, the industries (B2B – business to business sellers) that sell all the material for the packaging of the mezcal and mezcal distributors get benefit out of this system (Sanchez López, 2005).

Mezcal production presents socioeconomic and productive relationships towards different directions that contribute to the final product: back to the production of maguey, sideways with input suppliers, equipment and tools, and forward with the marketers and distributors of mezcal. This shows the relationship of dependency between agriculture production, transformation processes and distribution activities (Bautista, Orozco Cirilo, *et al.*, 2015)

Disarticulation of the Santiago Matatlán mezcal industry provokes less local and regional economic activities, lack of jobs, emigration and lost of traditional knowledge. All the social, economical and cultural potential of the region are not available for the social development of the local people, instead of this, the industrialization process guide by external actors take control of the productive systems and benefits. (Bautista, Ramírez Juárez, *et al.*, 2015)

Like others productive chains, the mezcal producers obtain less benefits and are under economic control of the intermediaries, the commercialization entities get the biggest part of the profits and incur in less risks. Producers have to act and avoid the intermediaries to get the real benefits out of their work, organize with other producers or create a business partnership where there is no disadvantages for them (Bautista, Ramírez Juárez, *et al.*, 2015; Bowen, 2015).

In Oaxaca and Santiago Matatlán, the maguey espadín (*Agave angustifolia* Haw.) is the most cultivated one for mezcal production (Table 10); it has more sugar concentration and better production characteristics (Conabio, 2006). It has been the main agave cultivation since 60 years ago (Sanchez López, 2005).

**Table 10. Oaxaca main cultivated and wild agaves** (Sanchez López, 2005)

<b>Cultivated</b>	<b>Wild</b>
Castilla ( <i>Agave americana</i> var. <i>americana</i> )	Bilia ( <i>Agave potatorum</i> )
Espadín ( <i>Agave angustifolia</i> )	Tobalá ( <i>Agave potatorum</i> )
Cincoañero ( <i>Agave cantala</i> )	Tepextate ( <i>Agave marmorata</i> )
Barril ( <i>Agave macroacantha</i> )	Cirial o bicuishe ( <i>Agave karwinskii</i> )

Most of the people that work in the production of mezcal are part of an indigenous group, with high index of analphabetism and poverty, being in disadvantage in a national and international market with an industrial structure and open market impositions (Sanchez López, 2005).

Taking all this into account, the mezcal industry represents an opportunity for the population of Oaxaca, including relegated and marginalized areas. For this to be viable, a consolidated strategy that commercializes this product needs to guarantee solidary social and ecological justice.

### **Fair Trade**

So far, the expansion of international trade has not meant the reduction of inequalities between developed and developing nations, or between agricultural producers in those nations, a situation that has been widely criticized (Medina, 2013; Porter & Kramer, 2011). It is essential to change these rules and practices that favor rich countries and prevent poor countries to decide how to fight poverty and protect the environment (Coordinadora Estatal de Comercio Justo, 2008). This situation shows the need of alternative commercial relationships and business models.

There are essentially two types of agricultural producers on the market: those who have enough to cover the costs associated with the marketing of their production and those who depend on commercial intermediaries to place their products on the market. The last ones have been affected by international competition; the intermediaries offer them the lowest possible prices to have competitive price and profit. This situation has prevented small farmers overcome poverty and emphasized this condition (Medina, 2013). In order to reduce this situation, fair trade is certainly a viable alternative (Garcia Chiang, 2011).

The "fair trade" starts as a critic and alternative to the free trade and globalized system failures that prevent the full and dignified participation of various social groups, including small farmers and consumer. Therefore, the fair trade suggest that it is possible to change the market tendencies, individual interests, to social interests using the globalization mechanisms (Comercio Justo México, 2015; Medina, 2013).

The main fair trade challenge is to regulate and balance world trade for the benefit of the most disadvantaged. The goal is to generate social impact and community development in the producers' communities by a productive and commercial process. The fair trade aims for the actual involvement of the developed countries organizations in the awareness, importation, distribution and direct retailing of the producers products, allowing them to get access to other markets and not just get aid from the transfer of resources to create infrastructure, training or have pre-financiation (Coordinadora Estatal de Comercio Justo, 2008)

The fair trade as we know it today, started was in 1964, during the United Nations Conference on Trade and Development (UNCTAD), when for first time the concept of "trade, not aid" came up and since then fair trade is an alternative to conventional trade, characterized by establishing stable and transparent business relations, governed not only by economic, but social and environmental criteria (State Coordinator of Fair Trade, 2008). In this context, organizations and individuals promoted the creation of stores "UNCTAD", selling products of the Third World in Europe, avoiding input rates (Otero, 2006; WFTO-LA, 2015)

Since 1967 an organization called S.O.S. Wereldhandel began importing handicrafts from developing countries and to sell them through catalogs, churches and solidarity groups. The opening of branches in Germany, Austria, Switzerland and Belgium led to the establishment of Independent National Organizations (ONI). In 1973, the first fair trade coffee imported from Mexico and Guatemala unions was launched. However, it was not until 1988 that in the Netherlands was introduced under the name of Max Havelaar, the first brand of fair trade, this due to the growing demand for fair trade products in European countries and the United States, and the need to create a certification body who can vouch for the authenticity of fair trade products. This led to the subsequent creation of labels for other products such as handicrafts and other food products (tea, honey, sugar, cocoa, nuts, etc.) in Europe, North America and Japan (Otero, 2006).

The World Fair Trade Organization (WFTO) is the global network of fair trade organizations (it labels organizations not products), representing the supply chain from producer to retailer (WFTO, FLO, & FLO-CERT, 2011) Currently it has members in more than 70 countries, benefiting nearly 1 million people. Approximately 65% of its members are in the South (Asia, Africa and Latin America) and the rest from Europe, North America and the Pacific (Otero, 2006; WFTO-LA, 2015). The Fair Trade organizations (FTO) also called Alternative Trade Organizations (ATO), has fair trade as part of its mission and at the core of its objectives and activities. They are actively engaged in supporting producers, trading, raising awareness of fair trade issues and advocating the integration of fair trade principles into all international trade practices (WFTO *et al.*, 2011)

Fairtrade Labelling Organizations International (FLO) is a non-profit organization that sets the standards that must be adhered to in order for national labelling Initiatives to certify products with the Fairtrade certification mark. Labelling Initiatives and Producer Networks can both become members of FLO (Lacey, 2009; Williams, 2013). FLO is divided into Fairtrade International e.V., that sets the standards for the fair trade products labeling and support the producers unit, and FLO-CERT GmbH an independent international certification company that offers verification and supply chain services to ensure social and environmental standards. Founded in 2003 as the single certifier for Fairtrade, the company has four international offices, 80 employees and more than 100 auditors worldwide (Fairtrade International, 2016c; Lacey, 2009).

The most accepted definition of fair trade is "commercial partnership based on dialogue, transparency and respect, that seeks greater equity in international trade. It contributes to sustainable development by offering better trading conditions and securing the rights of marginalized producers and workers, especially in the countries of the southern hemisphere. Fair trade organizations, supported by consumers, are engaged in supporting producers, develop and diffuse the idea for change the rules and practices of conventional international trade" (WFTO, 2015). Fair trade is used to denote self-assessed fair trading, as practiced by the WFTO; the term Fairtrade describes certification and labeling by Fairtrade International (Williams, 2013) Fairtrade refers to all or any part of the activities of FLO eV, FLO-CERT, Fairtrade producer networks, national Fairtrade organizations and Fairtrade marketing organizations. Fairtrade is used to denote the product certification system operated by Fairtrade International (WFTO *et al.*, 2011)

The Fair trade goals are based on the "humanization" of the trade and commercialization process, it aims to improve the livelihoods and well being of producers by improving market access, strengthening producer organizations, paying a better price and providing continuity in the trading relationship. It promote development opportunities for disadvantaged producers, especially women and indigenous people and to protect children from exploitation in the production process by raising awareness among consumers of the negative effects on producers of international trade so that they exercise their purchasing power positively. This is supported by the campaigns for changes in the rules and practice of conventional international trade, protecting human rights by promoting social justice, sound environmental practices and economic security (Coordinadora Estatal de Comercio Justo, 2008).

The WFTO have 10 standards, or criteria points, that must be followed by Fair Trade organizations (WFTO, 2015):

**Table 11. Fair Trade Standards (WFTO, 2015)**

<p><b>1) <u>Creating Opportunities for Economically Disadvantaged Producers:</u></b> Poverty reduction through trade forms a key part of the organization's aims. The organization supports marginalized small producers, whether these are independent family businesses, or grouped in associations or co-operatives. It seeks to enable them to move from income insecurity and poverty to economic self-sufficiency and ownership. The organization has a plan of action to carry this out.</p>
<p><b>2) <u>Transparency and Accountability:</u></b> The organization is transparent in its management and commercial relations. It is accountable to all its stakeholders and respects the sensitivity and confidentiality of commercial information supplied. The organization finds appropriate, participatory ways to involve employees, members and producers in its decision-making processes. It ensures that relevant information is provided to all its trading partners. The communication channels are good and open at all levels of the supply chain.</p>
<p><b>3) <u>Fair Trading Practices:</u></b> The organization trades with concern for the social, economic and environmental well being of marginalized small producers and does not maximize profit at their expense. It is responsible and professional in meeting its commitments in a timely manner. Suppliers respect contracts and deliver products on time and to the desired quality and specifications.</p> <p>Fair Trade buyers, recognizing the financial disadvantages producers and suppliers face, ensure orders are paid on receipt of documents and according to the attached guidelines. For Handicraft Fair Trade products, an interest free pre-payment of at least 50 % is made on request. For Food Fair Trade products, pre-payment of at least 50% at a reasonable interest is made if requested. Interest rates that the suppliers pay must not be higher than the buyers' cost of borrowing from third parties. Charging interest is not required.</p> <p>Where southern Fair Trade suppliers receive a pre payment from buyers, they ensure that this payment is passed on to the producers or farmers who make or grow their Fair Trade products.</p> <p>Buyers consult with suppliers before canceling or rejecting orders. Where orders are cancelled through no fault of producers or suppliers, adequate compensation is guaranteed for work already done. Suppliers and producers consult with buyers if there is a problem with delivery,</p>

and ensure compensation is provided when delivered quantities and qualities do not match those invoiced.

The organization maintains long-term relationships based on solidarity, trust and mutual respect that contribute to the promotion and growth of Fair Trade. It maintains effective communication with its trading partners. Parties involved in a trading relationship seek to increase the volume of the trade between them and the value and diversity of their product offer as a means of growing Fair Trade for the producers in order to increase their incomes. The organization works cooperatively with the other Fair Trade Organizations in country and avoids unfair competition. It avoids duplicating the designs of patterns of other organizations without permission.

Fair Trade recognizes, promotes and protects the cultural identity and traditional skills of small producers as reflected in their craft designs, food products and other related services.

**4) Payment of a Fair Price:** A fair price is one that has been mutually agreed by all through dialogue and participation, which provides fair pay to the producers and can also be sustained by the market. Where Fair Trade pricing structures exist, these are used as a minimum. Fair pay means provision of socially acceptable remuneration (in the local context) considered by producers themselves to be fair and which takes into account the principle of equal pay for equal work by women and men. Fair Trade marketing and importing organizations support capacity building as required to producers, to enable them to set a fair price.

The Fairtrade Minimum Price (where it exists) is the minimum price that must be paid by buyers to producers for a product to become certified against the Fairtrade Standards. It is a floor price which covers producers' average costs of production and allows them access to their product markets. It is therefore the lowest possible price that the Fairtrade payer may pay to the producer.

Fairtrade Premium is an amount paid to producers in addition to the payment for their products. The use of the Fairtrade Premium is restricted to investment in the producers business, livelihood and community or to the socioeconomic development of the workers and their community (for a hired labour situation). Its specific use is democratically decided by the producers.

**5) Ensuring no Child Labour and Forced Labour:** The organization adheres to the UN Convention on the Rights of the Child, and national / local law on the employment of children. The organization ensures that there is no forced labour in its workforce and / or members or homeworkers.

Organizations who buy Fair Trade products from producer groups either directly or through

intermediaries ensure that no forced labour is used in production and the producer complies with the UN Convention on the Rights of the Child, and national / local law on the employment of children. Any involvement of children in the production of Fair Trade products (including learning a traditional art or craft) is always disclosed and monitored and does not adversely affect the children's well-being, security, educational requirements and need for play.

**6) Commitment to Non Discrimination, Gender Equity and Women's Economic Empowerment, and Freedom of Association:** The organization does not discriminate in hiring, remuneration, access to training, promotion, termination or retirement based on race, caste, national origin, religion, disability, gender, sexual orientation, union membership, political affiliation, HIV/Aids status or age.

The organization has a clear policy and plan to promote gender equality that ensures that women as well as men have the ability to gain access to the resources that they need to be productive and also the ability to influence the wider policy, regulatory, and institutional environment that shapes their livelihoods and lives. Organizational constitutions and by-laws allow for and enable women to become active members of the organization in their own right (where it is a membership based organization), and to take up leadership positions in the governance structure regardless of women's status in relation to ownership of assets such as land and property. Where women are employed within the organization, even where it is an informal employment situation, they receive equal pay for equal work. The organization recognizes women's full employment rights and is committed to ensuring that women receive their full statutory employment benefits. The organization takes into account the special health and safety needs of pregnant women and breast-feeding mothers.

The organization respects the right of all employees to form and join trade unions of their choice and to bargain collectively. Where the rights to join trade unions and bargain collectively are restricted by law and/or political environment, the organization will enable means of independent and free association and bargaining for employees. The organization ensures that representatives of employees are not subject to discrimination in the workplace.

**7) Ensuring Good Working Conditions:** The organization provides a safe and healthy working environment for employees and / or members. It complies, at a minimum, with national and local laws and ILO conventions on health and safety.

Working hours and conditions for employees and / or members (and any homeworkers) comply with conditions established by national and local laws and ILO conventions.



<p>Fair Trade Organizations are aware of the health and safety conditions in the producer groups they buy from. They seek, on an ongoing basis, to raise awareness of health and safety issues and improve health and safety practices in producer groups.</p>
<p><b>8) <u>Providing Capacity Building:</u></b> The organization seeks to increase positive developmental impacts for small, marginalized producers through Fair Trade.</p> <p>The organization develops the skills and capabilities of its own employees or members. Organizations working directly with small producers develop specific activities to help these producers improve their management skills, production capabilities and access to markets - local / regional / international / Fair Trade and mainstream as appropriate. Organizations that buy Fair Trade products through Fair Trade intermediaries in the South assist these organizations to develop their capacity to support the marginalized producer groups that they work with.</p>
<p><b>9) <u>Promoting Fair Trade:</u></b> The organization raises awareness of the aim of Fair Trade and of the need for greater justice in world trade through Fair Trade. It advocates for the objectives and activities of Fair Trade according to the scope of the organization. The organization provides its customers with information about itself, the products it markets, and the producer organizations or members that make or harvest the products. Honest advertising and marketing techniques are always used.</p>
<p><b>10) <u>Respect for the Environment:</u></b> Organizations that produce Fair Trade products maximize the use of raw materials from sustainably managed sources in their ranges, buying locally when possible. They use production technologies that seek to reduce energy consumption and where possible use renewable energy technologies that minimize greenhouse gas emissions. They seek to minimize the impact of their waste stream on the environment. Fair Trade agricultural commodity producers minimize their environmental impacts, by using organic or low pesticide use production methods wherever possible.</p> <p>Buyers and importers of Fair Trade products give priority to buying products made from raw materials that originate from sustainably managed sources, and have the least overall impact on the environment.</p> <p>All organizations use recycled or easily biodegradable materials for packing to the extent possible, and goods are dispatched by sea wherever possible.</p>

The strategies proposed to achieve this are:

1. Direct contact between the producers in the developing countries with the distributors in the developed countries, through different networks coordinated by international trade organizations and transnational associations.
2. Creation of certification and labeling systems (for the products) to inform and reassure consumers that the goods they purchase meets certain social and environmental conditions.
3. The use of transnational networks of advocacy for fair trade, such as Oxfam International, which make strategic campaigns to take advantage of globalization.

Over the last years, fair trade markets have grown considerable. According to the Fairtrade Labelling Organization, sales of FLO-certified products globally have increased nearly ten-fold to over 2.4 billion Euros annually from 2001 to 2008 (Lacey, 2009). This growth comes from consumer concerns related to social, environmental, and health impacts of production and distribution. These certifications are becoming more popular because they unite valued traits related to global poverty, environment, and health outcomes into a single bundle. This bundling allows consumers to express preferences for a more just and environmentally healthy world with daily purchases of basic commodities (Bradford & Weber, 2012).

### Fair Trade in Mexico

Fair trade offers development opportunities to producers. However, in Mexico and other countries, the fair trade was perceived as an initiative that emerged in the developed countries, resulting in the imposition of the methods of certification and verification, the criteria and fees to be paid, having a control over who is certified and who does not (Otero, 2006).

Independent Mexican coffee grower unions created their own non-profit certifying body called Certimex, to make audits more affordable for small producers. Initially, it only offered certification to organic or ecological standards. However, since 2000 it has worked with FLO and Comercio Justo México AC to become an accredited certifier to Fairtrade standards as well (Lacey, 2009).

Mexico is a pioneer in terms of creating a domestic fair Trade label (Otero, 2006). Mexico's Fair Trade Association was founded on the initiative of organizations of small farmers and civil society organizations. Mexican small farmers were among the first to join the fair trade initiatives to observe its advantages; especially coffee growers in the south, led by the Union of Indigenous Communities of the Isthmus Region (González, 2011). Mexican fair trade label comes up because very specific characteristics: The economic policy of economic liberalization, the situation of the Mexican countryside, in the particular geographical

context, its economy and the integration of the Mexican economy in the North American space through the NAFTA; and the status of international fair trade movement, which faces a series of questions about the relevance of its strategy and its future (William, 2004).

CJM was created to develop a domestic fair trade market for small-scale producers and to give support in commercial development. The biggest different with the FLO is the strong connection with the producers. However, due to the low incomes of most Mexicans, the national market have had difficulties to develop (Lacey, 2009). Even CJM is an Associate Member of FLO, it has some differences between its standards and those of FLO. The most important of these are:

- CJM only works with small producer organizations
- CJM defines small producer organizations as those with at least 95% of associates being small producers, compared to 50% within FLO.
- CJM has specific criteria that apply to big or multinational companies, to try to ensure real commitment to the principles of Fair Trade.
- CJM accepts organic certification as sufficient to meet the environmental requirements of Fair Trade.

Fair trade in Mexico has three pillars: Certimex, which is the certification body; Fair Trade Mexico (CJM), which is responsible for the promotion and legislation; and Agromercados, which focuses on marketing and retailing. Fair Trade Mexico and Agromercados come up from the initiative of a group of small producers, some cooperative networks and civil organizations. The main advantage of this national system is to reduce certification costs. Indeed, the goal is that small farmers will no longer need to rely on foreign certifiers, who impose very high fees (Otero, 2006).

According to Fair Trade Mexico, the main features of fair trade are:

- The products come from small organized, democratic, transparent and independent producers.
- Producer prices cover the costs of sustainable production and recognize their contribution to overall development.
- Long-term commitments between producers and market companies are established.
- The market must promptly pay to producers so that they are not forced to undersell to intermediaries.
- With the label, the consumer guaranteed the quality, origin and sustainability of the products.

The Fair Trade system has so far been the most successful model to offer small farmers the option of obtaining income through long-term and closer business relationship between producers and consumers, where the consumers obtained the best quality products made with nature respect. Promoting the independency of small producers and the link of economic, social and cultural development (Comercio Justo Mexico, 2015).

### Fair Trade Agave Products

In the Fairtrade Herbs and Spices list three agaves spices are listed: *Agave angustifolia*, *Agave tequilana* and *Agave salmiana*. Being available to be sold as Fairtrade by Small Producer Organizations. Hired Labour companies are allowed to produce and sell fresh and dried agaves as Fairtrade (Fairtrade International, 2016b) The agave is a specie without fixed Fairtrade Minimum Price or fixed Fairtrade Premium, so a Fairtrade Premium of 15 % of the commercial price have to be paid

In the last years (2015), the Fairtrade herbs, herbal teas and spices category grew by 386 % in comparison with 2012-2013 levels. This was primarily due to sales of agave and to the growth in Fairtrade certified agave producers in Mexico. Compared with other dried herbs and spices, agave is produced and sold in relatively large volumes. Agave is a relatively new product within Fairtrade. Market interest in agave is increasing as companies look for sustainable ways to source alternatives to cane and beet sugar (Fairtrade International, 2016c)

Additionally to the certification of the agaves spices as Fairtrade, there is a big diversity of products that can be obtained from the agave, than just alcoholic beverages like mezcal. The option of products goes from clothes made out of the fibers of the plant to sweeteners like syrup and honey (Espinoza Paz, 2002; Sanchez López, 2005).

In the case of the agave products offered under the Fairtrade label, it can be found: Sweeteners as syrups and nectar or milk chocolate with nectar agave (Fair Trade USA, 2016b).

As mentioned before, the agave plant have a wide range of uses; fermented and distilled beverages, fiber production, clothing, toys, handcrafts, footwear, paper, medicine, food, ornamental, agricultural and construction tools, among others (Colunga-García Marín *et al.*, 2010; Comité Nacional Sistema Producto Maguey Mezcal, 2011; Reyes Samilpa, 2016). This shows the wide opportunity range in the development of fair trade products.

## Fair Trade and Alcoholic Beverages

Traditionally, the fair trade activity has focused on the marketing of food products and handcrafts. Eventually, it has expanded the product offer (Coordinadora Estatal de Comercio Justo, 2008).

There is a big diversity in Fairtrade products, bananas, sugar, cocoa, coffee, flowers, seed cotton and tea represent more than the 90 % of the fair trade system (Fairtrade International, 2016c), but there is other options use as main products or secondary products and/or their derivatives, like food, textiles, handcrafts, furniture, clothes, toys, cosmetics and even alcoholic beverages like wine, beer and other spirits (Coordinadora Estatal de Comercio Justo, 2008).

Some of the spirits under the Fairtrade label are: vodka, rum, gin, goji and coffee liquors. These spirits use Fairtrade Certified ingredients to formulate distilled alcoholic beverages (Fair Trade USA, 2016b).

There is no mezcal under Fairtrade certification but there is possibilities due the product nature and the already certification of the raw material, agave.

## Study Area: Santiago Matatlán, Oaxaca.

The state of Oaxaca is in the southeast section of the Mexican Republic and it belongs to the Economic Zone of the South Pacific. Its geographical position makes it a cultural and ecological diverse region (Álvarez, 2003).

Oaxaca state has a territory of 95,364 km<sup>2</sup>, divided in 30 political districts and 570 municipalities. The state is also divided in regions, based in the ethnographic, botanical, economical and geographical aspects (Álvarez, 2003). This regions are: Cañada, Costa, Istmo, Mixteca, Papaloapan, Sierra Norte, Sierra Norte, Sierra Sur and Valles Centrales.

The Valles Centrales region is the most populated one in the state, it's composed by different ethnic groups, being the Zapoteca one the predominant. The area is economically and sociality important because of the population density, the political centralization and the commercial activity. The Valles Centrales is divided in seven districts: Centro, Ejutla, Etlá, Ocotlán, Tlacolula, Zaachila y Zimatlan. Tlacolula is divided in 25 municipalities, Santiago Matatlán included (Álvarez, 2003).

Matatlán name means "Together or between nets." It consists of *Matlatl*: "Net" and *Tlan*: "Next". Its foundation dates from 1575 and their titles were issued in 1714 (H. Ayuntamiento Constitucional Santiago

Matatlán, 2014). It is located in the region of the Central Valley, 56 kilometers Southeast from Oaxaca City. It is located in the coordinates 16°52' North latitude and 96°23' west longitude, at an altitude of 1,740 m above sea level (Figure 6). Bordered on the north by the municipality of Tlacolula de Matamoros; south with San Dionisio Ocoatepec; west with San Lucas Quiavini, San Bartolome and San Baltazar Quialana Chichicapan east with Tlacolula de Matamoros (Bautista *et al.*, 2007; INAFED & SEGOB, 2010).

It has an area of approximately 170.91 km<sup>2</sup>, 0.13 % of the state total territory. Its surface is generally flat and the main elevation is the Nueve Puntas Hill with 2,356 m above sea level. (H. Ayuntamiento Constitucional Santiago Matatlán, 2014; INAFED & SEGOB, 2010)

It has temperate climate with short annual thermal oscillation. The vegetation includes pastures, low plants and semi-desert shrubbery, where the mesquite (*Prosopis* spp.), the guaje (*Leucaena leucocephala* subsp. *glabrata*) and the cazaguate (*Ipomoea murucoides* Roem. et Schult) predominate. The wildlife constitutes mostly in small mammals like the rabbit (*Sylvilagus* spp.), cacomixtle (*Bassariscus astutus*), opossum (*Didelphis* sp.), weasel (*Mustela* sp.), hare (*Lepus* sp.), gopher (*Spermophilus* sp.), and middle size birds like the pigeon, sparrow hawks and eagles. (INAFED & SEGOB, 2010)

The main economical activity is the crop production, the soil, classified as Chromic Luvisol, is propitious for the cultivation of different crops like the agave and corn as well. The mezcal produced in this area maintains an international quality and recognition (INAFED & SEGOB, 2010).

The municipality has approximately 9653 inhabitants, of which 53 % are women and 47 % are men (SEDESOL, 2015). Its ethnicity is predominantly Zapotec and mestizos. The index of marginalization, social backwardness and migration is "very high", "high, and "high" respectively (SEDESOL, 2014, 2015), it is estimated that will be only 5684 inhabitants in 2030 (Rios & Kumar Acharya, 2012). It has a mainly indigenous population and is governed by a self-governing under the "*usos y costumbres*" indigenous normative system, but with gradual integration with the federal government (Bautista *et al.*, 2007).



**Figure 6. Santiago Matatlán, Oaxaca, Mexico. Map.**

While the natural resources in Santiago Matatlán serve to generate significant economic development, such as the one from mezcal production, proper land management has been emphasized in the to prevent desertification (H. Ayuntamiento Constitucional Santiago Matatlán, 2014).

## **Methodology**

The methodology used to carry out the objectives of the research are divided into three stages:

1. Contextualization → Data Collection → Literature Revision & Interviews
2. Situational Analysis → Data Analysis → PESTLE & SWOT Analysis
3. Critics, conclusions, limitations and recommendations → Data interpretation

## **Data Collection**

For a description of the historical situation and the current situation of the mezcal industry, Santiago Matatlán mezcal production and market, contextualization of fair trade in this market and export, data collection from primary and secondary sources was done.

### Secondary Sources

Literature, journal papers, thesis, specialized books in the topic, reports and federal regulation papers about the Agave-Mezcal System and the fair trade where used for the secondary data collection.

The secondary data research was based on the five stages for documental research (Sandoval Casilimas, 2002):

1. Tracking and inventory of existing and available documents.
2. Classification of documents.
3. Selection of relevant documents in accordance with the purposes of the investigation.
4. Depth reading of the selected documents, analysis and recording of discovered patterns, trends, convergences and contradictions.
5. Cross and comparative reading, to build a comprehensive synthesis of the study reality.

### Primary Sources

With the objective of information gathering and a wider perspective of the actual situation and the possibility of an alternative market for the mezcal industry, a fieldwork was done with qualitative semi structured interviews (Table 11) to the different actors of the mezcal value chain, being the ones that determine and transform the mezcal industry social reality (Serbia, 2007). Interviews to producers in their *palenques* or artisanal mezcal distilleries, from April to June 2016 were done in the municipality of Santiago Matatlán. Other interviews to stakeholders (producers, distributors, writers, promoters, regulatory entities) and experts were done in Oaxaca City and Cologne from February to June 2016. The main topics of the interviews where: traditions and history, production, commerce, status quo of the Agave-Mezcal System, institutions and organizations of producers and the main problematic in the industry.



**Table 12. Interview Guide Topics**

<b>Interview Topics</b>	
Historical and cultural mezcal production background	
Mezcal production process	
1.	Raw Material
2.	Production Steps
3.	Working Tools
4.	Workers
5.	Costs
6.	Wastes
7.	Times
Product Commercialization	
1.	Clients
2.	Prices
3.	Brands
4.	Certifications
5.	Distribution Channels
Social, political, legal, economical and environmental mezcal industry status quo	
Municipal Mezcal Workers Organizations	
Actual problems, possible solutions and future of the industry	

In total, 17 key interviews were done: Seven Santiago Matatlán mezcal producers, one Santa Catarina de Minas mezcal producer, one San Dionisio mezcal producer, one CRM (Consejo Regulador del Mezcal) financial assessor, two artisanal mezcal distributors, one mezcal writer and mezcal tourism entrepreneur, one Fairtrade contact, one mezcal researcher from the CIIDIR (Centro Interdisciplinario de Investigación para el Desarrollo Integral Regional, Unidad Oaxaca.), one mezcal distributor in Germany and one unfinished interview with the CRM president (Index 1).

All the interviews were conducted face to face, but the interview with the Fairtrade Junior Project Manager realized via Skype call. For ethical principles, all the interviewed people were informed about the objectives of the research, answers anonymity conditions and the audio recording uses (Malhotra, 2008).

The interviews had a qualitative approach for the understanding of the characteristics of the behavior of the social scenarios and the subjects on it, the social reality and its constant construction (Serbia, 2007). It is important to highlight that qualitative research is done before a quantitative one. The results of the qualitative research cannot be considered conclusive or generalize them, these results are complement of future qualitative and quantitative studies (Kotler & Keller, 2006).

The openness and flexibility of the qualitative approach let this research understand the deep aspects of the behavior of the social actors, the subjectivity of the mezcal industry reality, the continuous changes that it have and this research tried to be comprehended (Sandoval Casilimas, 2002; Serbia, 2007).

The representative of the sample is based on the subjectivity of the interviewed people about a topic and the sense in a specific topic and not in a number. The amount of people to interview was established during the development of the research and the fieldwork; its validation is based on the coherency and the emblematic character of the recollected data. This was also proved by the saturation of the relevant and coherent information about the topics during the interviews and the actual development of the study (Martínez-Salgado, 2012). The selection of the sample was based on the “*snow ball*” technic; the access to the people was based on contacts and information given by the interviewed people (Serbia, 2007).

### Data Analysis

The situational analysis of the Agave-Mezcal System is based on already exist information, the bibliography and the perspective captured in the qualitative interviews of the social actors involved in the mezcal industry. The analysis was made to understand the material and subjectivity of the reality of the Agave-Mezcal System (Sandoval Casilimas, 2002; Serbia, 2007). For the summary, clear illustration and analysis of the Agave-Mezcal Product System, the analytical method of the PESTLE and SWOT matrix tools were used.

The PESTLE tool was used for the organization and the creation of the framework of the collected information. The result of this analysis is the base for the SWOT tool. Both analyses work as complementary.

### PESTLE Analysis

For the organization and framework of the information obtained by the interviews and the documental research, the PESTLE analysis was used.

The PESTLE (political, economic, sociocultural, technological, legal and environmental) analysis is a tool to identify, contextualize and form a framework of the external factors that influence a situation, and can also be used to review a strategy, direction of a company, a marketing proposition, or idea (Andler, 2011; Kotler & Keller, 2006).

This tool gives a full picture of the factors that impact any situation. After recognizing, these factors then can be analyzed. Most of the identified factors are not under the control of the analyzed situation, because of its external nature, but they need to be taking into account and understood.

The PESTLE analysis is useful for the developing of strategies, marketing propositions, new product or new business ideas or new markets propositions. In this case the alternative market proposition of fair trade mezcal was the situation analyzed (Table 12).

**Table 13. PESTLE factors.**

<b>Political</b>	<b>Economic</b>	<b>Sociocultural</b>	<b>Technological</b>	<b>Legal</b>	<b>Environmental</b>
Government stability. Tax regulation. Trade laws. Corruption. Bureaucracy issues.	Taxes. Exchange rates. Prices. Working practices. Production costs. Employment.	Demography. Lifestyle. Education. Ethics. Historical issues. Culture.	Production. Tools. Efficiency Quality.	Normative. Denomination of origin. Taxation. Regulatory bodies.	Infrastructure. Inputs & outputs. Materials disposal. Social implications. Ecological impacts and consequences.

### SWOT Analysis

The information analysis was done with the methodology based on the SWOT tool development by Kenneth Richmond Andrews (Andler, 2011). The SWOT is the most commonly known analysis tool; it describes and organizes information by the development of two analysis: internal (strengths - weaknesses) and external (opportunities - threats) of a particular situation, giving the basis for strategy development or decision taking (Andler, 2011; Robbins & Coulter, 2010). (Figure 7)

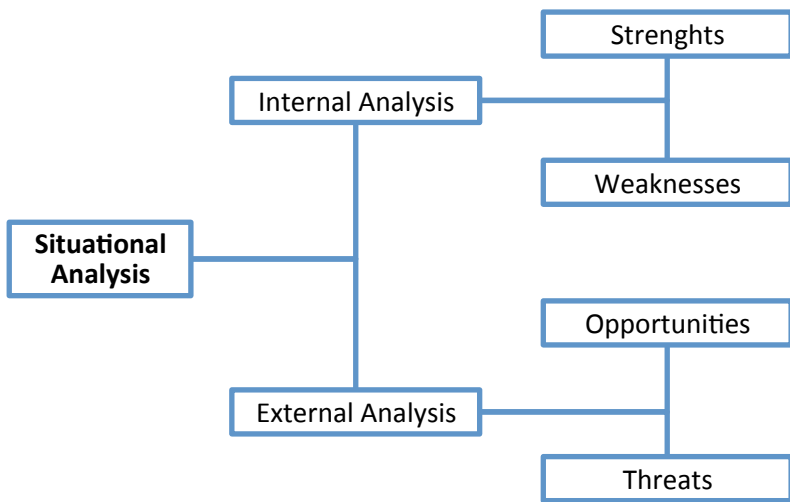


Figure 7. SWOT Analysis

For the formulation of the SWOT, the aspects are based on the information gathered before and illustrated in a SWOT matrix. The matrix consists in four quadrants: current internal strengths and weaknesses and future external threats and opportunities. Figure 8

<b>Internal Factors (Current)</b>	<b>Strengths (+)</b> Resources or capabilities	<b>Weaknesses (-)</b> Limitations, faults or defects
<b>External Factors (Future)</b>	<b>Opportunities (↑)</b> Favorable situations, trends or changes.	<b>Threats (↓)</b> Unfavorable situations, trends or impending change.

Figure 8. SWOT Matrix

For this research the SWOT analysis was apply to two specific situations:

- SWOT: Santiago Matatlán Mezcal Industry
- SWOT: Mezcal Fair Trade

The process involves the identification of strengths, weaknesses, opportunities and threats for the first situation based on the information gathered before. The next SWOT analysis was held based on the previous analysis and the information regard about that topic.

For the SWOT analysis link with the PESTLE tool, a modification on the basic SWOT matrix (Figure 8) was done. The PESTLE factors were included in analysis as a division of the topics of the SWOT quadrants (Figure 9). This modification permits a better identification of the strengths - weaknesses and opportunities - threats in the different factors used for the analysis.

	Internal (Current)		External (Future)	
	S (+)	W (-)	O ↑	T ↓
P				
E				
S				
T				
L				
E				

Figure 9. SWOT – PESTLE Matrix

## Results and Analysis

Information obtained during the fieldwork and interviews is used to characterize Santiago Matatlán agave-mezcal system. The information is presented following the PESTLE analysis structure to describe the context and factors that surround the Santiago Matatlán agave-mezcal system (Appendix 2). The information obtained is reinforced with the literature review, being referenced when need.

### PESTLE

#### Political

As Bowen (2015) and Bautista *et al.*, (2007) indicate, the political influence, in mezcal system, is not only through regulations, government spread and support of the use of modern technologies and specific agave species crops for the promotion of agroindustrial growth. State governmental organizations actively promote the intensive cultivation of maguey *espadín*, because its commercial viability. As said before, maguey *espadín* have a high sugar concentration, short maturation time (5-8 years) and it has a relatively easy *hijuelos* propagation system being economically attractive. The threat in this cases is the traditional

production systems marginalization and the lost of agave's and mezcal's organoleptic characteristics diversity.

Many times, government applied strategies are perceived by the interviewers as unplanned, unequal and ineffective, the grant equipment is not appropriate to local mezcal production, the benefits are only for some and there is the perception of conditioned support during election periods. According to Bautista & Teran (2008), even the uses and costumes system (Santiago Matatlán's type of government) have been affected by political actors who use mezcal topics to their own interest and generate conflicts between the community inhabitants. This could be related with to the distrust on organizations, expressed by interviewed producers.

The DOM is a continuously criticized topic by the academy, Aguirre Rivera *et al.*, (2001), Bowen (2015), Torrentera (2001), Larson & Aguirre (2015) and interviewed mezcal stakeholders; because only certain regions that produce distilled agave are favored by the DOM, these rules do not reflect the Mexicans mezcal tradition, as the benefits of the designation of origin exclude many regions and most of the states which produce excellent quality maguey distillates.

During the interviews, it was also mentioned the need of re-frame mezcal regulations according to regions and traditional techniques, as in the case of the DOM's around the world, in order to recognize the diversity of techniques and agaves, promoting the conservation of the cultural heritage

Another discussion topic in literature, Bowen & Danny (2014) and during the interviews, is related with the DO property in Mexico, which put the real mezcal owners (producers) and experts aside, giving the power to the state to transform and regulate the production processes and product characteristics, in order to meet economic and political goals. As said above, this situation should be analyzed and take the example of other DO where decision makers are the traditional producers, wine and cheese examples could be taken.

Finally, but not less important, is the corruption situations in the CRM, public and private institutions that are perceived and sometimes proved in the mezcal industrial sector, as mentioned by interviewers and stated in the interviews made by Bowen (2015), examples of this are the capture of funds from the Secretary of Agriculture that are transferred fraudulently and unequally between the industrial mezcal elite and the small mezcal producers, making their situation even more unequal.

As mentioned by the Lacey (2009) and Garza Treviño (2014), the fair trade approach prioritizes the inclusion of workers in decision-making and problem-solving processes, situation that its not present in

the DOM and mezcal NOM decisions and the governmental strategies that should look for the benefit of the producers and the communities where mezcal is produced, taking into consideration the opinions of the experts on the topic, the agave and mezcal producers.

Garza Treviño (2014) conclude in his research that one of the main benefits out of the fair trade develop the construction of social networks which allow producers face predicaments in a more suitable way. Situation that Bautista & Teran (2008) mention that the social network has being affected by the intrusion of external actors in the decision making or the corruption of internal ones.

### Economical

Interviewed producers said that they performed complementary activities to mezcal production, as other crops cultivation, other jobs or commercial activities performance, Bautista & Smith (2012) and Sanchez Lopez (2005) studied this phenomena and mention that this situation give small producers a larger range of economic stability and livelihood options.

The artisanal mezcal producers recognized socio-economic relationships that generate direct and indirect employment in the municipality and region. Them and their families get employment benefits, as well as their suppliers and employees. This local and regional employment is related with the production of distillation and fermentation equipment, and purchase of stones, wood and even the raw material.

During the interviews it was said that labor could be hire formally to work full time or to work in specifics tasks. The availability of jobs has reduced the migration while migrants have the opportunity to return to their homeland helping to reduce the traditional knowledge lost. Just as Garza Treviño (2014) mention, the migration rate of workers under the Fairtrade certification is significantly lower in comparison to the ones that are not, being the mezcal industry and the fair trade complementary to avoid the society displacement, that represent that provokes economical, social and cultural modifications in the affected communities.

Even the producers consideration of costs from agave, wood, bottles, labels or certification, there are many items that are not considered, as their own or their family labor, services cost (electricity), water cost, tools and equipment depreciation or merchandising cost; due to a lack of business knowledge and financial preparation, usually small producers have never done a proper calculation of the costs, the result is that the mezcal price does not cover the real costs of the production therefore there are not real profits for the producers. This situation is significantly important in the fair trade approach, the WFTO (2015) set in the Fairtrade standards the payment of a fair price (minimum) that covers the producers average costs

of production and allows them access to the market. Fairtrade International (2011) designed a guideline for estimating costs that cover production costs and protects the producers from market instabilities, situation that constantly affects the agave and mezcal producers, because of the intermediaries' advantages.

Some producers have the perception of get a profit out of mezcal sells, but the determined mezcal sell price barely covers the direct costs, while the indirect costs are paid by the supposed profit, this lead to difficulties to improve their facilities, their production capacity and to reach other markets. As mentioned before, the WFTO (2015) standards asked for a Fairtrade Minimum Price that covers all this costs (that should be previously correctly estimated and establish with the producer) and with the possibility of a Fairtrade Premium for investment in the producers business, livelihood and community or to the socioeconomic development of the workers and their community.

The bad costs calculations and considerations are also link to the use and commercial value that the producers give to their products. As Bonfil Batalla (1995) explains in his research, the capitalist way of production is not fully integrated and implemented to their business or culture; they give a selling price based on raw material costs but not to their work and expertise. This let them in a disadvantaged situation during the negotiation of their product price.

This situation gets worse when there is no association with the retailers, this originated bigger disadvantages for the producers, who receive less benefits, sometimes the paid price is less than the (not properly) determined by the producer, while the retailers get the bigger profits. According to Bautista *et al.* (2015), there are cases in which the retailer obtains more than 100 % of the paid price. Mezcal producers commented that they often lack the financial and organizational resources to certify and commercialize their product in a large scale, being necessary to work with intermediaries. Bautista *et al.* (2015) explain that the relationship between producers with intermediaries and retailers help with these barriers but also capture much of the profit for the intermediaries and put the producers in a "*maquiladores*" situation, losing their autonomy.

One of the WFTO (2015) and Comercio Justo México (2015) main features is the promptly payment to producers and the reduction of intermediaries in the value chain, trying to develop a direct commercialization putting as near as possible the producers and the consumers, so that the producers are not forced to undersell to intermediaries, just as the situation of the mezcal and agave producers.

A common idea about the future of mezcal between producers and key actors is the continual growth of the mezcal industry with some adaptations and artisanal technifications, if protected and value properly.



As mentioned before by Bowen (2015) and Bautista & Teran (2008), the market tendencies on the artisanal products will permit the tradition valorization that distinguishes mezcal as a premium product. This is an important market opportunity, that the industry have to valorized and develop properly to get all the benefits out of it, with equity and improvement for all the value chain stakeholders.

These perceptions of growth in the alternative markets tendencies, like artisanal and organic products, is reinforces by the Lacey (2009) study and the continual growth of the fair trade market, product and organization certification and the preference and consumption of the certified products. Fairtrade International (2016b) mentioned a significant growth in the certification and consumption in certified agave products, representing an opportunity for the mezcal and agave producers.

### Sociocultural

The interviews reveal that Santiago Matatlán mezcal importance is related to the historical background, high volume production, product quality and location near Oaxaca city. Bautista *et al.*, (2015) and the municipality development plan (2014) agree, that these reasons made the mezcal production one of the main economical activities of the municipality and the region.

The Interviewers consider mezcal production a cultural heritage as well as a family tradition; knowledge is transmitted from generation to generation and leads to the artisanal mezcal knowhow production nowadays. Bowen (2015) and Puche & Lazcano (2006) as well as the interviews consider that mezcal is artisanal due to the use of traditional techniques and the type of used materials. Some producers and key actors commented that the volume of production should be a variable to distinguish the artisanal production from the industrial one, but this is not considered in the actual regulations.

Some recurrent topic during the interviews, were the impacts of the growth of mezcal industrialization over the traditional knowledge and production, as well as the identity that characterizes mezcal, taking away mezcal real values. Producers said that artisanal mezcal is still produced due to its quality appreciation (smoky and gritty flavor, spiciness, alcohol concentration). Bowen (2015), Zapata (2008) and López (2005) mentioned the growing market preference on handmade, organic and artisanal products as another significant reason.

The literature (Bowen, 2015; CRM, 2016) and interviews agree with the actual growth in mezcal consumption and appreciation. Though, some social sectors have an lack of appreciation of artisanal mezcal real value, the amount that consumers and retailers are willing to pay does not cover all the costs and does not reflect the value of the traditional techniques. According to the interviews, producers,

retailers as well as other interested people, develop mezcal education activities in order to create a better consumers perception.

A problem related with the artisanal production recognition perceived by the interviewed producers, is the production limits and the singularity perception of every single mezcal (agave, tools, producer, etc.) that go against to the co-operative production of mezcal and the hard technification of the production process required for the fair trade features.

The producers recognized that benefits related with mezcal production growth are not just economic, families have better education opportunities, services availability, infrastructure has improved and touristic activities grow in the region. In addition, Bautista & Orozco (2015) establish that the mezcal producers reinforce social networks since they contribute to conserve traditions, support community activities and festivities, as it was said in the interviews; this should be conserved as the mezcal industry social responsibility with the community. This situation is not favored by the introduction of external actors in the industry.

Just like the benefits of mezcal production mentioned above, the WFTO (2015) standards of capacity building and the payment of a Fairtrade Premium, would complement and develop in a bigger scale the development of the producers infrastructure, management skills, production capabilities, their families and workers skills and the community infrastructure. This, as mentioned in Porter & Kramer (2011) and Bradford & Weber (2012) studies, the development of the productions infrastructure and producers skills are essential for improving producers welfare, gives them a market differentiator and added value to their products.

As a result of the interviews is possible to said that there are other social problematic related with mezcal, as the case of disadvantageous situation of small producers which can be decreased by the reduction of intermediaries, this could be achieved by producers organization, however there is a historical distrust due the organization leaders corruption incidence. This is a big problem especially because WFTO (2015) standards look for the organization of producers and the co-operative production for the certification of their products. Just as the Milford (2014) study conclude, the distrust and the extra work of organization are just of the factors that influence the producers to not be part of a co-operative organization even the possibility of certification, stability and better prices offered, in this case mezcal or agave organizations

The lack on the balance between production quantity and quality as well as mezcal social, environmental, economic and political problematic, are enhanced by limited formal information and lack in scientific

research of these topics. Moreover the few done researches are not available or the language is not easy to understand by people who can take advantage of it.

### Technological

The artisanal mezcal production is predominant in Santiago Matatlán, even is widely know that the biggest production of mezcal is made by couple of industrial mezcal factories, constructed just some kilometers from Matatlán.

Almost all the distilleries visited use the traditional technology and tools for mezcal production. The production involves the use of ground ovens, grinding in *tahona* or with mallet, wooden fermentation vats (even one plastic one was found) with no added chemicals, clay or copper stills heated with wood. This situation is describes in different studies, Bowen (2015), Huertas Rosas & Luna Zamora (2015), Sanchez López (2005), Valenzuela Zapata *et al.*, (2008), mezcal artisanal production is still produced due to the quality appreciation that the traditional tools give to the final product.

Some producers said that the production processes are being modified in small details that do not perturbed the traditional and artisanal base of the production or the final product characteristics. The use of different levels inside of the distillery for make easier the movement of the material and control the temperature of the vats, freezing yeast of good production, the change for machines in the *tahonas* or the use of gutters to not waste any extracted juices are just some examples of this.

Another technological aspects notice during the fieldwork are the technification and improvement of the facilities, most of the distilleries have light, water and electricity, and some have its own well and solar panels due the lack of urban network.

The FLO (2011) establish in the guideline for estimating costs, the mere fact of being able to identify the most relevant costs of a process can enable a producer to seek better technological options or seek ways to decrease those costs and get it as an income. This situation requires a balance between an industrial technification and technification improvements that don't affect directly the final product and the organoleptic characteristics that mezcal offers.

### Legal

During the interview the tax registration and payment difficulty was mentioned, due the no tax payment culture, education or infrastructure which represent another obstacle to mezcal producers legalization. Another recurrent tax problem is the taxation imposed in the same way to traditional and industrial

producers, this is perceived as a disadvantage situation because of small traditional producers production higher costs compared with the high volume production ones. In response to this, some interviews refer the need to adjust the taxing regulations as it has been done with other artisanal products in Mexico.

Certified mezcal taxation is incredibly high. As a high-proof alcoholic beverage in Mexico, mezcal have a special tax on Production and Services of 53 % and a 16 % of value added. The taxes paid for exported mezcal can vary by destination country. As mentioned in the CRM interview, there is a propose to lower the tax rate for artisanal mezcal producers form 53 % to 10.07 %. This would help the small producers to get certified.

Some interview stakeholders perceived mezcal regulations as necessary to guarantee the quality of the product, however there is also a negative perception by others, because it limits the small producers possibility to develop and grow. Even they understand that certification give the opportunity to sell mezcal nationally and internationally, it is difficult to some producers to legalize their production since their lack of resources, preparation, legal and financial knowledge.

There are mezcal producers who don't really want to join the formal market. Even they are inside the DOM, they do not want to get certified, because it would require them to alter their production practices and final product characteristics, costs are too high or they perceive the regulatory organizations as distrustful.

The CRM, centralized institute that still growing and adapting to the mezcal industry growth, recognized during the interviews their lack of capacity to certified new producers and brands as well as to analyze all the production. This constitutes another obstacle, even when the producer or retailer wants to have the certification, they do not have access to it. This is a problem, as Bowen (2015) said, around 80 % to 90 % of the mezcal producers are uncertified.

It is worth to mention that some of the already regulatory certified interview producers, still looking for other volunteer certifications as the organic, ecological or kosher ones. Just as mentioned in the International Fairtrade report Scope And Benefits Of Fairtrade (2016) for many producer organizations, multiple certifications are a mechanism to ensure a wider market for their products, to meet export standards, and to reduce risk. Fairtrade certifications for the mezcal production or the use of certified agave could be an option and an extra certification for the Santiago Matatlán producers.

The producers with out brand expressed their interest in brand registration and mezcal certification, even the perceived obstacles. Some small producers certified part of their production to bulk sale, others

produce to specific retailers and some associate with retailers, in this cases the commercialization benefits are not for the producers but to intermediaries, bottlers, retailers or exporters.

It was recurrently mentioned, during the interviews, that another regulatory need is related with the creation of norms to prevent the shortage and extinction of wild agaves due to its intensive use, the shortage of water and the local disposal waste regulation.

## Environmental

As mentioned before and reinforced in the interviews, agave could be cultivated or gathered from wild environment. *A. angustifolia* is the most used maguey for mezcal production and it could be cultivated in the producers land, borrow or rented one, in this cases the agreements can be written or oral as used to be traditionally. Eguiarte & González (2007) explains that agave espadín (*A. angustifolia*) dominates because it fits into the industrial model that values efficiency and profitability, but the implications of monoculture intensive cultivation of genetically uniform, can bring phytosanitary problems, biodiversity and genetic variety lost.

As seen in the fieldwork, some traditional agave growers made a semi-intensive cropping, which has 1,500 agaves per ha approximately and is mix with other crops. Producers explain that their practice agave reproduction methods by *hijuelos*, *quiate* treatment or seeds. None of the interviewed recognized the use of chemical fertilizers or herbicides, it was mentioned the use of agave fibers (bagasse), agave leafs and other organic wastes to improve the soil characteristics, however Bautista & Smit (2012) mention that there are some small producers in the municipality who use chemicals products for weed and plagues control. It was said that the plagues and diseases are not common in the region nevertheless sometimes the presence of *picudo* (*Scyphophorus acupunctatus*) is known.

Interview producers said wild agave is not commonly gathered from the municipality, as an official authorization is needed, that is why the wild agaves are taken from outside the municipality. The species gathered, by mezcal producers themselves or wild agave gatherers, are: *A. potatorum* (tobalá), *A. rhodacantha* (quixe), *A. karwiinski* (madrecuixe), *A. marmorata* (tepeztate) and *A. americana* var. *oaxcensis* (arroqueño). The intensive use of them impact reproduction cycles and led to a shortage. The wild agave use for mezcal production is a common practice dated from a long time ago, and the region is recognized by the diverse mezcal options.

As seen in the distilleries visits, some producers are carrying out conservation activities as *in vitro* reproduction, seeds gather, nursery, growing and transplanted on their own or in wild lands; because of the wild agaves shortage.

Producers stated that when the plants are bought, the price can be negotiable or not, depending on the agave market demand. The bought maguey could be selected or not selected by the mezcal producer, this impacts on final product quality, almost every producer selects *capon / sazón* agave, but it was recognized that sometimes, they have to use “mature” agave which actually does not have the proper maturity (sugar concentration) or green agave.

The local producers appreciate artisanal mezcal production as a non-significant environmental impact activity, due to the organic and traditional nature of the production. However, according to the literature, Bautista & Smit (2012) and the interviewees' information, there are recognized problems such as deforestation by wood use as well as for agave growing, water misuse and pollution, wild agave shortage and the most harmful impact perceived, the vinasses generation which are disposed without treatment in soil or rivers.

As mentioned by Bautista *et al.*, (2015), Sanchez López (2005) and the interviewed, agave shortage is enhanced by other industries' competition for this resource, for example the food or pharmacy industry and most importantly the mezcal agave extraction by the tequila industry, phenomena that impact not only the plant availability, but also the prices, economic activity, employment, culture conservation, etc.

Finally, as mentioned before, the WTO (2015) specified in the Fairtrade standards, the sustainable use and management of raw materials in the production, the use of production technologies that reduce energy consumption and the minimization of waste stream on the environment. Most of these requirements are actually part of the mezcal and agave production where the uses of organic or low pesticide production methods are practiced. Buyers and importers of Fairtrade products give priority to buying products made from raw materials that originate from sustainably managed sources, and have the least overall impact on the environment.

Some of the interviews have mentioned the accessibility to organic certification due to the nature of the product, and as mentioned before Comercio Justo Mexico accepts organic certification as sufficient to meet the environmental requirements of Fair Trade.

## SWOT Analysis

The SWOT analysis information is based on the framework done in the PESTLE analysis, linking the six PESTLE factors with the four SWOT quadrants. This to facilitate the analysis, organization and schematization of the information obtained during the fieldwork, interviews and literature review already classified in the previous part of the analysis stage. (Appendix 3)

### SWOT: Santiago Matatlán Mezcal Industry

The following Santiago Matatlán Mezcal Industry SWOT analysis shows the actual strengths and weaknesses and the possible opportunities and threats of the industry based on the literature review and the information gathered for the interviews, analyzed previously in the PESTLE analysis. The purpose of this analysis is the schematization of the most important points of the information gathered.

Table 14. SWOT: Santiago Matatlán Mezcal Industry according with the PESTLE analysis results

	Internal		External	
	Current		Future	
	Strengths (+)	Weaknesses (-)	Opportunities ↑	Threats ↓
<b>P</b>	<ul style="list-style-type: none"> <li>Political influence and government support</li> <li>Municipality DOM inclusion</li> </ul>	<ul style="list-style-type: none"> <li>Government bad decisions</li> <li>Distrust on organizations</li> <li>Corruption</li> <li>DOM and NOM are not stated in a democratic way</li> </ul>	<ul style="list-style-type: none"> <li>Mezcal regulations reframe</li> </ul>	<ul style="list-style-type: none"> <li><i>Usos y costumbres</i> political system displacement</li> </ul>
<b>E</b>	<ul style="list-style-type: none"> <li>Complementary activities</li> <li>Employment generation</li> <li>Regional and local, socioeconomic relationships</li> <li>Mezcal consumption and production growth</li> <li>Mezcal exportation growth</li> <li>Growth on mezcal appreciation and price</li> <li>Income improvement</li> </ul>	<ul style="list-style-type: none"> <li>Irregular job conditions</li> <li>Non proper cost calculation</li> <li>Lack on business knowledge</li> <li>Lack on preparation</li> <li>Mezcal production costs are unknown</li> <li>Non association with retailers</li> <li>Disadvantageous and unfair commercial relations</li> <li>Intermediaries presence</li> <li>Growth on agave prices</li> <li>High mezcal production costs</li> <li>Difficult financial support access</li> <li>Expensive certification</li> <li>Low mezcal price</li> </ul>	<ul style="list-style-type: none"> <li>Migration reduction</li> <li>Market tendencies in artisanal products</li> <li>Decrease on agave prices</li> </ul>	<ul style="list-style-type: none"> <li>Marginalization conditions</li> <li>New maguey products industries</li> <li>Fluctuation in agave market</li> </ul>

	Internal		External	
	Current		Future	
	Strengths (+)	Weaknesses (-)	Opportunities ↑	Threats ↓
		<ul style="list-style-type: none"> <li>High taxes rates</li> <li>Unequal distribution of benefits between stakeholders in the value chain</li> </ul>		
<b>S</b>	<ul style="list-style-type: none"> <li>Municipality mezcal production recognition</li> <li>Agriculture and mezcal as the main economic activities</li> <li>Production and agave cultivation experience</li> <li>Historical background</li> <li>Traditional heritage</li> <li>Artisanal production</li> <li>Artisanal mezcal quality appreciation</li> <li>Mezcal education activities</li> <li>Better education opportunities</li> <li>Services availability</li> <li>Infrastructure improvement</li> <li>Touristic activities</li> <li>Social networks reinforcement</li> </ul>	<ul style="list-style-type: none"> <li>Lack of appreciation of artisanal mezcal real value</li> <li>External actors introduction</li> <li>Small producers disadvantageous situation</li> <li>Non producers organization</li> <li>Limited formal information</li> <li>Lack of education</li> <li>Traditional knowledge displacement by industrialization</li> <li>Mezcal value and identity loss</li> </ul>	<ul style="list-style-type: none"> <li>Growing market appreciation on hand made, organic and artisanal products</li> <li>Municipality mezcal production recognition</li> </ul>	<ul style="list-style-type: none"> <li>Lack of scientific research</li> <li>Lack of appreciation of artisanal mezcal real value</li> <li>Benefits unequal impact</li> </ul>
<b>T</b>	<ul style="list-style-type: none"> <li>Artisanal production and tools</li> <li>Small modifications in traditional methods</li> <li>Technification and improvement of facilities</li> </ul>		<ul style="list-style-type: none"> <li>Quality appreciation due to traditional tools and methods</li> </ul>	<ul style="list-style-type: none"> <li>Traditional techniques displacement</li> </ul>
<b>L</b>	<ul style="list-style-type: none"> <li>Regulations that control quality</li> <li>National and international sells by certification</li> <li>Other certifications will</li> <li>Brand registration will</li> <li>Mezcal certification will</li> </ul>	<ul style="list-style-type: none"> <li>Tax registration and payment difficulties</li> <li>No tax payment culture</li> <li>No tax payment education</li> <li>No tax payment infrastructure</li> <li>High taxation</li> <li>Certification problems and obstacles</li> <li>Traditional production practices modification requirements</li> <li>Distrustful regulatory organizations</li> <li>High certification costs</li> </ul>	<ul style="list-style-type: none"> <li>Initiative of taxing adjustment for artisanal mezcal</li> </ul>	<ul style="list-style-type: none"> <li>Lack of tax payment information</li> <li>Same taxation for industrial and traditional producers</li> <li>Deficient normative</li> <li>Deficient certification process</li> <li>CRM lack of capacity</li> </ul>
<b>E</b>	<ul style="list-style-type: none"> <li>Semi-intensive cropping</li> </ul>	<ul style="list-style-type: none"> <li>Monoculture phytosanitary problems</li> </ul>	<ul style="list-style-type: none"> <li>Lack of diseases and plagues presence</li> </ul>	<ul style="list-style-type: none"> <li>High agave demand by other</li> </ul>



Internal		External	
Current		Future	
Strengths (+)	Weaknesses (-)	Opportunities ↑	Threats ↓
<ul style="list-style-type: none"> <li>• Polyculture</li> <li>• Wild agave conservation activities</li> <li>• Different agave reproduction methods</li> <li>• Non chemical products use</li> <li>• Use of organic wastes</li> <li>• Traditional crop management</li> <li>• Official authorization need to wild agave gather</li> <li>• Use of agave <i>capón</i></li> </ul>	<ul style="list-style-type: none"> <li>• Biodiversity loss</li> <li>• Genetic variety loss</li> <li>• Lack of environmental impacts recognition</li> <li>• Local agave displacement</li> <li>• Wild agave shortage</li> <li>• Occasional use of green agave</li> <li>• Deforestation</li> <li>• Water misused and pollution</li> <li>• Vinasses generation</li> <li>• Improper vinasses disposal</li> </ul>		industries

## SWOT: Mezcal Fair Trade

The following Mezcal Fair Trade SWOT analysis shows the Santiago Matatlán Mezcal situation (Described in the SWOT analysis above) under the theoretical and technical concepts of fair trade, the possible advantages and disadvantages and the opportunities and challenges that could present the development of an alternative market for the mezcal (based on the literature and examples of other Fairtrade products).

**Table 15. SWOT: Mezcal Fair Trade according with the PESTLE analysis results**

	Internal		External	
	Current		Future	
	Strengths (+)	Weaknesses (-)	Opportunities ↑	Threats ↓
<b>P</b>	<ul style="list-style-type: none"> <li>Inclusion of producers in decision-making and problem solving processes.</li> <li>Social and political network construction.</li> </ul>	<ul style="list-style-type: none"> <li>Distrust on organizations</li> <li>Corruption</li> <li>Intrusion of external political actors and corruption of internal ones.</li> </ul>	<ul style="list-style-type: none"> <li>Possibility of more inclusiveness and democracy in the Mezcal regulations reframe</li> </ul>	<ul style="list-style-type: none"> <li><i>Usos y costumbres</i> political system displacement</li> </ul>
<b>E</b>	<ul style="list-style-type: none"> <li>Santiago Matatlán is the main mezcal producer</li> <li>Support of small producers</li> <li>Lower migration rates under fair trade certification and mezcal industry growth.</li> <li>Fair wages</li> <li>Payment of fair minimum prices</li> <li>Payment of a premium</li> <li>Designed guideline for estimating costs</li> <li>Intermediaries reduction</li> <li>Promptly payment</li> <li>Possible interest free pre-payment</li> </ul>	<ul style="list-style-type: none"> <li>Ignorance about production costs</li> <li>Higher certification, audits and production costs</li> <li>Additional costs</li> </ul>	<ul style="list-style-type: none"> <li>Growth in alternative markets (artisanal, organic and Fairtrade)</li> <li>Price stability</li> <li>Access to new markets and consumers</li> <li>Value addition</li> </ul>	<ul style="list-style-type: none"> <li>Marginalization conditions that don't allow the certification or requirements fulfillment.</li> <li>High sell costs</li> <li>Already high prices in the market</li> <li>Market saturation</li> <li>The market limits the introduction of mezcal products</li> <li>Lack of buyers diversity</li> </ul>
<b>S</b>	<ul style="list-style-type: none"> <li>Transparency in commercial relations</li> <li>Producers infrastructure development</li> <li>Management skills development</li> <li>Community infrastructure</li> </ul>	<ul style="list-style-type: none"> <li>Non producers organization</li> <li>Non co-operative production</li> <li>Buyers driven supply chain</li> </ul>	<ul style="list-style-type: none"> <li>Growing market appreciation on hand made, organic and artisanal products</li> <li>Aggregated markets</li> <li>Mezcal traceability</li> </ul>	<ul style="list-style-type: none"> <li>Lack of scientific research</li> <li>Lack of appreciation of artisanal mezcal real value</li> <li>Benefits unequal impact</li> </ul>

	Internal		External	
	Current		Future	
	Strengths (+)	Weaknesses (-)	Opportunities ↑	Threats ↓
	<ul style="list-style-type: none"> <li>development</li> <li>Better education opportunities</li> <li>Social networks reinforcement</li> <li>Long term commercial relationships</li> <li>Children and woman inclusion and security</li> <li>Producers empowerment</li> </ul>			
<b>T</b>	<ul style="list-style-type: none"> <li>Small modification for decreasing production costs .</li> <li>Improvement of quality and consistency</li> </ul>	<ul style="list-style-type: none"> <li>Traditional production practices modification requirements for certification.</li> <li>Processes standardization</li> </ul>	<ul style="list-style-type: none"> <li>Quality appreciation due to traditional tools and methods.</li> <li>Training and capacity building</li> </ul>	<ul style="list-style-type: none"> <li>Traditional techniques displacement .</li> </ul>
<b>L</b>	<ul style="list-style-type: none"> <li>Multiple certifications ensure market opportunities, meet international standards and favor the productions practices.</li> <li>Employees rights guaranty.</li> <li>Working conditions benefits</li> <li>FLO Standards-better enforcement of government requirements</li> </ul>	<ul style="list-style-type: none"> <li>Certification problems and obstacles</li> <li>Traditional production practices modification requirements</li> <li>Distrustful regulatory organizations</li> <li>High certification costs</li> <li>Imposition of certification criteria</li> </ul>	<ul style="list-style-type: none"> <li>Initiative for other certification in mezcal production and agave products</li> </ul>	<ul style="list-style-type: none"> <li>External control. impositions and requirements</li> <li>Pressure and rigorous certification</li> </ul>
<b>E</b>	<ul style="list-style-type: none"> <li>Sustainable use and manage of production raw material</li> <li>Reduction of energy consumption by technification</li> <li>Minimization of waste stream</li> <li>Organic production methods</li> <li>Low chemicals use</li> <li>Use of organic wastes</li> <li>Easy organic certification due product nature.</li> </ul>	<ul style="list-style-type: none"> <li>Biodiversity and genetic variety loss due the requirements of standardization for the fair trade production.</li> <li>Imposition of added costs due environmental restrictions.</li> <li>Monoculture agave production stimulation.</li> </ul>	<ul style="list-style-type: none"> <li>Buyers and importers give priority environmental concern production process.</li> </ul>	<ul style="list-style-type: none"> <li>High certified and not certified agave demand by other industries .</li> </ul>

## Discussion

Mezcal and agave production is under a business model based on economical benefits where the cost efficiency is prioritized and just like other products, pure or secondary. This has resulted in different problems as mentioned before. The fair trade approach, non existent yet for the mezcal production, could be a tool for the problem solving different mezcal industries inconveniences, as shown before in the Mezcal Fair Trade SWOT analysis.

There are a lot of regions in Oaxaca and Mexico producing agave and mezcal that could be certified as Fairtrade. The agave farmers and mezcal producers can get the benefits out of Fairtrade Certification through a guaranteed minimum price that covers the costs of production and premium price, to invested in projects for community development. This could allow the mezcal producers to invest in production methods, while protecting the environment.

Even there are some agave plantations and manufactured products, like sweeteners, are already being Fairtrade certified, there are no mezcal products that get the benefits out of this because of the lack of applications and therefore approval and inclusion into the Fairtrade products list. In the last years some mezcal producers have looked for organic certifications and other certification options, besides the CRM obligatory mezcal certification, to add value to their products, but the Fairtrade certification has not being an option.

Agave is under the Herbs and Herbal teas & Spices Fairtrade classification for the certification of Small Producer Organizations (SPO)/ Hired Labour (HL) since 2010 (Fairtrade International, 2016b). Being the first step of certification of the raw material accomplish, but with the limitation that even there is small agave scale producers there is no so many agave producers organizations in the region due the distrust in the leaders, as mentioned before. Something important to mention is that in Mexico, CERTIMEX is the certifier entity for Fairtrade products and it established that for the Fairtrade product inspection, only small producers organization, processors or traders are allowed (CERTIMEX, 2005).

A secondary product comes out of a production process in addition to the main product. A secondary product can be directly consumed, used as an input in another production process, disposed of or recycled (Fairtrade International, 2016a). Being the mezcal a secondary product of the agave, just as the *cachaça* or rum out of the sugar cane that have a small producer organization set-up. Fairtrade product standards and Generic Fairtrade Trade Standard apply for secondary products, just as mezcal. Because there in no Fairtrade Minimum Prices defined for secondary products, the price are negotiated between the producer and its next buyer, this price can be establish by the stakeholders, under the guidelines for

Fairtrade estimated costs or if required, it can be established by the FLO; a default Fairtrade premium of 15% must be paid in addition to the negotiated price (Fairtrade International, 2011c, 2016a).

Mezcal is produced 100 % of agave, or at least 80 %, so if the agave plantation, where the mezcal is produced from, has the Fairtrade certification mark, it would be considered a single ingredient product 100 % Fairtrade or a composite product but with 80 % Fairtrade certified raw material (Fairtrade International, 2003).

Agave and mezcal production is done in the Mexican territory. Because of income per capita, wealth disparity and other economic and social indicators, Mexico is currently included in the list of countries where producer organizations can be Fairtrade certified (Fairtrade International, 2011b).

Another important aspect of agave and mezcal production mentioned by the interviewed, is the absence of the prohibited materials for the production processes, mentioned in the Fairtrade International Prohibited Red and Amber Materials List (Fairtrade International, 2011b).

Because of these observations, the Fairtrade Standard for Herbs, Herbal Teas & Spices for Small Producer Organizations are the ones required for the certification of the mezcal production, these are verified by compliance criteria that reflect the content of the Fairtrade Standards.

While most of the requirements for being Fairtrade labeled are fulfilled by mezcal production, there are multiple factors for this lack of the certification. For this, a table of the fulfilled and not fulfilled of the Fairtrade for Herbs, Herbal Teas & Spices for Small Producer Organizations required for the certification is presented to reflect to compliance of the Fairtrade Standards (Table 16) (Fairtrade International, 2011a, 2011b, 2012).

Table 16. Mezcal Fairtrade Requirements Situation

Must Do Year	Fairtrade Requirements	Mezcal Situation	Check box
	<b>1. General Requirements</b>		
0	1.1 Certification	All the certified producers have to accept and be audit and update, but now days there are no mezcal under Fairtrade certification.	No
0	1.2 Members are small producers	All the members or at least half must be small producers. There is no producers' organization because now days there are a huge distrust in the organization.	No
	<b>2. Trade</b>		
0	2.1 Traceability	Fairtrade products have to be properly separate from those that are not. Mezcal productions do not have certified agave or mezcal but the nature of the product makes this an easy but expensive task. Most of the time producers have already separate certified production.	No
0	2.2 Sourcing	When already certified, the producers can sell their last 12 months production or stock under the certification.	No
0	2.3 Contracts	There are no contracts to fulfill.	No
0	2.4 Use of Fairtrade trademark	Any use of Fairtrade Mark has to be done under contract with Fairtrade International.	No
	<b>3. Production</b>		
0,1,3	3.1 Management of production practices	All the members and employees have to be inform and explain the already identify requirements, risks, monitor and evaluation systems for a proper environmental and labour production.	No
3,6	3.2 Environmental development	The production have agricultural and environmental practices that are sustainable and do not put in risk the biodiversity	Yes
0,1,3,6	Environmental management	One person must be responsible for the management of the environmental practices. This is already part of the artisanal mezcal production.	Yes
0,1,3	Pest management	The producers have knowledge of the pests and their management. The use of chemical pesticides is non or minimum. The use of alternative pest control, like organic insect traps, is used commonly.	Yes
3,6	Soil and water	The soil erosion and acidification is under control when not in hills or intensive agave production. The water source comes for water wells and the municipality water supply system, the plantations need little amount of water and the mezcal production can reuse and recycle some of the used for the production.	Yes
1,3	Waste	Most of the waste in agave and mezcal production is reuse or recycled in other activities or as an organic fertilizer. In some cases the vinasses are handle or treat improperly and don't have areas for disposal.	Yes
0	Genetically Modified Organisms (GMO)	There are no GMOs that contribute to the sustainability risk.	Yes
1,3,6	Biodiversity	In the agave production there are reforestation practices, wild agave reforestation activities, non intensive production activities and polyculture practices.	Yes
3	Energy and greenhouse gas (GHG) emissions	There are greenhouse emissions due the cooking and distillation processes during the mezcal production. There is no record of the emissions or energy used. Even this, there are some <i>palenques</i> changing to gas ovens and solar panels for energy production.	No

	3.3 Labour conditions	Ensure good working conditions for workers.	No
<b>Must Do Year</b>	<b>Fairtrade Requirements</b>	<b>Mezcal Situation</b>	<b>Check box</b>
0	Freedom from discrimination	There is no discrimination based on race, color, gender, sexual orientation, disability, marital status, age, HIV/AIDS status, religion, political opinion, membership of unions or other workers' representative bodies, national extraction or social origin in recruitment, promotion, access to training, remuneration, allocation of work, termination of employment, retirement or other activities.  Even most of the people working in the agave and mezcal production are men; women are allow to work and be part of the production process.	Yes
0	Freedom from forced or compulsory labour	There are no forced labour practices in the mezcal production of Santiago Matatlán. Everybody is working there under their own decision.	Yes
0,1,3	Child labour and child protection	There are children of workers below 15 years of age working in the agave and mezcal production practices. The work they do is appropriate for their age and physical condition and they do not work or under dangerous or exploitative conditions and their parents or guardians supervise and guide them.	Yes
0,3,6	Freedom of association and collective bargaining	Everyone is allowed to join workers organizations but there are not by they own choosing. There is no encouraging for doing it neither or training workings on their rights.	Yes
0,3,6	Conditions of employment	There are not proper working conditions, there is no working contracts, the payment is establish by the market, people is paid by tasks and their work is not permanent	No
0,3	Occupational health and safety	Even the agave and mezcal production processes are not dangerous for the workers; most of the <i>palenques</i> do not have safe requirements or equipment, first aid equipment, proper and clean facilities.	No
	<b>4. Business and development</b>		
1,3,6	4.1 Development potential	Most of the <i>palenques</i> do not have any development or business plan at all.	No
0,3	4.2 Democracy, participation and transparency	There are no producers organizations or general assemblies due the lack of trust in the leaders.	No
0,3,6	4.3 Non discrimination	Business rules in the agave and mezcal production are not discriminatory in practice and don't have discriminatory membership rules.	Yes

The agave-mezcal system industry have a huge opportunity and benefits under the Fairtrade standards but there is a lot of requirements not fulfill by the agave and mezcal producers, this represent a weakness for the industry and this need to be developed and accomplish for a proper fair trade strategy.

Some of the non fulfill requirements that represent a weakness and therefore the opportunities for the industry are: Traceability of the products, producers and workers organization, safe labour and working conditions and a proper development and business plans.

It is important to point out the actual deficiencies in the industry, because if these weakness are fulfilled and producers can reach compliance of the requirements, a most sustainable and fair production model could be achieved and producers could get more benefits out of their work, enjoy secure and sustainable livelihoods and fulfill their potential. This could represent a more equity and fair business conditions.

The fair trade can be achieved by the change of business relationships and way of making business, but the way to ensure to process now a days is by the certification, FLO system is the largest and most widely recognized fair trade certification system, but other labelling initiatives have been developed in the last years (Pay, 2009). Even the processes of certification are different for every product; the coffee example is a good way to present the benefits of the certification.

Coffee is the Fairtrade product with the highest sales volume. Sales of Fairtrade certified coffee were around 65 808 tones in 2008, for a total value of 1.2 billion euro. Of this amount, 52 % of Fairtrade certified coffee was also certified organic. It is estimated that global sales of Fairtrade certified coffee generated an additional income of US\$30 million for nearly 400 producer organizations in 2008. Around 78 % of all Fairtrade certified coffee is produced in Latin America, with Mexico being one of the largest suppliers (Pay, 2009). In Mexico, Chiapas and Oaxaca more specifically, Fairtrade has offered significant advantages for small coffee producers organizations. Among the most frequently mentioned are the improving price and market stability. This has helped producers to deal with the crisis in coffee prices, common situation with the agave fluctuation prices. In addition, the premium or social premium has allowed them to carry out of social, economic and cultural projects that would be difficult to conceive otherwise. On the other hand, cooperatives are now able to acquire coffee processing equipment and to move forward with the proper functioning. This enables producers to access low interest credits and finance the harvest without intermediaries intervention (Otero, 2006). The human, social, material, financial and environmental capital benefits are presented by the establishment of the fair trade in the coffee production (Garza Treviño, 2014), and this could be replicate in the Santiago Matatlán agave-mezcal system and in the industry.

Fair trade has helped the coffee producers communities to slow down the migration, construct social networks, reinforce producers capabilities and provides them with organizational and administrative skills. Strengthening organizational capacities plays a crucial role within the range of fair trade advantages. The fair trade advantages are not only in monetary terms but in the creation of alternative development



and promotion of human rights that give them a better position to enter international markets and continue with their development (Garza Treviño, 2014; Otero, 2006).

The agave-mezcal system fulfills most of the requirements and Fairtrade standards to be under a fair trade approach or get the Fairtrade mark if wanted. All the missing requirements are possible but right now there are some particularities of the region that do not allow this.

After the field work and literature review, a clear need of a different business model has showed. Santiago Matatlán mezcal industry can get benefits out of the fair trade approach, like the real inclusion of the producers, intermediaries reduction, proper guideline and support for the production costs estimation, fair payment and a premium for their job and production.

The inclusion of the producer and other stakeholders in the decision making and problem solving processes, could make easier to get specific solutions to a specific problematic; this is because the producers are the ones that face that problems every day. Like other industries, one of the main problems is the corruption and the intrusion of external (internal in some cases) actors that just want to get a personal benefit out of the business, this is real threat and challenge for the municipality and the country, the construction of a social-political network with real legal punishment and society pressure could balance this situation.

Something remarkable, is the importance of the communities and coffee producers organization in the fair trade implementation process (Garza Treviño, 2014; Otero, 2006), situation that is one of the main weaknesses in Santiago Matatlán agave-mezcal system. Fairtrade greatest contribution is not only a fair price, which is still insufficient, or social premium, but the launch for the small producer belonging to a cooperative (Otero, 2006). The positive impact of the belonging to a cooperative can be translated in the capabilities development; the acquirement of organic production knowledge, increase in products quality, and the business and management producers abilities increase as well (Garza Treviño, 2014).

Being Santiago Matatlán the main agave and mezcal production municipality, it has a big opportunity for the establishment of producers organization for the development of a fair trade approach. One of the main limitations for this, is the hard distrust on organizations, continuously mentioned by the producers. The benefits and opportunities that could represent the organization of agave and mezcal producers have to be communicated, a proper, transparent and democratic producers organization have to be established to get the producers trust back.

The problem of the low payments for agave and mezcal, are one of the main disadvantages for the producers in the industry, the proper estimation of cost production is the first step to avoid this. The

payment of fair minimum and stable prices under this estimation and the payment of the premium could enable producers to invest in their business and communities, something that has had relatively low development under the normal approach.

In the case of certified coffee producers, where payments of a minimum price allow producers to cover producers' basic needs, production costs and they have a surplus to invest. Cooperatives have made progress in acquiring significant infrastructure (office equipment, warehouses, machinery, cupping laboratories, etc.). This has enabled processes that generate higher value added. There is evidence of social development projects aimed at improving basic services in communities. However, there is a need of better planning for using social premium to maximize the benefits of these resources (Garza Treviño, 2014).

The growing appreciation on hand made, organic and artisanal products is a big opportunity for the municipality, but it has to go over the artisanal production displacement, a real challenge when the certifications and markets are imposing requirements like the standardization. The fair trade movement gives an impulse to the organic and sustainable productions that can represent higher prices for the producers that do not meet these requirements already; this is strength already for organic agave production.

As seen during the fieldwork, producers are realizing small technological modifications that increase the efficiency and do not impact in the final product characteristics. The use of alternative energy sources is becoming more common in the distilleries. These characteristics represent strength for the mezcal production and put the industry a step forward of the Fairtrade requirements. Even other requirements are not impossible; these represent an imposition and modification for the producers that already resist to the basic certification processes.

In contrast, the Fairtrade certified coffee producers have an infrastructure required to sell their products in international markets, can acquire certifications and develop activities that generate higher added value in your product. The modifications to get organic certification, promoted by the Fairtrade, in coffee cultivation have provoke the producers awareness of the care of the environment, resulting in better practices and high quality products with added value and gives the produces the possibility of market diversification (Garza Treviño, 2014).

These benefits are really attractive, but the mezcal production and certification costs are already high, being a limitation for producers to get other certifications like the organic and Fairtrade. Other threat for the mezcal is the possibility of market saturation that could represent a high cost in production and

storage for the producers, most of the times they do not have this possibility. Being necessary the organization of producers and other stakeholders intervention.

There are other examples of Fairtrade successful products, some of them even more similar to the agave-mezcal industry than the coffee example, just like the FAIR Vodka or Fair Trade Organic Blue Agave syrup.

The FAIR Vodka is produced out of fair trade quinoa by the French company Fair Trade Spirits Company. This vodka is made using organic quinoa cultivated by the biggest quinoa producers cooperative (Anapqui Cooperative, integrated by over 1500 small producers) in Bolivia. The distillation process, bottled and labeled is made in France (Fairtrade International, 2013; The Fair Trade Spirits Company, 2016). Fair vodka is the first spirit made out quinoa and also the first Fairtrade spirit. The company put together the value of quality, *terroir* and cultural heritage with the equality, fairness and ethics, resulting in a high quality Fairtrade alcoholic beverage that has obtained different kinds of awards around the world (The Fair Trade Spirits Company, 2016), this demonstrates that Fairtrade products are gaining recognition not only for ethical leadership but for excellence in taste and quality (Fairtrade Labelling Organizations International, 2010). Under the Fairtrade mark, FAIR vodka guarantees higher margins to the producers, the company donates the 2.5% of its turnover to the financing of local development programs (Fair Trade USA, 2016c; The Fair Trade Spirits Company, 2016).

The Asociación Nacional de Productores de Quinoa (ANAPQUI) has experienced benefits out of the sell of their organic and fair trade certificated quinoa to companies like Fair Trade Spirits Company. As a result, Bolivian farmers get larger incomes and improved their living standard. The cooperative is made up of nine regional associations with over 1,100 members which produce over 3,640 metric tons of quinoa annually (Fair Trade USA, 2016a).

Another successful case related to the agave-mezcal production is the Fair Trade Organic Blue Agave syrup produced by Wholesome Sweeteners Inc. The syrup is made with certified agave cultivated by the Mexican Integradora Otilio Montaña Cooperative, which have 130 members and get the Fairtrade certification since 2011, fulfilling standards like gender equity, no child labour and proper work conditions. The cooperative gets the certification due the problems with the agave prices fall because of the plant surplus and the low payments to the producers by the intermediaries or the tequila companies. The fair trade represents a viable and profitable alternative for the cooperative. This approach protects the community economy, traditions and environment (Wholesome Sweeteners Inc., 2013).

The Integradora Otilio Montaña Cooperative not only receives a fair price for their agave crops, more than 15 -20 % over the market price, but also a social premium. The social premiums must be democratically

spent by the cooperative for projects that benefit the entire community. The Fairtrade Premiums have been invested in: Training, Certifications and Modern Equipment. The cooperative invested the premium to provide members with training to learn about efficient organic growing methods and in Modern Equipment to make harvesting the agave plants easier and more efficient (Wholesome Sweeteners Inc., 2013).

There are different examples around the world that could be compared to the agave-mezcal industry fair trade alternative and how the fair trade resources, standards and values end in producers communities empowerment, sustainable livelihoods and decent living conditions, even with the negative impacts or unexpected situations like the high certification and audit costs, low number of buyers, lack of buyer diversity or the drive by the buyers in the supply chain (Rusell & Rangan, 2013). The fair trade approach could be a tool and part of the solution for the Santiago Matatlán agave-mezcal system equal development, but as mentioned before, there are different characteristics of the specific case of Santiago Matatlán that need to be improved to be available to get a fair trade and the different actors be available to be certified under the Fairtrade mark.

## **Recommendations for the application of fair trade in the agave-mezcal system**

The requirements for the fair trade and the Fairtrade certification mark are based under the complying of the sets of standards laid down by the FLO. These standards, mentioned in the Fair Trade chapter, are based on social, economic and environmental considerations that the agave-mezcal system would need to fulfill to be available to trade under fair trade conditions.

The agave-mezcal producers have to conform the compliance criteria to conform the Fairtrade standards requirement. This is possible by the change of the unfulfilled requirements mentioned before and are listed below:

1. Producers organization
2. Organization decision making democratization
3. Brand and company development
4. Certifications and audits acceptance (CRM, FLO, Organic, etc.)
5. Environmental and labour production requirements development
6. Toxic chemicals, pesticides or herbicides removal (if used)
7. Low soil erosion and water efficiency use practices training

8. Reforestation practices training
9. Reduce energy consumption
10. Ensure good working conditions
11. Discrimination removal
12. Child labor eradication (or control)
13. Proper salaries and wages specification
14. Proper production costs calculation
15. Bottling and labeling capacitation
16. Development future plan set up

These steps are based in in the agave-mezcal production system required changes with the objectives to improve productions process, capacity bulging and empowerment of the producers to be available to improve their negotiation position and give them access to new markets.

As mentioned before, FLOCERT is the FLO certification body and certify most of the elements of the supply chains. FLOCERT settles five steps to become Fairtrade certified, which can be very through but simple to complete (FLO-CERT GmbH, 2016a) .

1. Application: fulfill application form
2. Audition: on-site visit and check organization compliment of Fairtrade Standards (FLOCERT points out the areas where the Fairtrade Standards are not conformed and they give corrective measures)
3. Analysis and evaluation: certification analysts audition results evaluation. Non-conformities have to be corrected.
4. Certification: approbation if no missing conformities or rejection.
5. Following up: three years of following up audits and unannounced audits for verification and new certifications

If wanted and there is a market possibility, the agave-mezcal industry producers certification process has to start from the compliance of the measurable criteria establish by the FLOCERT based on the Fairtrade Standards (FLO-CERT GmbH, 2016b).

## Conclusions

In Santiago Matatlán, Oaxaca, the mezcal production problematic is linked to political, socio-economical and environmental factors (agave scarcity, prices fluctuation, intermediaries dependence, low work compensation or the low mezcal and agave prices, just to name some). It is a common situation that the product added value stays with the intermediaries and retailers that have the capital for commercialization of the product; this provokes less income for the maguey and mezcal producers.

Alternative business models are required, where the mezcal producers communities can develop, doing it with particular attention in social and environmental aspects. Fair trade is an alternative to the current economic model and the problems that are present all the way in the value chain, giving a different approach to the business model and problems already observed in other agroindustries. This strategy, based in the capacities, qualities and strength of the agave-mezcal system, is viable because of the nature of the product and the market existence.

The fair trade approach could be a tool and part of the solution for the Santiago Matatlán agave-mezcal system equal development, but there are different characteristics of the specific case of Santiago Matatlán that need to be improved to be available to get a fair trade. This is just possible if there is concern and involvement of consumers, public and private entities, and more importantly the producers organizations is require for the price agreement for a real remuneration (in their context) and to avoid all the problems mentioned before and the ones that come with the industry growth.

Mezcal industry has the opportunity to develop as a sustainable practice, but the proper practices are required to conserve the traditions, the ecosystems and the social coercion by promoting the fair commerce of the product, that can offer intrinsic, unique and exclusive characteristics. The augment product characteristics of mezcal make it a premium product but this have to be reflected in the development of the producers' communities.

One of the braking points for the conclusion of this study, is that there is no actually need of a Fairtrade mark, but the need of a business model that work with the small producers in a respectful, fair and traditional way. The system have to be more democratic, more inclusive, and participatory. The market, stakeholders and state real commitment is required to develop a real equality and social development.

This initiative of fair trade in the agave-mezcal industry still unfinished because time limits. Even so, it gives strong bases for the development of an alternative business strategy that aims the Santiago Matatlán community economic and social development, it gives a wider picture of the current situation of

mezcal trade, facilitating the decision-making and future planning strategies for this type of alternative trade and giving the possibility to do it under a fair trade approach.

## Appendix

### Appendix 1

Table 17 List of interviewed people

<i>Name</i>	<i>Occupation/Organization</i>	<i>Date</i>	<i>Place</i>	<i>Media</i>
Alfredo Vivar Alvarez	CEO / Centro de Investigación y Análisis Tributario	5-May-16	Oaxaca, Mexico	Personal Communication
Alvin Starkman	Writer - Owner / Mezcal Educational Tours	18-May-16	Oaxaca, Mexico	Personal Communication
Antonio Hernandez	Mezcal Producer / Union de Palenqueros	28-May-16	Santiago Matatlán, Oaxaca	Personal Communication
Corina Nienhaus	Junior Project Manager / Fairtrade Deutschland	29-Apr-16	Oaxaca, Mexico/Cologne, Germany	Skype Call
Emanuel Garcia Lopez	Mezcal Producer / Mi Gusto Es	1-May-16	Santiago Matatlán, Oaxaca	Personal Communication
Fabian Martinez	Productores de Maguey y Mezcal / Sinai	1-May-06	San Dionisio Ocotepec, Oaxaca	Personal Communication
Graciela Angeles	Mezcal Producer - CEO / Mezcal Real Minero	6-May-16	Santa Catarina Minas, Oaxaca	Personal Communication
Hector Vazquez	Marketing Manager / Los Danzantes	4-May-16	Oaxaca, Mexico	Personal Communication
Hipocrates Nolasco	President / Consejo Regulador del Mezcal	2-Jun-16	Oaxaca, Mexico	Personal Communication
Honorio Jimenez	Mezcal Producer / No Brand	31-May-16	Santiago Matatlán, Oaxaca	Personal Communication
Jose Hernandez	Mezcal Producer - CEO / Rey Zapoteco	2-Jun-16	Santiago Matatlán, Oaxaca	Personal Communication
Karina Abad	Production Chief / Los Danzantes	11-May-16	Santiago Matatlán, Oaxaca	Personal Communication
Karina Ibarra	Co-Owner / Mezcaleria La Katrina	25-Mar-16	Cologne, Germany	Personal Communication
Luis Silva	Master of Science / CIIDIR	20-Apr-16	Oaxaca, Mexico	Personal Communication
Marco Ochoa	Mezcal Distributor - Co owner / Mezcaloteca	23-Apr-16	Oaxaca, Mexico	Personal Communication
Pedro Jimenez	Mezcal Producer / No brand	30-May-16	Santiago Matatlán, Oaxaca	Personal Communication
Placido Hernandez	Mezcal Producer / Espina Dorada	17-Apr-16	Santiago Matatlán, Oaxaca	Personal Communication



Appendix 2

Table 18 Interviews results by topic

		Matatlán producers							Sta Catarina Minas Producer	San Dionisio Producer	Tributario	Writer - Owner / Mezcal Educational Tours	Marketing Manager / Los Danzantes	President / Consejo Regulador del Mezcal	Mezcal Distributor - Co owner / Mezcaloteca	Master of Science / CIDIR	
		1	2	3	4	5	6	7									
Cultural background of mezcal production	Santiago Matatlán	Mezcal High Volume Production				X					X					X	
		Mezcal is the Main Activity				X		X									
		Historical Production	X	X	X	X	X	X									
		Quality Mezcal Production															
		Location near to Oaxaca city							X								X
		Had an historical influence in the region							X								X
		Palenques Abundance Background					X	X									
	Personal and Family	Mezcal Family Tradition	X	X	X	X	X	X	X	X	X	X			X	X	
		Family Production Continuity	X	X	X	X	X	X	X	X	X						
		Knowhow Family Background	X	X	X	X	X	X	X	X	X				X		
	Mezcal	Tradition Considerer		X	X							X					
		Use of mezcal as exchange device							X								
		Considers own mezcal artisanal	X	X	X	X	X	X	X	X							
		Artisanal due to composition (100% agave)							X								
		Artisanal by technique			X	X	X	X	X	X	X	X	X				X
		Artisanal by the avoiding of the use of chemicals				X	X	X	X					X			
		Artisanal by Materials			X	X	X	X	X	X	X	X	X				
		Artisanal by Tradition												X			
		Artisanal by Production Volume								X							X
		Artisanal because of quality perception	X	X	X						X			X		X	
Artisanal because of market demand								X	X				X		X	X	
Artisanal because of tradition		X	X														
The product is consume locally				X	X	X				X					X		

		Matatlán producers							Sta Catarina Minas Producer	San Dionisio Producer	Tributario	Writer - Owner / Mezcal Educational Tours	Marketing Manager / Los Danzantes	President / Consejo Regulador del Mezcal	Mezcal Distributor - Co owner / Mezcaloteca	Master of Science / CIIDIR	
		1	2	3	4	5	6	7									
Agave	Cultivated	Have agave production	X	X	X	X	X	X	X	X							
		Local cultivation	X	X	X		X	X	X	X							
		Outside the municipality cultivation															
		Espadín Cultivated Specie		X	X	X	X	X	X	X							
		Cultivate own land		X	X	X	X	X	X	X							
		Cultivate rent land				X			X	X							
		Non-written Rent Agreement							X								
		Written Rent Agreement				X			X								
		1000 -1500 plants per Ha							X								
		>1500-2000 plants per Ha				X	X										
		>2000-2500 plants per Ha															
		Reproduction by "hijuelos" Gather			X	X	X	X	X	X	X						
		Reproducción mediante tratamiento de quioite				X				X							
		Reproduction by seeds					X										
		Buys "hijuelos"								X							
		Fertilizer use															
		Herbicide use															
		Organic fertilizer use								X							
	Plagues and diseases in the last two years				X			X									
	Polyculture with agave		X	X	X	X	X	X	X								
Wild	Agave Gatherer						X					X					
	Gathers A. potatorum (Tobalá)						X										
	Gathers A. rhodacantha (Quixe)						X										
	Gathers A. karwiński (Madrecuixe)						X										
	Gathers A. marmorata (Tepeztate)						X										
	Gathers A. americana var. oaxcensis (Arroqueño)																
	Local Gather						X					X					
	Outside the municipality Gather											X					
Carries out wild agave conservation activities				X	X	X	X	X	X		X	X					

		Matatlán producers							Sta Catarina Minas Producer	San Dionisio Producer	Tributario	Writer - Owner / Mezcal Educational Tours	Marketing Manager / Los Danzantes	President / Consejo Regulador del Mezcal	Mezcal Distributor - Co owner / Mezcaloteca	Master of Science / CIIDIR		
		1	2	3	4	5	6	7										
Production	Purchase / Buy	Works on in vitro reproduction											X					
		Wild Agave Seeds Gather						X	X				X	X				
		Wild Agave Nursery				X		X	X	X			X	X				
		Own Land Transplant				X				X								
		Wild Land Transplant						X					X					
	Purchase / Buy	Buy A. angustifolia Haw	X	X	X	X		X	X	X			X					
		Buy A. potatorum (Tobalá)	X	X	X	X		X	X	X			X					
		Buy A. rodacanta (Cuishe)		X	X				X				X					
		Buy A. karwiinski (Madrecuishe)	X						X	X			X					
		Buy A. marmorata (Tepextate)	X		X				X	X			X					
		Buy A. americana var. oaxacensis (Arroqueño)				X		X		X			X					
		Buy Local Agave	X															
		Selects the agave		X		X		X	X									
		Selects capon / sazón agave		X	X	X		X	X									
		Selects "matur"e agave				X					X							
		Do not select the agave	X		X	X					X							
		Negotiate Agave Price		X					X									
	Market Sets Agave Price	X		X						X								
	Raw Material & Tools	A. angustifolia Haw 5Kg/l - 8 kg/l Performance	X		X	X	X	X	X		X							
		A. angustifolia Haw 16 kg/l Performance		X														
Wild Agave 12 kg/l a 20 kg /l Performance		X		X														
Pit Oven		X	X	X	X	X	X	X	X	X			X					
Stone / Tahona Mill		X	X	X	X	X	X	X		X			X					
Maul Mill																		
Mechanical Shredders									X									
Wood Tub Fermentation		X	X	X	X	X	X	X	X	X			X					
Plastic Tub Fermentation				X														
Copper Still		X	X	X	X	X	X	X		X			X					
Clay Still			X							X								

		Matatlán producers							Sta Catarina Minas Producer	San Dionisio Producer	Tributario	Writer - Owner / Mezcal Educational Tours	Marketing Manager / Los Danzantes	President / Consejo Regulador del Mezcal	Mezcal Distributor - Co owner / Mezcaloteca	Master of Science / CIIDIR
		1	2	3	4	5	6	7								
People Involved / Workers	Cultivated Yeast Fermentation						X					X				
	Chemical Substances Fermentation	X														
	Animal Use	X	X	X	X	X	X	X		X		X				
	Wood Use	X	X	X	X	X	X	X	X	X		X				
	Other Combustible Use						X					X				
	Aged and Rest in Barrel	X	X		X	X	X			X		X				
	Aged and Rest in Glass	X	X		X	X	X			X	X		X			
	Hire Day Laborer	X	X	X	X	X	X	X	X	X						
	Full Time Workers	X					X			X	X					
	Family Involvement	X	X	X	X	X	X	X	X	X		X				
Costs	The producer have a salary			X	X	X	X			X						
	The family receives a salary				X	X	X			X	X					
	Knows production costs	X	X	X	X	X	X	X	X	X						
	Has Calculted production costs			X		X	X			X	X					
	Agave cost		X	X	X	X	X	X	X	X	X					
	Wood cost		X	X	X	X	X	X	X	X	X					
	Bottle cost			X	X	X	X			X	X					
	Label cost			X	X	X	X			X	X					
	Animal price					X	X			X	X					
	Depreciation cost					X	X			X	X					
	Merchandising cost					X	X			X	X					
	Certification cost					X	X			X	X					
	Labor cost		X	X		X	X	X		X	X					
	Services cost					X	X			X	X					
Environment & Waste	Perception of low/no environmental impact	X	X			X		X		X		X	X		X	
	Reforestation activities											X				
	Well water use	X	X		X	X		X								
	Water used from the municipality water-supply				X	X	X									
	Use of municipality supply energy			X	X	X	X	X	X	X	X					
	Use of solar energy	X		X												
	Use of legal wood				X	X		X	X							

		Matatlán producers							Sta Catarina Minas Producer	San Dionisio Producer	Tributario	Writer - Owner / Mezcal Educational Tours	Marketing Manager / Los Danzantes	President / Consejo Regulador del Mezcal	Mezcal Distributor - Co owner / Mezcaloteca	Master of Science / CIIDIR	
		1	2	3	4	5	6	7									
	Use of local wood and does not know if it has permission	X	X	X	X			X									
	Use of gas as fuel						X										
	Compost production with agave fibers (bagasse)						X							X			
	Compost production with agave leafs (stalk)				X		X										
	Agave fibers (bagasse) disposal in fields	X	X	X	X	X	X	X	X	X						X	
	Agave leafs (stalk) disposal in fields				X		X	X		X						X	
	Use of agave fibers (bagasse) in other activities	X	X	X		X	X	X	X			X			X	X	
	Use of agave leafs (stalk) in other activities		X		X		X	X				X					
	Field or River Vinasse Dispose	X	X	X	X	X											
	Vinasse Harmful Perception	X					X	X				X		X	X		
	Treatment of vinasses																
	Storage of vinasses in the Soil holes							X	X								
	Vinasses treatment with lime before field/river disposal						X	X									
	Vinasses filtration before field/river disposal						X					X					
	Cooling water is used in the same process				X	X	X										
	Cooling water is used to irrigate	X						X									
	Perception of low/no harmful properties of the vinasses	X	X			X											
	Commercialization Regulations, registers and certifications	Has a registered brand	X		X	X	X	X	X	X			X				
		Tax Payment	X			X	X	X	X	X			X				
		There is no regulation on wild agave use								X			X				
CRM agave crop certification										X							
Mezcal CRM certification		X		X	X	X	X	X	X	X		X					

		Matatlán producers							Sta Catarina Minas Producer	San Dionisio Producer	Tributario	Writer - Owner / Mezcal Educational Tours	Marketing Manager / Los Danzantes	President / Consejo Regulador del Mezcal	Mezcal Distributor - Co owner / Mezcaloteca	Master of Science / CIIDIR
		1	2	3	4	5	6	7								
	Partly Certificated Product	X			X										X	
	Organic certification					X		X	X							
	Do not have a brand but interested				X			X								
	Do not have CRM Certification but interested							X								
	Do not have Organic Certification but interested					X										
	Certification Positive Perception				X	X	X	X	X	X	X	X	X	X		
	NOM Positive Perception			X						X						
Certification Negative Perception		X	X					X				X		X	X	
Positioning	Bulk Sale	X	X	X	X			X								
	Bottle Sale	X	X	X	X	X	X	X	X			X		X		
	Local Sale	X	X	X	X	X	X	X				X		X	X	
	State Sale	X	X	X	X	X	X	X				X				X
	Country Sale	X			X	X	X	X	X			X		X	X	
	Exportation Sale				X	X	X	X	X			X		X	X	
	Retail Sale	X	X	X	X	X		X		X						
	Manufacture for other Brands				X	X				X						
	Retailer Association				X	X				X						
	Retailer disadvantageous relationship		X						X							
	Growing Mezcal Demand Perception	X			X		X			X					X	
Bad Quality Perception	High smoky flavor					X										
	High spiciness					X										
	High alcohol concentration					X										
	Very low alcohol concentration															
	Gritty Flavor															
Mezcal appreciation	Lack on mezcal appreciation in the society				X			X				X		X		
	Product positioning need							X								
	Increase of valorization													X		
	Perception of Fare payment								X							

		Matatlán producers							Sta Catarina Minas Producer	San Dionisio Producer	Tributario	Writer - Owner / Mezcal Educational Tours	Marketing Manager / Los Danzantes	President / Consejo Regulador del Mezcal	Mezcal Distributor - Co owner / Mezcaloteca	Master of Science / CIIDIR	
		1	2	3	4	5	6	7									
Current Situation /Status Quo		according to mezcal value															
		Fare payment is related to cover the costs, training, support, equipment							X			X			X		
		Develop activities related with mezcal education					X		X			X	X				
	Taxes	Missed information about taxes payment					X	X	X		X				X	X	
		Unequal artisanal and industrial taxation									X				X		
		Perception of taxes as a problem					X	X	X				X		X		
	Price	Price Covers Cost Perception	X	X	X	X			X	X							
		Profit Perception	X	X	X	X	X		X	X	X						
		Producers doesn't know how to determine the price of their product											X		X	X	
	Benefits	Sell more mezcal or more easily	X	X	X	X	X										
		Some benefit more than others perception		X					X								
		Employ generation	X				X	X	X			X	X	X			
More touristic activities in the region		X		X		X	X				X						
The community infrastructure has improved due mezcal activities		X	X														
Community infrastructure has not improved due mezcal activities						X											
Do not perceives municipality improvement					X			X									
Migration has decrease						X	X		X			X			X		
Migrants come back to work in mezcal related activities						X	X					X	X	X	X		
New generations have better education		X		X					X			X					
Family and Palenque benefits perception		X		X	X	X		X				X				X	

		Matatlán producers							Sta Catarina Minas Producer	San Dionisio Producer	Tributario	Writer - Owner / Mezcal Educational Tours	Marketing Manager / Los Danzantes	President / Consejo Regulador del Mezcal	Mezcal Distributor - Co owner / Mezcaloteca	Master of Science / CIIDIR
		1	2	3	4	5	6	7								
Participation	Support community activities or events					X	X					X				
Organizations	Producers or Retailers organizations knowledge	X	X	X				X		X	X	X				X
	Was part of an organization	X	X													
	Is part of an organization		X							X						
	Organizations Distrust Perception	X	X	X	X	X		X	X			X				X
	Organizations Need Perception				X				X		X	X				
	Cooperation between producers and retailers in order to balance quantity and quality						X		X		X	X				X
	Cooperation between agave producers and mezcal producers to ensure the production and settle the prices								X						X	
	Organization Leaders Distrust Perception		X	X			X									
Political aspects	Influence on production equipment	X	X			X		X								
	Influence on agave crops														X	
	Lack on government support to small mezcal producers	X		X	X			X		X						
	Political influence percibe as positive						X									
	Political influence percibe as negative		X	X			X		X						X	X
Economic Activities	The production of Agave or mezcal is the main activity	X		X	X	X			X	X						
	Mezcal production by season		X					X							X	
	Have complementary crops		X					X							X	
	Do complementary commercial activities		X		X			X							X	
	Perform another job	X	X					X							X	
Problem	Producers lack on education and								X		X	X	X			



		Matatlán producers							Sta Catarina Minas Producer	San Dionisio Producer	Tributario	Writer - Owner / Mezcal Educational Tours	Marketing Manager / Los Danzantes	President / Consejo Regulador del Mezcal	Mezcal Distributor - Co owner / Mezcaloteca	Master of Science / CIIDIR
		1	2	3	4	5	6	7								
	training															
	Lack on mezcal memory								X						X	
	Lose of identity								X							
	Lack of Social responsibility in producers and retailers								X							
	Lack of organization between mezcal stakeholders								X							
	Production in large quantities is considered as a problem because it quality decrease		X							X		X			X	
	Competition with other industries on agave uses													X		X
	Lack on formal research and information about mezcal					X			X					X	X	
	Obstacles due to lack of education								X	X	X			X		X
	Obstacles due to lack of taxation information and training								X	X		X	X	X	X	X
	Obstacles due to lack of local infraestructure						X		X							
	Obstacles due to lack on technology for mezcal production															X
	Obstacles due to lack of economical reosurces							X			X	X				X
	Obstacles due to regulatory norms														X	
Environmental Impacts	Water Pollution Perception	X		X			X					X				
	Less Water Availability Perception			X												X
	Agave shortage due to buying from Jalisco tequila producers			X	X	X		X							X	
	Soil degradation Perception							X								
	Less Agave Availability Perception	X			X	X			X						X	
	Future Wood consumption problem Perception	X			X					X			X			
	Forests Lose Perception				X				X	X		X	X			

		Matatlán producers							Sta Catarina Minas Producer	San Dionisio Producer	Tributario	Writer - Owner / Mezcal Educational Tours	Marketing Manager / Los Danzantes	President / Consejo Regulador del Mezcal	Mezcal Distributor - Co owner / Mezcaloteca	Master of Science / CIIDIR
		1	2	3	4	5	6	7								
Future	Industry	The artisanal mezcal production will continue	X	X		X	X	X	X	X		X			X	
		The artisanal mezcal production will change		X					X							
		The artisanal mezcal production will increase	X				X		X				X	X		
		Artisanal technification changes						X	X	X			X			X
		Creation of more mezcal brands						X	X	X				X		
		Envolment of bigger brands in the mezcal industry											X			
		Consideration of gas use to distillation					X	X								X
		Increase on mezcal selling	X			X			X				X			X
		Price would reflect the mezcal value			X					X						
	It is a challenge is to keep the artisan production		X			X	X	X		X		X			X	
	Problematic and needs	Lack on Agave availability to meet the demand	X	X				X	X	X	X				X	
		Increase of mezcal production costs due to shortage of mezcal	X				X		X						X	
		Periods of high agave availability vs periods of low agave availability							X					X		
		The new legal framework about komil							X							
		Water availability							X							
		Need of better regulations according to regions and traditions														X
		Need of a framework about artisanal products											X			

Appendix 3

Table 19 Interviews results SWOT analysis

		Internal Factors		External Factors		
		S	W	O	T	
Cultural background of mezcal production	Santiago Matatán	Mezcal High Volume Production	X			
		Mezcal is the Main Activity	X			
		Historical Production	X			
		Quality Mezcal Production	X			
		Location near to Oaxaca city	X			
		Had an historical influence in the region	X			
		Palenques Abundance Background	X	X	X	
	Personal and Family	Mezcal Family Tradition	X			
		Family Production Continuity	X			
		Knowhow Family Background	X			
	Mezcal	Tradition Considerer	X			
		Use of mezcal as exchange device	X			
		Considers own mezcal artisanal	X			
		Artisanal due to composition (100% agave)	X			
		Artisanal by technique	X			
		Artisanal by the avoiding of the use of chemicals	X			
		Artisanal by Materials	X			
		Artisanal by Tradition	X			
		Artisanal by Production Volume	X			
		Artisanal because of quality perception	X			
		Artisanal because of market demand	X			
Artisanal because of tradition		X				
The product is consume locally		X				
Agave	Cultivated	Have agave production	X	X	X	X
		Local cultivation	X			
		Outside the municipality cultivation		X		
		Espadín Cultivated Specie	X	X		
		Cultivate own land	X			
		Cultivate rent land		X		
		Non-written Rent Agreement		X		
		Written Rent Agreement	X			
		1000 -1500 plants per Ha	X			
		>1500-2000 plants per Ha	X			
		>2000-2500 plants per Ha		X		
		Reproduction by "hijuelos" Gather	X			
		Reproducción mediante tratamiento de quito	X			

		Internal Factors		External Factors			
		S	W	O	T		
Production	Raw Material & Tools	A. angustifolia Haw 5Kg/l - 8 kg/l Performance	X				
		A. angustifolia Haw 16 kg/l Performance		X			
		Wild Agave 12 kg/l a 20 kg /l Performance	X				
		Pit Oven					
		Purchase / Buy	Buys A. angustifolia Haw	X	X		
			Buys A. potatorum (Tobalá)	X	X		
			Buys A. rodacanta (Cuishe)	X	X		
	Buys A. karwiinski (Madrecuishe)		X	X			
	Buys A. marmorata (Tepextate)		X	X			
	Buys A. americana var. oaxcensis (Arroqueño)		X	X			
	Buys Local Agave		X				
	Selects the agave		X				
	Selects capon / sazón agave		X				
	Selects "mature" agave			X			
	Do not select the agave			X			
	Negotiate Agave Price		X				
	Market Sets Agave Price			X		X	
	Wild		Agave Gatherer	X			X
		Gathers A. potatorum (Tobalá)	X			X	
		Gathers A. rhodacantha (Quixe)	X			X	
		Gathers A. karwiinski (Madrecuixe)	X			X	
		Gathers A. marmorata (Tepezatate)	X			X	
		Gathers A. americana var. oaxacensis (Arroqueño)	X			X	
		Local Gather	X				
		Outside the municipality Gather		X			
		Carries out wild agave conservation activities	X				
		Works on in vitro reproduction	X				
		Wild Agave Seeds Gather	X				
		Wild Agave Nursery	X				
		Own Land Transplant	X				
		Wild Land Transplant	X				
	Reproduction by seeds	X					
	Buys "hijuelos"	X					
	Fertilizer use		X				
	Herbicide use		X				
	Organic fertilizer use	X					
	Plagues and diseases in the last two years		X		X		
	Polyculture with agave	X					

		Internal Factors		External Factors	
		S	W	O	T
	Stone / Tahona Mill				
	Maul Mill				
	Mechanical Shredders				
	Wood Tub Fermentation				
	Plastic Tub Fermentation				
	Copper Still				
	Clay Still				
	Cultivated Yeast Fermentation				
	Chemical Substances Fermentation				
	Animal Use				
	Wood Use	X			X
	Other Combustible Use				
	Aged and Rest in Barrel	X		X	
	Aged and Rest in Glass	X		X	
People Involved / Workers	Hire Day Laborer	X			
	Full Time Workers	X			
	Family Involvement	X			
Costs	The producer have a salary	X			
	The family receives a salary	X			
	Knows production costs	X			
	Has Calculated production costs	X			
	Agave cost				
	Wood cost				
	Bottle cost				
	Label cost				
	Animal price				
	Depreciation cost				
	Merchandising cost				
	Certification cost				
	Labor cost				
Services cost					
Environment & Waste	Perception of low/no environmental impact		X	X	
	Reforestation activities	X			
	Well water use	X			
	Water used from the municipality water-supply				
	Use of municipality supply energy				
	Use of solar energy	X			
	Use of legal wood	X			

		Internal Factors		External Factors		
		S	W	O	T	
	Use of local wood and does not know if it has permission		X		X	
	Use of gas as fuel					
	Compost production with agave fibers (bagasse)	X				
	Compost production with agave leaves (stalk)	X				
	Agave fibers (bagasse) disposal in fields	X				
	Agave leaves (stalk) disposal in fields	X				
	Use of agave fibers (bagasse) in other activities	X				
	Use of agave leaves (stalk) in other activities	X				
	Field or River Vinasse Dispose		X	X	X	
	Vinasse Harmful Perception	X		X		
	Treatment of vinasses	X				
	Storage of vinasses in the Soil holes	X		X		
	Vinasses treatment with lime before field/river disposal	X				
	Vinasses filtration before field/river disposal	X				
	Cooling water is used in the same process	X				
	Cooling water is used to irrigate	X				
	Perception of low/no harmful properties of the vinasses		X		X	
Commercialization	Regulations, registers and certifications	Has a registered brand	X			
		Tax Payment	X			
		There is no regulation on wild agave use		X		X
		CRM agave crop certification	X			
		Mezcal CRM certification	X			
		Partly Certificated Product	X			
		Organic certification	X			
		Do not have a brand but interested		X	X	
		Do not have CRM Certification but interested		X	X	
		Do not have Organic Certification but interested		X	X	
		Certification Positive Perception				
		NOM Positive Perception				
		Certification Negative Perception				
	Positioning	Bulk Sale		X		
		Bottle Sale	X			
		Local Sale	X			
		State Sale	X			
		Country Sale	X			
		Exportation Sale	X			
		Retail Sale	X	X		
		Manufacture for other Brands	X	X		

		Internal Factors		External Factors		
		S	W	O	T	
Current Situation /Status Quo		Retailer Association	X			
		Retailer disadvantageous relationship		X		
		Growing Mezcal Demand Perception	X			
	Bad Quality Perception	High smoky flavor		X		
		High spiciness		X		
		High alcohol concentration		X		
		Very low alcohol concentration		X		
		Gritty Flavor		X		
	Mezcal appreciation	Lack on mezcal appreciation in the society				X
		Product positioning need				X
		Increase of valorization				X
		Perception of Fare payment according to mezcal value			X	
		Fare payment is related to cover the costs, training, support, equipment			X	
		Develop activities related with mezcal education			X	
	Taxes	Missed information about taxes payment		X		
		Unequal artisanal and industrial taxation				X
		Perception of taxes as a problem				
	Price	Price Covers Cost Perception	X			
		Profit Perception	X			
		Producers doesn't know how to determine the price of their product		X		
Benefits	Sell more mezcal or more easily	X				
	Some benefit more than others perception		X			
	Employ generation	X				
	More touristic activities in the region	X				
	The community infrastructure has improved due mezcal activities	X				
	Community infrastructure has not improved due mezcal activities		X			
	Do not perceives municipality improvement		X			
	Migration has decrease	X				
	Migrants come back to work in mezcal related activities	X				
	New generations have better education	X				
	Family and Palenque benefits perception	X				
	Participation	Support community activities or events	X			
Organizations	Producers or Retailers organizations knowledge	X				
	Was part of an organization	X				
	Is part of an organization	X				
	Organizations Distrust Perception		X			

		Internal Factors		External Factors	
		S	W	O	T
	Organizations Need Perception		X		
	Cooperation between producers and retailers in order to balance quantity and quality	X			
	Cooperation between agave producers and mezcal producers to ensure the production and settle the prices	X			
	Organization Leaders Distrust Perception		X		
Political aspects	Influence on production equipment			X	
	Influence on agave crops			X	
	Lack on government support to small mezcal producers				X
	Political influence perceive as positive				
	Political influence perceive as negative				
Economic Activities	The production of Agave or mezcal is the main activity	X	X		
	Mezcal production by season		X		
	Have complementary crops	X			
	Do complementary commercial activities	X			
	Perform another job	X			
Problematic	Producers lack on education and training		X		
	Lack on mezcal memory		X		
	Lose of identity		X		
	Lack of Social responsibility in producers and retailers		X		
	Lack of organization between mezcal stakeholders		X		
	Production in large quantities is considered as a problem because it quality decrease		X		
	Competition with other industries on agave uses				X
	Lack on formal research and information about mezcal		X		
	Obstacles due to lack of education		X		
	Obstacles due to lack of taxation information and training		X		
	Obstacles due to lack of local infrastructure		X		
	Obstacles due to lack on technology for mezcal production		X		
	Obstacles due to lack of economical resources		X		
Obstacles due to regulatory norms		X			
Environmental Impacts	Water Pollution Perception		X		
	Less Water Availability Perception		X		
	Agave shortage due to buying from Jalisco tequila producers				X
	Soil degradation Perception		X		
	Less Agave Availability Perception		X		
	Future Wood consumption problem Perception		X		
Forests Lose Perception		X			



		Internal Factors		External Factors		
		S	W	O	T	
Future	Industry	The artisanal mezcal production will continue	X		X	
		The artisanal mezcal production will change		X		X
		The artisanal mezcal production will increase	X		X	
		Artisanal technification changes	X			
		Creation of more mezcal brands	X	X		
		Envolment of bigger brands in the mezcal industry	X	X		
		Consideration of gas use to distillation	X	X		
		Increase on mezcal selling	X			X
		Price would reflect the mezcal value	X	X		
	It is a challenge is to keep the artisan production		X	X		
	Problematic and needs	Lack on Agave availability to meet the demand		X		X
		Increase of mezcal production costs due to shortage of mezcal		X		X
		Periods of high agave availability vs. periods of low agave availability		X		X
		The new legal framework about komil		X		X
		Water availability		X		X
		Need of better regulations according to regions and traditions		X		X
		Need of a framework about artisanal products		X	X	

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