

# Sustainability Strategy for the Agave-Tequila Production Chain 2016

# Sustainability Strategy

In virtue of the significant and increasing impact human activities cause on the environment and the resulting social demands to protect it, sustainability has become a priority to businesses and authorities around the world. Visionary companies have introduced sustainability to their business plans and responsible governments are creating conditions for economic development to thrive in harmony with the environment and society.

In Mexico several businesses have already adopted sustainability as one of their main objectives and have developed ambitious strategies and plans to improve their environmental performance. The agave-tequila production chain has decided to join this trend and introduce sustainability as a key element in their development strategy.

The country has committed to an ambitious objective to transform itself into a low carbon economy. In this process, the tequila industry can play an important role. Being the most representative product of the country and “a gift from Mexico to the world”, tequila must become a gift produced with care regarding the basic sustainability principles.

By its very nature the tequila production industry must have a long term vision and engage in protecting the environment, as it depends on its quality. It is clear that to maintain and protect the Appellation of Origin it is fundamental to preserve a healthy and clean environment. In this regard, the agave-tequila production chain’s interests are perfectly aligned with society’s need to preserve natural resources for future generations.

As it is aware of its impact and the importance of keeping a pollution free environment, the tequila industry has already devoted substantial

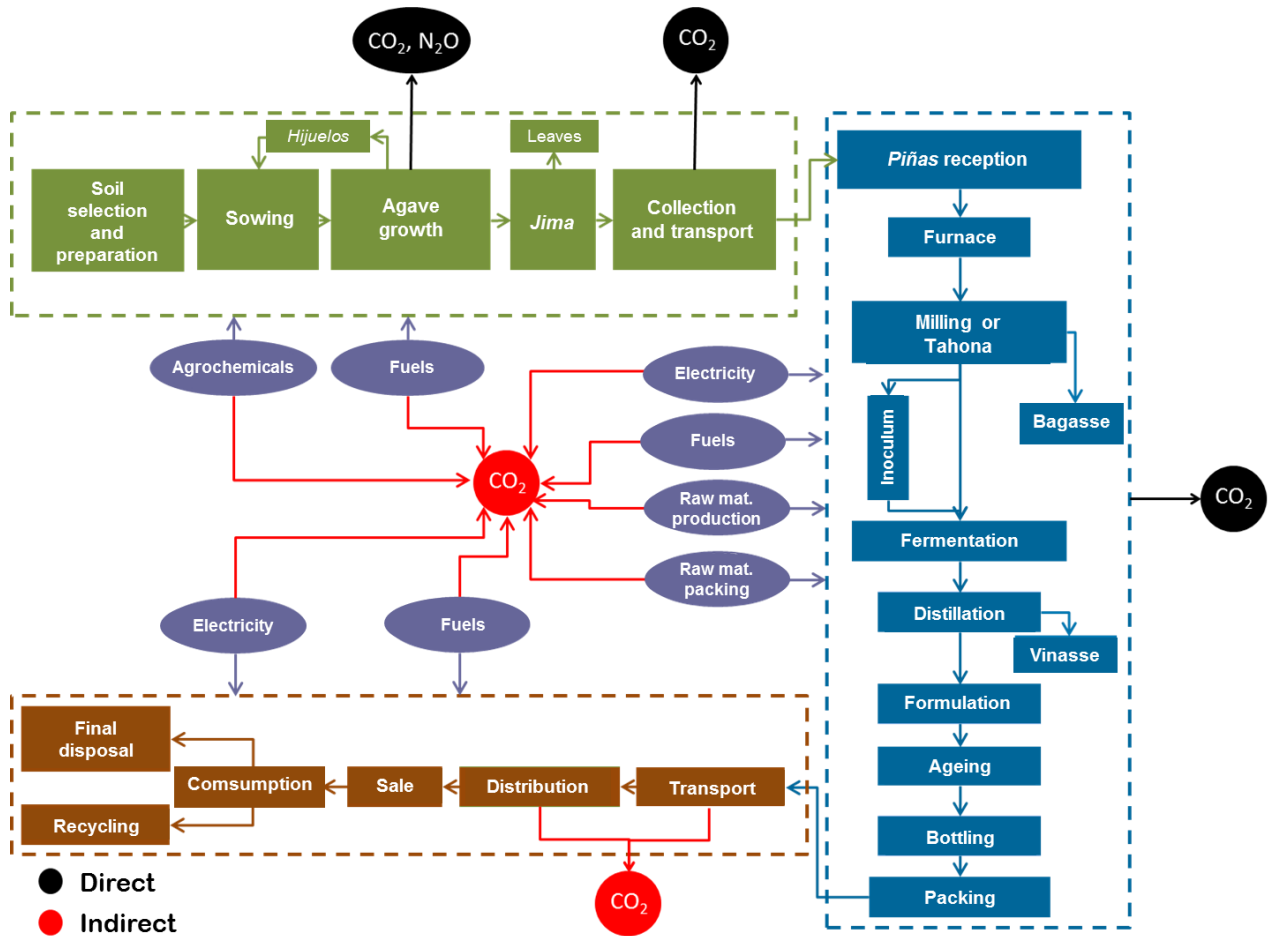
efforts and resources to improve its environmental performance. Still, there is great opportunity for improvement.

The Tequila Regulatory Council (CRT) is the organization that integrates the links in the production chain and besides the administration and custody of the Appellation of Origin, has worked to improve agricultural practices and to impulse the harmonic and balanced development of the industry. To improve the economic, environmental and social sustainability of the whole chain is one of its main objectives.

To reach in the long term full economic, environmental and social sustainability of the agave-tequila chain, it is necessary to have a quantitative diagnosis of the actual situation, as well as a strategy and a plan that shows the path and establishes joint objectives and goals. To address this need, the CRT in collaboration with the Mario Molina Center together with the inputs of information and proposals from 11 tequila companies, has developed this sustainability strategy for the agave-tequila production chain.

To calculate the impacts, a Life Cycle Assessment (LCA) methodology was adopted. This identifies and quantifies all emissions to the environment during the whole value chain. The impacts to the atmosphere, water bodies and soil are evaluated for all the activities done to produce tequila (see Figure 1).

Figure 1. Life Cycle Assessment of the agave-tequila production chain



A national and international evaluation on the state of the art of systems and technologies to minimize environmental impacts in the agroindustry was done. With this information, the analysis of the experiences of the companies that participated as well as mass and energy balances, opportunity areas were identified and an improvement potential of the environmental performance of the whole production chain was estimated.

# The starting point

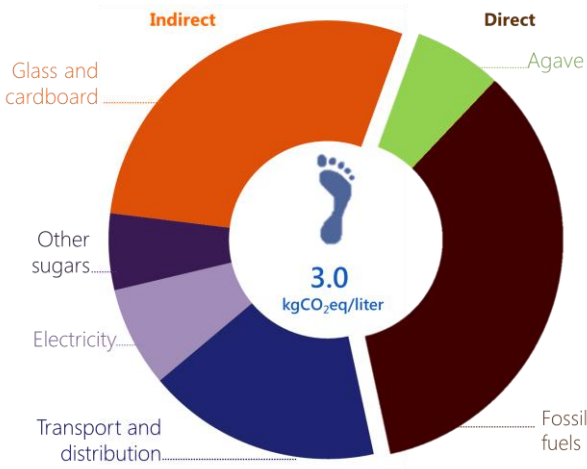
Based on the information supplied by the participating companies and the one available from CRT, the performance of the agave-tequila chain was estimated for the year 2014. This information was adopted as the baseline from which improvement goals were stated and advances in the sustainability path will be measured.

## Greenhouse gas emissions

The average carbon footprint of the agave-tequila chain for the year 2014 was estimated to be 3 kg CO<sub>2</sub>eq<sup>1</sup> per liter of tequila at 40% alcohol volume. This translates into emissions in the order of 700 thousand tons of CO<sub>2</sub>eq in 2014.

44% of these greenhouse gas emissions were emitted directly by the agave-tequila chain in the agricultural and industrial phases and the remaining 56% corresponds to the production of inputs and to the product's transportation and distribution.

The largest contribution to the emissions is from the consumption of fossil fuels for steam generation in the production of tequila, followed by the indirect emissions of the production of the glass bottle and the transportation and distribution of the tequila to the consumer. In the agricultural phase, the largest contribution comes from the use of nitrogen fertilizers.



STAGE	2014 baseline (kgCO <sub>2</sub> eq/liter of tequila)	Percentage
AGAVE	0.20	7%
FOSSIL FUELS	1.10	37%
ELECTRICITY	0.20	7%
OTHER SUGARS	0.15	5%
GLASS AND CARDBOARD	0.80	27%
TRANSPORT AND DISTRIBUTION	0.50	17%
<b>TOTAL</b>	<b>3.00</b>	

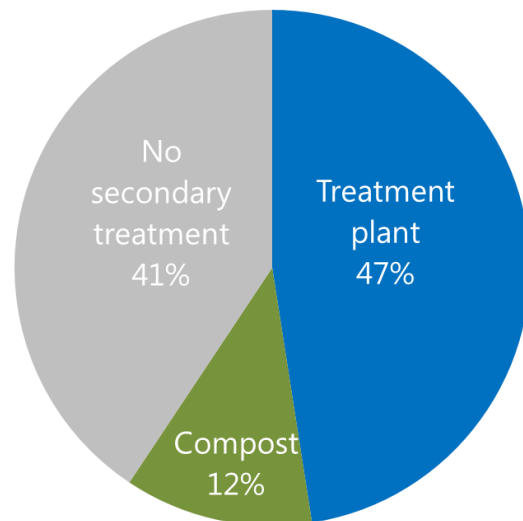
<sup>1</sup> Includes CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O emissions.

## Energy consumption

For the year 2014, the agave-tequila Chain is estimated to have consumed 2,800 terajoules of energy from fossil origin (mainly fuel oil) and 110 gigawatt-hours of electricity.

## Water consumption

It is estimated that in the year 2014, the agave-tequila chain consumed 3.6 million cubic meters of water, which corresponds to a 15 liter average per liter of tequila at 40% alc. vol.



## Bagasse and vinasse generation

In the tequila production in 2014, bagasse in the order of 240 thousand tons was generated as well as 1.6 million cubic meters of vinasse. 59% of these vinasses were given a secondary treatment.

# Sustainability goals and commitments

The agave-tequila chain intends to improve permanently its operational efficiency and its environmental performance. It aspires to use in all activities its raw materials, energy, water and all inputs with the highest efficiency, and to minimize the chain's emissions and impact to the environment. Concretely, the agave-tequila chain has set the following goals:

- 1.- Reduce the direct carbon footprint per unit of tequila produced 10% by the year 2020 and 25% by 2030, compared to the 2014 baseline.
- 2.- Reduce the fossil energy consumption per unit of tequila produced 7% by the year 2020 and 12% by the year 2030, compared to the 2014 baseline.
- 3.- Reduce the electricity consumption per unit of tequila produced 3% by the year 2020 and 5% by 2030, compared to the 2014 baseline.
- 4.- Reduce the water consumption per unit of tequila produced 5% by the year 2020 and 15% by 2030, compared to the 2014 baseline.
- 5.- Increase the percentage of wastewater receiving appropriate treatment to 70% by the year 2020, and to 80% by 2030.

# Goals

Compared to 2014

2020

2030

**Direct carbon footprint**

(CO<sub>2eq</sub> emissions/liter of tequila)



**-10%**

**-25%**

**Fossil energy**

consumption per production unit



**-7%**

**-12%**

**Electricity** consumption per production unit



**-3%**

**-5%**

**Water consumption** per production unit



**-5%**

**-15%**

**Wastewater treatment** percentage



**70%**

**80%**



# Commitments

As a part of its sustainability strategy, the agave-tequila chain commits to:



- Reporting the progress on the sustainability strategy
- Developing an environmental information and accounting system
- Creating a sustainable supply chain
- Certifying the processes of its environmental suppliers and service providers
- Reducing the use of agrochemicals with high carbon footprint and high environmental and health impacts

# Actions to follow

To reach the goals, the following actions, among others, will take place:



Substitute fuel oil and diesel with natural gas

Optimize water use

Eliminate steam and energy losses

Insulation of equipment and piping

Installation of cleaner and more efficient biomass boilers

Substitution of engines and efficient lighting

Use of biogas produced from wastewater treatment

Bottle and packaging redesign

Increase the recycled content in its packaging

## A special acknowledgement to:

Bacardi y Compañía

Brown-Forman Tequila México

Destiladora González González

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Tequila Cascahuín

Tequila Cuervo

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Tequila San Matías de Jalisco

Tequila Sauza

Tequilas del Señor