

## Chiles de Nicaragua

### Nicaragua

Development of climate change adaptation strategies for companies  
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Central America is ranked as one of the most vulnerable regions worldwide. Facing the impacts of climate change is a key challenge of this century - not only for governments and communities, but also for businesses. Changes in weather patterns and a shift to more extreme events; rising prices for raw materials, energy and water; damages of transport routes; or more frequent gaps in the supply of goods are some of the causes for new climate-related risks that businesses are now facing. At the same time climate change offers them a range of business opportunities.

This case study was developed under the INCAE Business School, INTEGRARSE and GIZ project "Climate Change Adaptation Business Strategies in Central America" (2012-2014) which aimed at improving the analysis and management capacity of the private sector in Central America for incorporating the business risks and opportunities arising from climate change into their corporate plans and strategies.

#### About the company

Chiles de Nicaragua is a family owned agro exporting company, with over 25 years of experience in producing and exporting Tabasco variety of chili mash to the U.S. It has a network of 17 producers (in negotiations with 30 more to start in following 2 months) country-wide who as suppliers of fresh tabasco chilis and to whom they ensure a sure market amongst other benefits. The company is recognized as highly committed with the environment and corporate responsibility practices. Good practices include prohibition of tree felling in contracts with their producers, and offer to their producers of assistance to access credit for implementation of best practices.

<b>Location</b>	Nicaragua, with suppliers of fresh chilli nationwide.
<b>Sector</b>	Agricultural processing company
<b>Products</b>	Tabasco Mash
<b>Company size</b>	13 permanent employees (2016), number that increases substantially during harvesting season



Tabasco chillis plantation (left), processing plant and personnel (right)

#### How is the company affected by climate change?



The company and its many producers are located in diverse areas within Nicaragua, but in general are all affected by changes in weather patterns and seasons, making farming ideal times less predictable, and leading to a series of impacts as detailed in the table below. Quantified losses due to overboard of river El Jobo, Matiguás, Matagalpa, on May 2010, for example, exceeded \$40,000 USD. Before participating in the project, Chiles de Nicaragua had taken some considerations and actions to adapt to climate conditions and changes. Participation in the project, by Lucía Hurtado, Vice-president and Exports Manager, and Sergio E. Traña, Executive President and Founder of the company, led to a broader analysis of climate change impacts on the company, urgency to expand actions already in pilot implementation stages, and additional potential adaptation actions. Resulting from the project findings, management defined a series of concrete activities for implementation, combining an expansion of actions that they had initiated before the project with others newly identified. The last two and a half years of drought have impacted the company sales and production, but if adaptation measures product of the analysis during the project with the adjusted BACLIAT tool had not been carried out, the damages would have been more severe.

#### Key climate phenomena

Shifting seasons resulting in extended dry season and impacts on production of chili; intense rainfall events and river floods are affecting the access roads and transportation of chili to processing plant and flooding of crops.

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**Climate risks and Adaptation measures**

Climate Phenomenon / Impacts	Climate Risks	Implemented adaptation measures
<p><b>River Floods and more Heavy rains</b></p> 	<ul style="list-style-type: none"> <li>• River levels grow leading to flooding of the crop areas.</li> <li>• Excess of rain leads to flooding of crops.</li> <li>• Disruption of road connections or road destruction.</li> </ul>	<ul style="list-style-type: none"> <li>• Preparation of four-wheel drive trucks to aid suppliers if they cannot translate their product to the processing plant.</li> </ul>
<p><b>Extended dry season leading to drought</b></p> 	<ul style="list-style-type: none"> <li>• The crops do not develop in what used to be the rainy season due to lack of rain.</li> <li>• Water sources and crop irrigation levels are affected, implying low productivity and low export volumes.</li> <li>• In drastic conditions, the situation results in death of the crop due to lack of water (null productivity).</li> <li>• This takes special importance as the tabasco chili fruit is commercialized by weight, and must be sufficiently hydrated to be juicy, reach the correct weight and achieve the exportation quality</li> </ul>	<ul style="list-style-type: none"> <li>• Implementation of shadow house technology in three different zones of the country, under organic production and efficient irrigation systems for one year. These allowed for production under controlled conditions, throughout the year, even with adverse climate or abrupt changes in temperature. However, it was found to be too expensive (required importing of materials and finding certified producers), thus they are currently used for other products for the national market under bio-rational production.</li> <li>• Encourage and request installation of drip irrigation systems preferably in all of the crops to reduce risk and be able to grow all year round.</li> <li>• Encourage the use of mulch or padded plastic to make a rational use of irrigation water and avoid evaporation, and help control weeds, increasing availability of water for the plant.</li> <li>• Construction of water reservoirs for rational use of the resource and irrigation in shadow houses.</li> <li>• The company chose to migrate production to a new zone, leaving the Pacific and moving towards the humid tropic, which decreased the former total number of producers and in some cases added new producers.</li> </ul>
<b>Other risks related to climate change</b>		<b>Implemented adaptation measures</b>
<p><b>Impacts on the supply chain (Risk lies with the producers (their suppliers) and thus, indirectly on their final product.</b></p>	<ul style="list-style-type: none"> <li>• The product is lost if producers cannot transport and deliver the fresh produce at the processing plant on the same day of cropping or at most the next day.</li> <li>• Possible two-way interruption to the supply chain – from the company to the producer of technical assistance and supply of materials, and from the producer to the company of fresh peppers.</li> </ul>	<ul style="list-style-type: none"> <li>• More careful planning process and exhaustive analysis of producing farms before signing contracts with them, related to: climate behaviour in the micro zone, impacts that the property has perceived in the past, and access roads (better accessibility and roads).</li> <li>• Incorporation of climate change into their Strategic Plan 2013-2015, for awareness building and in benefit of the productive network of the company.</li> <li>• Share climate report with producers and keep a historical track of geographical zones of particular interest.</li> </ul>

**Reflections from management**

Top management positions involved in the project highlighted how it represented an opportunity to make a halt, an x-ray of the company in face of climate change that otherwise would not have been possible; it allowed for learning, better understanding, taking awareness of the problem and having a more decisive action plan. As the project concluded, they reflected on achievements and needs moving forward. As Lucía Hurtado and Sergio Traña put it: “For the first time we sat down to value climate change impacts on each aspect of our company’s value chain.” Emphasis was made on the need to learn from experiences of other companies and institutions to reduce the learning curve and related costs. She also reflected on the need to talk more about climate change adaptation and not keeping our arms crossed. “It is a task that requires coordinated participation of public and private stakeholders. The company cannot deal with it alone, specially an SME, that needs specialized knowledge, qualified human and economic resources, awareness and capacity building to the remaining partners and members of the supply chain.”

**For more information on this case study and the project, contact:**

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