

## Sustainable Development in Central America and the Dominican Republic

**Company:** COOPERATIVA AGROINDUSTRIAL Y PRODUCCIÓN NICARAO R.L.

**Country:** Nicaragua

**Project:** Programme Poverty Reduction and Improvement of the Environment:  
An Integral Sustainable Development Strategy.

### The Company

The Cooperativa Agroindustrial y Producción Nicarao R.L., located in Rivas, Nicaragua, was funded in 1998 and started its activities in 2002 thanks to the effort of dairy producers group in the region who sought an efficient mechanism to commercialize their products. This way, the company starts as a 15 member cooperative who provide a third of the needed investment; the other two thirds were financed. The company has a strong tendency towards growth – in the last year sale tripled in regards to the previous year. Currently, the company employees 15 people and result in approximately produces 70 indirect positions.



### MISION

*"We are a company dedicated to the production and commercialization of dairy products for the Central American market. We stand out for the quality of our products, the service provided and our commitment with sustainable development – always trying to surpass our clients', producers, partners, employees and the community's expectations."*

### PRODUCTS

The main products are cheese and butter:



- Rivense (soft creole cheese)
- Nicarao or Morelique (dry, semi-hard cheese in bulk)
- Mozzarella
- Cream
- Yellow Cheese
- Butter
- Philadelphia Cream Cheese
- Cream cheese

### PROJECT DESCRIPTION




The methodology to implement the Sustainability Strategy in the company started with the conceptualizing of the sustainable development system –at which stage an internal and external organizational analysis took place to determine its sustainability profile, as well as its options for improvement in the environmental, economic and social dimensions.



Later on, a sustainability strategic work frame was established; here the organization's strategy – which includes Mission, Vision, organizational values, strategic objectives in the three mentioned dimensions, and the company's commitment to sustainable development.

Based on the strategic work frame, the action plans were defined in each dimension; and the monitoring mechanisms and indicators were established to guarantee the fulfillment of the established strategic objectives. Later on, training and technical assistance were provided to support the company in implementing the action plans. This way, it was intended to fulfill the transfer of knowledge to the organization; also, the follow up oriented towards the achievement of the expected results was developed.

**MAIN OBTAINED RESULTS**

Starting diagnosis	Achieved Improvements
<b>ECONOMIC DIMENSION</b>	
<b>1. Value Drivers</b>	
<ul style="list-style-type: none"> <li>- Lack of a sustainability strategic plan.</li> <li>- Lack of indicators to monitor the company's financial results and make decisions about it..</li> <li>- Need to improve some aspects related to the accounting system (profitability control by sales point, stock control, and the register for receivable and payable accounts).</li> </ul> 	<ul style="list-style-type: none"> <li>- A strategic plan was developed as well as indicators to follow up on established objectives.</li> <li>- Personnel were trained on Economic Value Added (EVA), and on the different value drivers activities which are part of the company's financial results.</li> <li>- A tool to monitor the main indicators related to the value chain (growth, profitability, work capital, investments and financing) was implemented.</li> <li>- An action plan was defined to improve the company's value chain.</li> <li>- The recuperation sales cycle was identified and contingencies plans were established.</li> <li>- Some of the company's relevant accounting elements were analyzed and recommendations were given in such regards.</li> <li>- Additional resources are being generated by the sale of residual serum. The main buyers are pigsty owners; nonetheless, some is given out for free.</li> <li>- A project to sale liquid milk is being documented. This would be an alternative to diversify products and maximize the infrastructure's capacity. Additionally, the production and sales of cream and butter is increasing.</li> <li>- Reports on achieved goals were presented to the Board of Directors – as well as to the General Partners' Board to use them as a decision making tool within the company.</li> </ul>
<b>2. Good Manufacturing Practices and Hazard Analysis and Critical Control Point (HACCP)</b>	
<ul style="list-style-type: none"> <li>- Required improvements in some hygiene aspects and infrastructure (bathrooms, plague control, plant's cleanness, and serum deposit tank).</li> </ul>  <ul style="list-style-type: none"> <li>- Administrative personnel do not follow the same safety measures when entering the plant (they do not wear coats, nor boots).</li> </ul>	<ul style="list-style-type: none"> <li>- Plant personnel were trained on Good Manufacturing Practices – emphasizing on the topic of hygiene.</li> <li>- Measurements to improve plague control were implemented (fixing of the serum deposit tank and the oxidizing lagoon).</li> </ul>  <ul style="list-style-type: none"> <li>- Administrative personnel comply with safety and hygiene occupational norms to enter the plant.</li> </ul>

- Flaws detected in the application of Good Manufacturing Practices (GMP) such as incorrect use of the refrigerator for dairy cultures, lack of signing on finished products and chemicals not stored under lock.
- Lack of written registers of company's procedures and regulations.
- Topics of food safety and innocuousness not included in the program for personnel's induction.

- Detected flaws in regards to Good Manufacturing Practices were corrected – including finished product labeling, as well as its adequate placement in the corresponding warehouse. Dairy serum and other additives are located in a refrigerator exclusively set for its storage.
- Standard Cleaning and Disinfecting Procedures, and the HACCP Plan have been written and revised by LABAL. Also, signs with the production procedures and internal regulations have been placed in the plant and the lab.



- Topics like food safety, innocuousness, GMP and HACCP will be included in the personnel's induction plan.

### ENVIRONMENTAL DIMENSION

#### 1. Efficient use of raw materials and prevention of solid waste production

- Waste of curd in the chopping tub (splashes during the process and drainage of the tub without a filter)





- Milk is wasted due to leaks in the stainless steel piping (approximately 2 liters daily).
- Speedy wear and tear of cleaning sponges used to wash buckets – producing solid wastes and requiring to be changed after 1 or 2 weeks of use.

- To avoid splashes, the tubs' flaps are being used. Also, to collect curd, a strainer is placed in the tubs' drain. It was recommended to integrate in the purge some sort of permanent filter to collect the curd (cotton cloth). Approximately 10 pounds of curds are collected monthly with the implemented measures.



- Cheese trimmings are re-used, increasing the raw material yield and with an increase in the price by 60% compared to the trimmings direct sales price.
- Purchase and installation of washers to eliminate leaks – a \$35.00 USD investment. Saving of 2 liters of milk daily.
- Change from washing sponges to pieces of bags to wash buckets obtaining the same results and at no additional cost since the materials come from the raw material bags. Solid waste reduction and elimination of the sponges expense at \$34.00 USD per year.

<b>2. Efficient water use and prevention of wastewater production</b>	
<ul style="list-style-type: none"> <li>- High water consumption</li> <li>- High production of wastewater.</li> </ul> 	<ul style="list-style-type: none"> <li>- Water is contained in very large bins and is used to wash floors – measuring it with small pots.</li> </ul>  <ul style="list-style-type: none"> <li>- Industrial pistols are used for hoses used in the washing process. Estimates are that an 88% decrease in water consumption takes place among those processes which use pistols.</li> <li>- Recirculation of hot water from the plant washing process (700-800 gallons daily). This results in the decrease in the pumping cost and wastewater production; besides, the plant washing process has improved by taking advantage of the water's warmth.</li> <li>- The water from the third bins' wash is reused (with fresh water) for the first wash of the next round of bins – where only mud and superficial dirt is removed. This results in a 33% saving in clean water consumption, savings in pumping costs, decrease in wastewater and saving in process time.</li> </ul>
<b>3. Adequate handling of chemicals</b>	
<ul style="list-style-type: none"> <li>- Use of caustic soda to wash pipes. This generates high costs due to required amounts for the process.</li> </ul>	<ul style="list-style-type: none"> <li>- Caustic soda was changed for nitric acid to wash pipes which is more efficient and is used in smaller quantities, plus being less polluting for water bodies. Acid substitution for caustic soda has reached 75%.</li> </ul>
<b>4. Others</b>	
<ul style="list-style-type: none"> <li>- Lack of personnel awareness regarding saving resources and environmental education.</li> </ul>	<ul style="list-style-type: none"> <li>- A person was appointed as responsible of the personnel's awareness. Speeches were used to revise cited topics.</li> </ul>
<b>SOCIAL DIMENSION</b>	
<b>1. Occupational Safety</b>	
<ul style="list-style-type: none"> <li>- There is no risks and accidents monitoring.</li> </ul>	<ul style="list-style-type: none"> <li>- An analysis of risks in the company was made and no important occupational safety risks were found.</li> </ul>
<b>2. Internal and External Social Projection</b>	
<ul style="list-style-type: none"> <li>- Need to improve the relationship between the company and milk providers in the area.</li> <li>- Lack of a well-structured social projection plan.</li> </ul>	<ul style="list-style-type: none"> <li>- At the managerial level, awareness of the need of social projection directed towards the company's external actors was achieved – emphasizing on the relationship with milk suppliers. This was achieved through workshops like: Social Entrepreneurial Responsibility, Social Management, and Change Management.</li> </ul>

- Need to improve training, communication and the involvement of the company's human resource.



- It is planned to have meetings every six months with milk providers; also an incentives plan will be formalized in order to guarantee the milk's quality and its good handling practices by the producer.
- The raising of pigs has been incited in the region by the donations of residual serum.
- Awareness of the need to improve Human Resources Management was achieved – oriented towards internal communication mechanisms and personnel's involvement in reaching objectives.



- It has been included as a medium term objective in the company's strategy, to keep monitoring of the proposed indicators (personnel's hours of internal training, hours of community extension, register of suppliers' training, effectiveness of production control practices with raw materials quality indicators, register of improvements in basic services for employees').

**Comment by Marcel Guzmán**  
Administrative Manager – Entrepreneur

*"The most significant achievement with the training and assistance received can be seen in the change of attitude both in the company's employees and management. Laborers became aware of saving water, as well as of the importance of reutilizing materials in the process. These actions benefit financially the company and therefore the employees. The environmental management has been strengthened, giving more importance to natural resources preservation and to diminishing our impact in the environment. Social management has always been present in the company, but the idea of the importance of the possible company's impact in the community has been reinforced".*



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