

# PARTNERSHIP BETWEEN SOMOTO AND THE TOWN OF ATHABASCA

## USING BRIQUETTES TO REDUCE FIREWOOD CONSUMPTION IN HOUSEHOLDS AND BUSINESSES

### 1. Project scope

#### 1.1. Summary

In 2010, the FCM started implementing the Municipal Partners for Economic Development (MPED) program with support from the Canadian government. In this program, Canadian municipal experts supported local governments and local government associations from seven countries in Africa, Asia, and Latin America to provide more effective local economic development services. The municipality of Somoto was one of the two municipalities from Nicaragua to participate in the MPED program.

Somoto is located in northern Nicaragua and is the municipal capital of the department of Madriz. Its population was 35,000 in the 2005 census. Situated at 216 kilometers from Nicaragua's capital, Managua, Somoto is just 15 km from the border with Honduras.

With a subsistence economy based on basic grain production and livestock, Somoto is an important center of agricultural trade. The city is also known for its *rosquillas somoteñas* (a donut-like snack made from corn flour), which are sold throughout Nicaragua and exported to other countries.

Solid waste has grown considerably in Somoto in recent years due to the consumption of packaged products, such as beverages in plastic containers, bags, and canned goods. This growth is influenced by a culture in which the majority of the population consumes fast food in packaging that damages the environment and in which some residents do not facilitate recycling by getting into the good habit of separating garbage or waste such as glass, plastic, or paper, etc. In addition, there have been no alternatives provided that give added value to waste.

This Local Economic Development (LED) Project oriented to solid waste management through the use of briquettes as an energy alternative has been implemented with support from the Federation of Canadian Municipalities. The project aims to improve LED in Somoto, raise public awareness about recycling and proper solid waste management, implement a replicable initiative using technology to create a valuable product out of waste, and strengthen the capacity of local government.

The project aims to implement a technological initiative that transforms normally discarded low-value materials into added value products such as briquettes. The briquettes will then be sold to meet the demand for firewood consumption by households and small local industries. Somoto consumes a high level of energy. Hence, this project is a comprehensive response to three issues: an increase in solid waste, elevated energy and firewood consumption, and limited opportunities for local economic development in Somoto.

#### 1.2. Project methodology

The pilot project was based on an AMUNIC previous initiative supported by the FCM, titled "Garbage is a Treasure". The concept was that managed effectively the big amount of waste produced by Somoto could be the motor of the development of a LED strategy.

The project components, processes, and activities were designed with the assistance of the municipality of Athabasca in Alberta, Canada, and based on the Somoto context and locally identified needs. The steps taken to implement the project were:

1. Assessing the current waste situation through the identification and description of non-hazardous solid waste in Somoto. This study yielded interesting data for developing strategies for managing this waste, such as the making of briquettes and developing eco-sites for the purchase of plastic in urban areas.



2. Identifying a site for placing the briquetting machinery in order to produce briquettes and also for demonstrating how they are produced, as well as their use for household cooking and industry. In addition, organizing activities like recycling fairs to promote the project and generate interest and commitment among stakeholders such as schools, universities, businesses, and nongovernmental organizations.
3. Organizing exhibitions and fairs to demonstrate how the briquette machine works and how briquettes are made, with particular attention and promotion to businesses.
4. Implementing a plan to increase public awareness of environmental issues and the management of solid waste. This was achieved through the opening of a center for environmental interpretation, talks at schools and universities, and the creation of a partnership between a school in Somoto and a school in Athabasca.
5. Strengthening the capacity of local government by creating a Directorate of Local Economic Development within the municipality's organizational structure. The Directorate is responsible for producing and implementing a LED strategy.

### 1.3. Key partners and stakeholders

The project was coordinated and implemented by AMUNIC and the Federation of Canadian Municipalities with the financial support of the Government of Canada. Among the main partners was Athabasca County (until 2014), who provided Somoto with technical assistance.

AMUNIC technical staff worked with the project coordinator appointed by the Mayor of Somoto to implement the MPED project in his town.

The implementation of the project and related activities was achieved in collaboration with other institutions in Somoto, such as the Nicaraguan Institute of Tourism (INTUR), the Ministry of Family Economy, Communities, Cooperatives, and Associations (MEFCCA), and the Ministry of Natural Resources (MARENA). These bodies representing Nicaragua's central government participated by providing technical and logistical support for the implementation of MPED activities in this city.

Initially, the briquettes were made by employees of the municipality's technical team in support to the municipal solid waste company, Tepecxomolt. These briquettes will be used by local entrepreneurs and small business owners who rely on ovens to provide their services and will be the project's main beneficiaries. Using briquettes diminishes the use of firewood and provides cost savings in fuel consumption since the briquettes are cheaper.

The Somoto Chamber of Commerce has been a key partner in promoting the municipality's LED strategy

from the beginning and is a member of Somoto's local MPED monitoring committee.

Finally, we must not forget that the municipality's improvement of services provided by its solid waste company Tepecxomolt, has allowed the project to be sustainable. The goal is that all services related to the handling and processing of solid waste will be integrated into one company to the benefit of the whole municipality.

## 2. Outcomes

The results have been very positive for the municipality of Somoto. The achievements can be understood in terms of the expected outcomes:

### 1. Creating a model for transforming solid waste into value-added products that generate income and reduce waste

This was a significant achievement of the project. It has created a site for demonstrating the importance of briquetting machines. Likewise, it has created a location for training entrepreneurs interested in making briquettes and other recycled products. This space has been used for training sessions, exhibits, fairs, and awareness-raising sessions to demonstrate the importance of having a briquetting machine and its usefulness for businesses, particularly those with a high volume of waste. The site where the briquetting machines are housed is accessible to anyone who is interested in learning about them. Visits from universities, schools, and NGOs have resulted in a commitment to the project supported by partnership agreements.

In addition to the creation of briquettes, this space has been used to demonstrate other technologies and practices, such as improved energy-efficiency ovens and recycling demonstrations.

### 2. Creating an economic development organization within the framework of the Municipal Waste Company in the municipality of Somoto

The Tepecxomolt Municipal Solid Waste Company has been strengthened through the purchase of a waste compacting machine, the installation of electricity in the plant, and the purchase of a vehicle for the transfer of plastic. Another important result is the municipal company's integration into the municipality's LED strategy. A committee was created made up of business people from the city's chamber of commerce and tourism, and representatives of the municipal solid waste company. This committee convenes for regular and special meetings depending on contingencies in the city and the monitoring processes or business actions with components of solid waste management framed within the LED strategy.

### 3. Increasing the Somoto government's capacity to promote Local Economic Development

This component has resulted in several achievements. It has created the Directorate of Local Economic Development, which has been institutionalized within the municipality's organizational structure. The Directorate has developed a LED strategy for the municipality of Somoto focusing on gender and environment. Public servants and the municipal technical team (ETM) have received training through a Diploma in LED, forums, exchanges of experience, and training in LED and solid waste management.

The municipality has launched this strategy and provided support to small entrepreneurs. The Local Coordination Committee has been formed and is administered by the municipality of Somoto. The Committee's main objective is to carry out the project in such a way that ensures the most efficient use of resources and the participation of local actors for project success. Municipal fairs have been organized with community involvement and promoted local small businesses. During the fairs the participants were able to see the potential of local products. Small vegetable and street food vendors have been strengthened thanks to an improvement of their work places by providing stalls for displaying their goods that will also be used for selling briquettes.

An important achievement was the creation of the Chamber of Commerce of Somoto. This organization is involved in all the LED activities organized by the municipality.

### 2.2. Compatibility with cross-cutting program objectives

Gender equality has been achieved in different activities throughout the implementation of this project. A fair representation of both men and women was key, creating equal development opportunities for both genders. A local Committee and the board of directors of the Chamber of Commerce with representation of both gender. The role of municipalities in this context is to strengthen local institutional capacity, families, and the community. Somoto has a large number of female entrepreneurs who own the *rosquillera* bakeries that employ women.

Environmental sustainability is also an important component of this project as it focuses on economic development through the management and recycling of urban solid waste. The use of briquettes could reduce the volume of paper that goes to the city dump, creating an alternative energy source to replace the current consumption of petroleum and firewood, which in turn reduces the degradation of the local natural environment while creating business opportunities and serving as a model for recycling efforts.

### 2.3 Success factors

Several factors had a positive impact:

1. **Community involvement.** People from the various targeted neighbourhoods were committed to the project and were available to work on it.
2. **Commitment from the municipality.** The city recognized the growing problem of solid waste in the municipality and had an interest in addressing the problem and improving its solid waste management. It was also committed to promoting local economic development and created structures within the organization to carry out the LED initiatives. The municipality also contributed its own funds and resources to carry out the project.
3. **Technical assistance.** Strengthening the capabilities of the municipality's technical team in the areas of solid waste and LED, facilitated the implementation of the project and its consolidation. The exchange of experiences with other local and international municipalities helped in the planning and direction of the project. The baseline and action plans were based on information obtained through consultancy services on the feasibility of briquettes and the LED strategy.
4. **National policies.** The changing policy of Nicaragua's central and municipal governments at the time to directly support small business helped motivate and create a favorable environment for the city to promote sustainable LED.

Although technical support was a success factor for the project, there was a missed opportunity to consolidate some processes due to a change of personnel in Athabasca County, which interrupted the continuity of the assistance.



## 2.4. Sustainability

The Somoto Chamber of Commerce brings together small entrepreneurs and tourism businesses as part of the sustainability efforts.

As a way of organizing local actors to carry out the project, a local committee was created with the support of the municipal technical team. This committee includes representatives of the Chamber of Commerce.

This project has been embraced by the municipality and local businesses who recognize the value of this initiative and its contribution to local economic and tourism development. The municipality has demonstrated its commitment by creating a Directorate of Local Economic Development within its structure that can implement similar initiatives, applying lessons learned from this project. A municipal LED strategy was also developed, which the Directorate of Local Economic Development has the responsibility to implement. Another aspect of sustainability is the municipality's technical ability to provide maintenance for municipal equipment and compacting machines for this project. It is important to note that the municipality has a budget line for this project teams.

## 3. The experience

### 3.1. Lessons

According to municipal officials, if they had to do the project all over again, the funding would have to be improved. The beginning of the project was very slow because the municipality lacked financial management skills. It is also advisable that there be a commitment from municipal authorities to proceed with the proposed LED initiatives. Other project lessons include the importance of the teamwork for coordinating and carrying out activities.

One of the lessons learned in this project was the commercial value of solid waste. This transformation generated the commercial collection and sale of plastics, which allowed low-value goods such as solid waste to sustain household economies or family business initiatives since families benefit from the sales of plastic collected in the city. Another important experience in this project was learning about the importance of and opportunities created through working with strategic alliances between the public and private sectors.

It is for this reason that the municipality of Somoto highlights that political will and municipal interest in carrying out such a project are key factors in a municipal government's ability to reproduce similar initiatives. Recreating this project requires adequate technical equipment, as well as an administrator directly in charge of exclusively coordinating the project. It is advisable

to start with descriptive or diagnostic studies at the beginning of the project to help understand the situation on the ground. At the same time, any project must have the support of the citizens and the municipal government with a clear understanding of the common good and shared responsibilities.

### 3.2. Best practices

The specific approaches of managing waste in Somoto and in particular the creation of Tepecxomolt Municipal Solid Waste Company is a good practice. The same process of solid waste management can be implemented in other municipalities; it only requires supporting the joint efforts of the private and public sectors to work together.

Another element that should be highlighted is the good organization of the different sectors of the chamber of commerce. This organization fostered an entrepreneurial approach to LED via the promotion of local fairs. (Active business sector participating in events organized for business growth.)

### 3.3. Success stories

The implementation of the eco-sites for buying plastics is a success. In those places people can sell waste collected in the streets to the municipality. Other municipalities, such as San Lucas in the department of Madriz, have used this example as a reference for their own initiatives. In addition, Somoto families consider the selling of plastics an employment option.

## Appendices

- Annual Operating Plan – Company AOP
- Organization of the Chamber of Commerce
- Company has briquetting machines in the demonstration center
- Company has the compacting machine and electricity is installed
- Incorporation of the company (in progress)
- LED strategy
- LED directorate (approved and budget line item)
- Municipal budget for developing local fairs
- Recycling, environment, and LED training sessions
- Reports on the development of local fairs
- The municipal government owns demonstration center property site

*The above documents are in the environmental management unit at the AMUNIC offices and in the city of Somoto.*

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## APPENDIX 1. Expected outcomes

EXPECTED OUTCOMES	STRENGTH	WEAKNESS	FACTORS FOR CHANGE
<b>1. Creating an initiative for demonstrating how the briquette machine works.</b>	A team work with Athabasca and Somoto, facilitated the technical specifications of the briquette machine.	None	
<b>2. Finalizing the feasibility studies for the briquette initiative and securing the demonstration site for training interested businesses and entrepreneurs.</b>	Somoto now has a study on commercialization of the briquettes and has opened the demonstration center. A consultant to be hired for the commercialization feasibility study.	Study took a long time to be completed.	
<b>3. Twelve visits by rural and urban residents, schools, institutions, universities, small enterprises, businesses, restaurants, hotels, and NGOs.</b>	The visits to the demonstration center were made possible through its promotion by the municipality of Somoto and the Somoto Centre for Development Initiatives (CIDES). The MPED, CIDES, and the municipality supported logistics for such activities as recycling fairs. All stakeholders participated.	None	
<b>4. Twelve training sessions on environmental awareness and education on solid waste management.</b>	Giving talks to schools and universities has been made possible through the partnering between the schools and the opening of the environmental interpretation center. Resources are available and the training session themes have matched the academic requirements of the schools and universities.	None	
<b>5. Twelve exhibits and/or fairs demonstrating how briquettes are made and how the briquetting machine works.</b>	Demonstrations were given on the use and function of the briquettes with particular attention and promotion to businesses. These demonstrations are in addition to the visits to the demonstration center.	None	A component aimed at small businesses was added to carry out the project.
<b>6. Twelve exhibits on the proper use and management of briquettes.</b>	Demonstration center and the availability of staff.	None	
<b>7. Twelve workshops on how to start a business (sell/rent) through the use of machines for making briquettes out of waste.</b>	Were not carried out.	The feasibility studies were not completed until 2014 and profitability was unknown	
<b>8. Twelve collaboration agreements for trying out the briquetting machines with rural and urban residents, schools, institutions, universities, small enterprises, businesses, restaurants, hotels, and NGOs.</b>	Were not achieved.	The feasibility studies were not completed until 2014 and profitability was unknown.	

## APPENDIX 1. Expected outcomes (continued)

GENERAL PROJECT OUTCOMES			
EXPECTED OUTCOMES	STRENGTH	WEAKNESS	FACTORS FOR CHANGE
<b>1. Carrying out studies on baseline data and developing LED strategies for corresponding municipalities.</b>	A consultant was hired using program funds (6 months).	The contract duration lasted longer than originally planned.	
<b>2. Creating a local economic development organization.</b>	Organizational abilities of actors, availability of the technical team, and funds available for meetings.	Convening was sometimes challenging because of other municipal activities.	
<b>3. Creating and running a Municipal Waste Company using an organizational model aimed at achieving economic profit, offering residents new services with local initiatives, and assisting in reaching efficient public spending on waste management services provided by the municipality.</b>	In progress with the consultant for submitting the proposal, and examination of the legal aspects and business plan.	Obtaining information from Somoto municipal staff has not been possible because of their multiple roles (other areas).	Ordinance approved in 2010, however, a presentation still has not been made to council because of modifications made in 2014 on the basis of the diagnostic study made using the available information.
<b>4. Providing an analysis of the independent costs of the services provided by the municipality of Somoto that will allow us to understand the financial balance of real and indirect costs in relation to municipal income. (Athabasca County will provide Somoto with examples of the corporate structure, organizational arrangement, and education.)</b>	In progress with the consultant.	Obtaining information from Somoto municipal staff has not been possible because of their multiple roles (other areas). Moreover, the consultant is not from the municipality.	
ACHIEVED RESULTS (Actual results)	STRENGTH	WEAKNESS	FACTORS FOR CHANGE
<b>1. Creating and operating a Directorate of Local Economic Development that is institutionalized within the municipal organizational structure.</b>	This was achieved through the project implementation, central government policy, and political will. This was necessary for Somoto's economic development, which targets business and tourism.	No prior experience working with small businesses.	Central government policy fostering small businesses at the municipal level.
<b>2. Strengthening public servants and the technical team through a Certificate in Local Economic Development, forums, experience exchanges, and LED and solid waste management training.</b>	Made possible through program funds (10 from Somoto and 1 from Yalaguina) in the municipality of Somoto and with the UNIFOM. Local forums and national forums with AMUNIC. National and international experience exchanges. Local training sessions.	None	Because this was a new field there was a need to strengthen and acquire knowledge. Implementation of the LED project.
<b>3. Partnering between schools in Somoto and Athabasca on recycling issues and to share knowledge on how to form an ecological brigade and school gardens.</b>	Developed through the project implementation.	Communications were not done directly with the school (partly influenced by language difference between the two).	

## APPENDIX 1. Expected outcomes *(continued)*

ACHIEVED RESULTS (Actual results) <i>(cont')</i>	STRENGTH	WEAKNESS	FACTORS FOR CHANGE
<b>4. LED strategy focusing on gender and the environment.</b>	Part of the initial project objectives. This strategy is applied to the economic sectors that provide the greatest opportunities for urban and rural development in the municipality (for example, the sector that produces sweets, rosquillas (donut-like pastries).	Time needed for development.	
<b>5. Strengthening the Tepecxomolt Municipal Solid Waste Company through the purchase of waste compacting machinery, the installation of electricity in the plant, and the purchase of a vehicle to transport plastics.</b>	Achieved through the procurement of consultancy services still in progress. Allocation of funds.	Time needed for development and the purchase of resources.	A component aimed at small businesses was added to carry out the project.
<b>6. Retrofitting the site used to demonstrate energy technologies, such as the use and handling of briquettes, improved energy-efficient energy-saving ovens, and recycling demonstrations.</b>	Part of the original project objectives. Has been easy to apply. Support from AMUNIC through the support of a technical expert.	None	
<b>7. Community participation in municipal fairs and promotion among small local businesses.</b>	Fairs for small businesses open to all public members of economic sectors such as crafts, tourism, agro-producers, gastronomy, etc. (high participation, good outreach, available program funds, municipal funds). Fairs occurring on local (urban and rural), departmental (provincial), and national levels.	None	
<b>8. Strengthening small businesses that sell fruit and vegetables by improving their workspaces with the provision of stalls for displaying their goods that will also be used for selling briquettes.</b>	Collaboration agreement between the municipality and small businesses.		Part of the project objectives since the beginning.
<b>9. Strengthening small businesses selling food on the street by providing display stalls.</b>	Collaboration agreement between the municipality and small businesses.		
<b>10. Creating the Local Coordinating Committee.</b>	Participation by all sectors and institutions. Knowledge of LED issues.		
<b>11. Facilitating the organization of business owners through the Somoto local Chamber of Commerce.</b>	The municipality of Somoto and its members were fundamental pillars in the establishment of the Chamber of Commerce. It is also important to highlight the logistical support provided by the municipality's technical team (LED Directorate).	Incorporating Chamber of Commerce still in progress.	

## Detailed outcomes were as follows:

### *Achieved results (actual results):*

- Partnering between schools in Somoto and Athabasca on recycling issues and to share knowledge on how to form an ecological brigade and school gardens.
- Retrofitting the site used to demonstrate energy technologies, such as the use and handling of briquettes, improved energy-efficient energy-saving ovens, and recycling demonstrations.
- Some of the specific activities carried out in this project are:
  - Development of a diagnostic study (in order to have more clarity and explicit information on how to carry out the project)
  - Presentations to the municipal council and local schools
  - Project proposals
  - Identified projected volumes of waste
  - Purchase of 1 compactor truck to collect waste in urban areas
  - Purchase of another truck to collect plastic from eco-sites (in targeted neighborhoods)
  - International (Canada, Nicaragua) and national (Chureca) experience exchanges
  - Opening of Demonstration Center (use of briquettes and other energy technologies)
  - Participation in fairs (small businesses)

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