

## **ANALYSIS OF A NETWORK OF COOPERATION IN MISIONES, ARGENTINA: BENEFITS AND LACKS FOR LOCAL SUSTAINABLE DEVELOPMENT**

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### **SUMMARY**

We present a case study of a network of existing cooperation in the province of Misiones, Argentina, composed of Small and Medium Enterprises (SMEs) Elaboration of black tea and a group of SMEs from sawn wood, formed from the particular initiative of the tea entrepreneur. The aim is to identify the benefits of working in cooperation and, in turn, highlight the lacks when these processes are not performed in a planned and sustainable local oriented development.

The case study that is exposed is a unique, contemporary data survey with establishments belonging to the cooperative network, interviews with entrepreneurs and managers of production, which led to evidence the benefits of cooperation, which include: use of waste, generation of trust between employers and contribution to environmental stewardship. There were also major shortcomings that prevent greater profit derived from the lack of an appropriate methodological instrument to implement this type of cooperative enterprises, among which stands out: poor use of idle resources, lack of process improvements through innovations joint, non-participation of major players and systematic orientation towards the local sustainable development.

**KEY WORDS:** Business Cooperation; Sustainable Local Development; SME; Case Study.

## **INTRODUCTION**

This research analyzes a network of cooperation among existing SMEs, comprising production companies representing sectors of the province of Misiones (a drying area and five sawmills), in order to highlight the benefits of cooperation and shortcomings that are suffered by not having a management methodology that facilitates the progressive and systematic orientation towards sustainable local development (DLS). The work presented is part of a wider research conducted at the Faculty of Engineering, National University of Misiones, which has developed a model and methodological procedures for small networks to create flexible cooperation of SMEs oriented DLS (Meisel Donoso et al., 2009; Michalus et al., 2009; Michalus et al., 2010), which facilitates cooperation between companies from different production sectors and / or services (inter-sector) and the possibility of sharing one or more resources (multi-relational).

The cooperative venture provides evidence of the fact that the need for cooperation between SMEs exist in latent state in the province of Misiones and has begun to emerge in isolation. It also allows evidence to be feasible, to see the benefits of cooperation for firms (waste management, purchasing cost savings of native forest wood, etc.) and the DLS (contribution to the care of the environment), which however, are limited by the lack of appropriate methodological instruments to realize them and guide them systematically to the DLS and the lack of participation of other local actors.

## **DEVELOPMENT**

### **Materials and methods**

The case study method is a methodological strategy of scientific research that has been central to research in areas such as operations management, businesses, technological development and social problems (Voss et al., 2002; Martinez Carazo, 2006). It is suitable to

research in detail the causal mechanisms of complex systems (e.g., company) in which the researcher has no control and seeks to examine them, answering questions like how? And ¿why?, considering the influence of the context in which it develops (Sosa Cabrera, 2003; Yacuzzi, 2005). This method incorporates existing theories and helps generate new approaches, allows for analytical generalization (no statistics) by using a single case or multiple cases to illustrate or represent a theory or to generalize it by logical inference to other cases present in similar theoretical conditions (Villarreal Larrinaga and Landeta Rodríguez, 2010). Always that they be applied with sufficient scientific rigor, no problems of reliability and validity (Yacuzzi, 2005; Martínez Carazo, 2006; Garcilazo, 2011). A unique case when it is appropriate to explore a particular phenomenon in order to understand the structure, processes and drivers, combining different methods for collecting qualitative evidence and / or quantitative to describe, verify or generate theoretical conjectures performed by the researchers (Sosa Cabrera, 2003; Neiman and Quaranta, 2006 and Garcilazo, 2011),

Particularly in this research was a case study unique, contemporary, holistic, between September 2010 and March 2011. The same logic is a sample of generalized analytical ability (not statistics), composed of six (6) companies based in the Oberá department of the province of Misiones, Argentina, namely: one (1) black tea processing company based in the municipality of Los Helechos, and five (5) of implanted forest sawmills located in the municipalities of the Los Helechos (3), Panambí (1) and Oberá (1). The data was collected between the months of December 2010 and January 2011. The evidence collection methods included: document review, interviews, multiple semi-structured, direct observation and use of physical artifacts and cultural technology (recording of interviews and taking pictures) (Sosa Cabrera (2003), and Villarreal Larrinaga and Landeta Rodríguez (2010). Sources of information used were: a) available documentation provided by the companies (records of raw material purchase and production), b) in-depth interviews, using semi-structured questionnaires previously developed (following essentially Hernandez Sampieri et al., 2010) which requested general information about the company, operations, number of employees, evaluation of results obtained by each SME through cooperation, and other activities that they would be willing to cooperate in; c) visits of the

researcher to conduct surveys in situ, data in establishments belonging to the cooperative network to confirm data collected through other sources (referred to: products, human resources, infrastructure, production process and equipment, planning and control production, etc.) and d) multimedia generated archives media (sound, image. Key informants were managers (usually the owners themselves) of the six (6) SMEs in the network of cooperation, most of them entrepreneurs with little or no formal education, except the case of tea drying (with university training), and managers of the production area of business (usually people with little formal education).

For its part, the methods of analysis of evidence were: identifying, grouping and sorting data, development of evidence tables added for ease of interpretation and use, search for key explanatory factors and behavior patterns.

As posed by Villarreal Larrinaga and Landeta Rodríguez (2010), in a case study it is very difficult for the real development of the research to coincide exactly with the planned one, due to the presence of many uncontrolled variables by the researcher, so it is should make an assessment of the reliability and validity of results, according to the degree of adjustment planned initially in the research. The validity of a study is the quality that makes it credible and attests to the rigor with which it is made, it will have valid results if all processes are monitored properly from the start of the research (Yacuzzi, 2005). In this regard, according to authors like Sosa Cabrera (2003), Yacuzzi (2005), Villarreal Larrinaga and Landeta Rodríguez (2010), research has constructed validity when making a preliminary analysis of the conceptual framework (theory triangulation) different methods are used for collecting evidence (methodological triangulation) and multiple sources of information (data triangulation). In the present research there were carried out theoretical triangulations, methodological and data.

### **Fundamentals and main characteristics of the proposed methodological procedure**

The following summarizes the rationale and main features of the proposed methodological procedure to implement flexible cooperation networks of SMEs oriented DLS, required to enable the reader to understand some issues when presenting the results.

Improving competitiveness is a priority in SMEs (due to the characteristics of these

businesses), for which many initiatives have been developed financial (venture capital, micro-credit, etc.). State and bureaucratic simplification innovation (technology transfer, education and training, etc.). But in general, the implementation and results of these measures have not been satisfactory in the Latin American countries (Berry, 1998; Matalobos Diaz et al., 2005; Zevallos Vallejos, 2006). These solutions generally have failed or at best have not yielded as expected, since they have been raised from an economist perspective ignoring the many dimensions (social, environmental, cultural, etc.). Underlying the business and its relationships with other actors present in a territory in a way to DLS.

The DLS approach attaches importance to organizations, companies, local institutions and civil society in the processes of growth and structural change (Martínez Verdú, 2007; Boisier Etcheverry, 2008; Bofill Vega, 2010, among others. It tries to help transform the status of mere consumers of development to a more active producers of development, corresponding to the particular needs of each territory (Guzón Camporredondo, 2006). It is a comprehensive process that is based on consultation of local stakeholders by incorporating, in turn, the dynamics of sectoral development, functionally and territorially undertaken by the State (Enriquez Villacorta, 2005; Rojas Moran, 2006, Miranda et al., 2007.)

It begins by recognizing the gap between the demands of survival in a harsh and threatening environment, and the local reality, which can be synthesized in adverse circumstances in a social, environmental and economic vulnerable, fragile, unfavorable and unfair-in municipalities/less developed regions, such as the province of Misiones, where it can find application as an alternative development solution. Among the range of alternatives to overcome the gap described, the DLS approach is considered among the most expeditious and convenient to the interests of the plurality of actors involved, to that end goal, it seeks to direct the efforts of these and to draw attention to SME businesses in the territory, which was designed for a cooperative mechanism that allows not only to improve performance but also contribute to the endogenous development based on locally available resources.

The cooperation network is generated, develops, and strengthens until its release under the influence and interaction with local actors belonging to the Quadruple Helix: Enterprise-Academy-

State-Local organizations that support the proposal (Meisel Donoso et al., 2009; Michalus et al., 2009; Arnkil et al., 2010; Michalus et al., 2010), who form an entity to coordinate and assist companies on cooperation, called Management Unit (MU), and the attending help in their practical requirements from the competencies of each one. The actors mentioned can work together and / or individually, in a planned and coordinated way, to unify efforts and achieve the strengthening and growth of the cooperative network. The UG is responsible to coordinate and collaborate in the creation and operation of groups of SMEs that decide to form cooperation sub-networks.

The general methodological approach developed to implement the flexible cooperation network of SMEs, consists of the following phases: a) formation of the Network Management Unit b) configuration of sub-networks, c) cooperation and d) detachment. Each phase, in turn, consists of specific steps and procedures that achieve the proposed objective to create inter-sectoral networks (made by SMEs belonging to various sectors of production and / or services) and multi-relational (I e to be able to share one or more production resources), whose objective is precisely to help break the isolation and improve the performance of SMEs, while strengthening the partnership and solidarity work with a more defined to the DLS. The specific procedures of each stage components are not described on this occasion, because they go beyond the scope of this work (for details, we suggest reviewing the paper by Donoso Meisel et al., 2009; Michalus et al., 2009 and Michalus et al., 2010). The research will focus on analyzing a particular case of a network of existing cooperation between SMEs, in order to highlight the benefits of cooperation and gaps it suffers by not being organized under a management methodology that facilitates the progressive orientation and systematically to the DLS, and without the participation of key local stakeholders including governments, the Academy and Local Organizations.

### **Network of inter-sector SME**

The main characteristics of SMEs that are part of the network (in tons annual production, number of employees, key customers, distances between companies) are presented in Table 1.

Table 1. Characterization of the SME members of the cooperative network

SMEs	Annual production [t/year]	N° of employees	Major Customers	Distance to the tea drying area [km]
Tea Drying Plant	500 <sup>b</sup>	7 to 15	SMEs Export Supplier	---
Sawmill 1	2,880 <sup>c</sup>	4 to 5	National (Deposited centralized in Bs. As.)	6.5
Sawmill 2	1,800 <sup>c</sup>	6 to 7	National (Deposited centralized in Bs. As.)	3.0
Sawmill 3	8,400 <sup>c</sup>	10 to 12	National (various)	7.2
Sawmill 4	14,400 <sup>c</sup>	34 to 38	National (various)	11.0
Sawmill 5	12,000 <sup>c</sup>	28 to 32	National (various)	20.7

Source: Own elaboration

**References:**

a : average production values

b : t of dry black tea

c : t implanted timber rolls

The cooperation network under analysis was initiated in 2008 by the owner of an establishment for the production of black tea, located in the municipality of Los Helechos, Oberá department, Misiones province, in order to form inter- sectoral sawmilling companies in the area (in the municipalities of Los Helechos, and Panambí Oberá) that would provide first planks<sup>1</sup>, sawdust, shavings and chips<sup>2</sup> to be used as a fuel alternative to native forest wood used hitherto, and thus produce a saving of approximately 26% in the purchase of this input.

The tea drying processes 2,000 t / year of green tea, from which it gets 500 t / year of dry black tea. Until 2007 it used an average of 1,000 t / year of wood from native forests as fuel to generate thermal energy required in the process. In 2008, the employer made changes at home that allowed him to burn a mixture (mix) of native forest wood, chips and waste wood sawing wood in place (see Figure 1).

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1 Side planks are those pieces closest to the bark, which are eliminated when sawing a trunk lengthwise.

2 Chips are small pieces of timber, resulting from an industrial process of side planks and small diameter trunks, which are used as raw material to make woody fiber or as fuel.



Figure 1. Partial view of fireplace with its feeder and waste and by-products used as fuel



Source: Photograph taken by the authors

From this innovation introduced, the businessman managed to replace between 95 to 97% of native forest wood used previously (see Table 2) for first planks (7-8%), sawdust (50-55%), chip (9-11%) and implanted forest wood chips (23-26%), those obtained through the cooperation network with its attendant benefits, not only individual but also for the territory. For their part, SMEs provide sawing wood by-products (chips) and part of their waste (slabs, sawdust and shavings), also obtaining benefits, both individually and for the territory, reducing the uncontrolled burning of thereof.

Table 2. Characterization of waste and by-products exchanged through the cooperative network

Enterprises members of the cooperative network	Use of native forest wood [t/year]		Waste and/or by-products provided through the [t/year]			Waste / by-products produced total [t/year]	
	2007	Since 2008	Supplied to the network elements	2007	Since 2008	2007	Since 2008
Tea Drying Plant	1 000	35	---	0	1 100	---	---
Sawmill 1	---	---	Side planks, sawdust and shavings	0	250	1 200	1 300



<b>Sawmill 2</b>	---	---	Side planks, sawdust and shavings	0	210	800	720
<b>Sawmill 3</b>	---	---	sawdust	0	350	4 000	4 600
<b>Sawmill 4</b>	---	---	Chips	0	90	4 000	6 900
<b>Sawmill 5</b>	---	---	Chips y sawdust	0	200	3 600	4 200

Source: Author's own

This network of cooperation was conceived with the central goal of individual economic advantage and survived for years thanks to this relationship of convenience which is favorable to participating SMEs, as the networking allows companies to increase to some extent the economic benefits to complement the respective productive capacities and make better use of production resources.

In addition, there have also been indirect benefits to the companies and the municipality where they are settled, with favorable results, DLS, among these include the following:

- It takes advantage of the waste (slabs, sawdust and shavings) in the production process of SMEs cooperating, from networking, which before were burned out of control, which helps reduce the harmful impact on the health of the workers, neighbors and the wider environment.
- There is a reduction in consumption of native forest wood, replaced by waste and by-products of wood used in its place, which helps to reduce the indiscriminate felling of this important and valuable natural resource planning.
- They have created bonds of trust between the parties of the network (though they are weak) and a favorable attitude toward work in cooperation, contributing to the gradual creation of better conditions for the DLS.
- One can infer that these actions cause in general a favorable effect on improving the quality of life of the population, to reduce pollution and help preserve the natural environment.

From the standpoint of environmental factors, have adopted methods and management practices of waste wood, which also contributes to improving the competitiveness of SMEs with their undeniable positive economic impacts in municipalities where they are established.

Also work in cooperation helps to strengthen the weak trust even between employers, favor

the participation of enterprises and local resource use, although it was noted also that in smaller SMEs there is more predisposition to networking than in the larger ones.

Also we noted the introduction of innovations in the drying area, by incorporating a feeding mechanism of sawdust, shavings and chips at home, yet this, it is clear that this was made from the individual effort by the entrepreneur who promoted the cooperation network<sup>3</sup>.

There was a better use and development of resources in SMEs and some strengthening of entrepreneurship. The use of waste has meant an increase in productivity and labor utilization in small mills, but in the larger, the increase was not significant.

Furthermore, one can say that there is a contribution to the protection of local natural resources, while it favors the participation of SMEs from various sectors of production (inter-sectoral cooperation), and is encouraged to adapt the practices to the national standards (in particular the Forest Act).

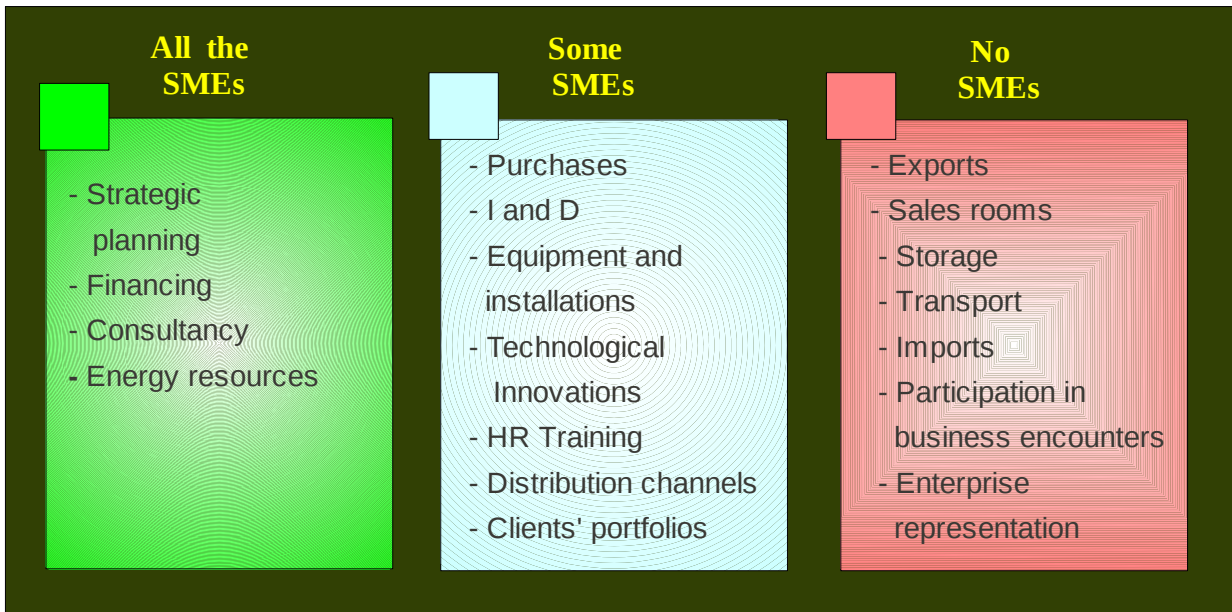
Although the network experienced is a modest growth to current levels, it has deepened cooperation in other areas, so this process, not having made a conscious, organized and with a longer range (for example, also oriented toward the achieving a properly incentivized DLS), has lost momentum and stagnated in the consolidation, however, to demonstrate its feasibility. In addition, as a result of the genesis of this particular network, coordination is in the hands of a single employer, so that participation and involvement of others is practically nil.

Also, firms were questioned about their willingness to cooperate with SMEs in other areas, and obtained the results presented in Figure 2.

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<sup>3</sup> The construction and tuning of the mentioned mechanism, although relatively simple, has demanded technical and economy efforts, during a period of two years (Kairiyama, 2011).

Figure 2. Activities that SMEs are willing to cooperate



Source: Own

It is noted that the companies have argued willing to deepen cooperation in some aspects.. Most are aware of the lack of training (and who are willing to cooperate in consulting, training and HR), perceived the need to improve their production processes and / or management (shown willingness to cooperate, for example, technological innovation and R & D), and expressed willingness to improve their performance through cooperation, which is attributed, to some extent idiosyncratic relations based on reciprocity generated in the previous work. The willingness to share energy resources is obvious, as their productive and economic results are tangible since they are working cooperatively on this activity.

However, it should be noted that while there are certain expectations of working together on activities to strategic benefits, SMEs are not very interested in making joint sales or exports, in participating in trade shows and / or representatives, share commercial, advertising or perform together. This is because generally these companies are prepared to perform at the cost world, as has been the usual practice in the business systems of Latin American countries, and not the world of value as postulated, several more contemporary approaches and theories in business management (Varela Villegas, 2008), nor to exceed the limits of individuality spurious, so that

terms such as cooperation, strategic alliances, local sustainable development, among others, seem to become chimeras, particularly for such business.

Overall, the interviews conducted in the framework of this research concludes that while they may receive some benefits arising from the participation of local actors (timely and appropriate to their short-term needs), they do not give you the courage, because they fail to perceive that this can act as an important catalyst to make more effective the cooperation process, to supplement individual capabilities and benefits for companies and for the territory in the long run.

Given the above considerations, we can confirm that SME members of the network under analysis has not consolidated enough confidence, and highlights the following weaknesses: the fact that they are much more willing to share activities that represent a source of savings ( for instance, use waste to produce energy), but very reluctant to share revenue sources (e g the client), the network has stalled in its consolidation and has lost momentum, participation and involvement of employers is scarce and employers fail to perceive clearly the contribution of local actors as catalysts for the process of cooperation, and that while all positively evaluated the cooperation, the primary interest is essentially economic, with little awareness of local needs and interests. We can summarize this in fact that the network has a lack of systematic and conscious orientation toward the DLS, and the results obtained in this direction can be attributed to situational factors and conditions within the traditional logic of managing these businesses to exploit certain favorable cyclical conditions, not to be systematized, hinder the possibilities of replicating both in the SMEs network (in other areas of cooperation), as in other business groups.

### **Assessment of methodological quality of case study**

It is considered that this research has construct validity because it has made theoretical, methodological and data triangulation. For its part, the behavior patterns found supported the theoretical propositions through systematic comparison of data collected with the literature, and allowed an explanation of the phenomenon, which supports the internal validity. In turn, the work was based on an inclusive approach to the perspectives and theoretical approaches to the

cooperation of SMEs (which were performed under a general inquiry, whose main topics were synthesized at the beginning of this paper), the selection of evidence collection methods allowed for triangulation methodology, and the multiple sources of information facilitated the triangulation of data, so it is considered that the study has external validity.. Also, one can say that this paper presents reliability because it has the possibility to be repeated with similar results because they followed a research protocol previously developed and conducted a rigorous evaluation of data for obtaining the evidence. The theoretical consistency of interpretation is reflected in the use of techniques such as semi-structured interviews with open questions that allow the initiative dialectic of key informants, observation, and critical analysis of the actual physical context by the researcher and the systematic comparison review from previous theoretical propositions and those obtained from the sources of evidence. It also sought to ensure consistency context by addressing relevant

## **CONCLUSIONS**

It has been shown that the benefits of cooperation between SMEs and indirectly to sustainable local development, among which may include: use of the waste and fuel consumption reduction of native forest, which represents a contribution to the care the environment and generate bonds of trust (although weak) between employers.

At the same time, the analysis of this case of cooperation, driven by an employer also allowed to demonstrate the absence of any major benefits to be obtained (such as: use of idle resources through cooperation between firms in other areas, improvement processes and innovations together, building trust between businesses and other local actors) because of the lack of an appropriate methodological instrument and the absence of other key local actors.

We found indications of the possible influence of firm size on the willingness of SMEs to work in cooperation networks aimed at sustainable local development, as smaller firms showed greater willingness to work together and favorable attitudes to better utilization of local resources that the larger ones.

The venture provides evidence of cooperation discussed in the need for cooperation is

latent in the province - and can grow in a disorderly fashion - by which is considered desirable to have a methodology that allows this type of small form networks between SMEs so systematic, speedy and sustainable local development-oriented.

Finally, it is emphasized that this case study, to be unique, does not allow generalization of results to the population of similar companies based in the province of Misiones, Argentina, because it represents a statistically significant one, in that sense, it would be replicated in other SME cooperation networks with similar characteristics that may exist in other municipalities and / or province departments, in order to increase the external validity of the conclusions. However, as has been affirmed at the beginning, results and conclusions obtained are feasible analytical generalization, to cases that present theoretical and practical conditions similar to those exposed.

## **BIBLIOGRAPHY**

Please refer to articles Spanish bibliography.