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Case Study on Public Management for Strengthening the Added Value of the Raw Cane Sugar Sector in the Municipality of Santander de Quilichao, Cauca, Colombia



Estudio de caso sobre gestión pública para el fortalecimiento del valor agregado del sector panelero en el Municipio de Santander de Quilichao, Cauca, Colombia

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Abstract

This article presents a case study on public management to strengthen added value in the raw cane sugar sector in the municipality of Santander de Quilichao, Cauca, Colombia. Specifically, its findings include an analytical summary of the case study protocol in its three components: history, questions, and evidence from fieldwork. The discussion establishes the challenges of local economic revitalization with an emphasis on the added value of the agricultural sector, making the answer to the guiding question about the endogenous factors present in the process of strengthening the added value of the raw sugarcane sector in Santander de Quilichao explicit, and some generalizations that can be taken up again for related management processes are proposed.

Keywords: Case study; Public management; Added value; Panela production sector.

Resumen

En el artículo se presenta un estudio de caso sobre gestión pública para el fortalecimiento del valor agregado en el sector panelero del Municipio de Santander de Quilichao, Cauca, Colombia, de manera específica se presentan como resultados, la síntesis analítica del protocolo de estudio de caso en sus tres componentes: semblanza, preguntas y evidencia del trabajo de campo. En la discusión, se establecen los retos de la activación económica local con énfasis en el valor agregado del sector agrícola, se hace explícita la respuesta a la pregunta orientadora sobre los factores endógenos presentes en el proceso de fortalecimiento del valor agregado del sector panelero de Santander de Quilichao; y se plantean algunas generalizaciones que pueden retomarse para procesos de gestión relacionados.

Palabras clave: Estudio de caso; Gestión pública; Valor agregado; Sector panelero.

Introduction

Efficient public management is essential for local economic and social development. In the case of Santander de Quilichao, in the Department of Cauca (Colombia), the raw cane sugar sector has been an important driver of the economy. Currently, this municipality is one of the main producers of raw cane sugar “panela” in Colombia, and its important role is due to endogenous factors, in particular its institutional framework, which can be considered an example of strategic public management.

In this article, the gradual contribution of this public management process to enhancing the added value of the local raw cane sugar sector will be analyzed. This process involves integrating various public, private, and social actors to strengthen the sector’s processes through strategies that reinforce the productive cycle, improve planting and harvesting practices, industrialize, and commercialize the sector. These efforts aim to capitalize on the advantages of local knowledge and the municipality’s strategic position in socio-spatial terms.

The study of this process is relevant because historically, Colombia has been recognized for its diverse resources and its potential for growth based on agriculture (Food and Agriculture Organization of the United Nations [FAO], 2017). However, it is evident that there is a problem, as no significant progress has been made in strengthening the production chain and associated value chain (Reina et al., 2022). This lack of progress could impact sustained agro-industrial development and transform the sector into a strategic one that generates stability and economic growth, particularly for small-scale farmers (Reina et al., 2022). This population, which in the country amounts to more than 15,000 people who subjectively identified themselves as such (Large Integrated Household Survey by its acronym in Spanish **GEIH** - National Administrative Department of Statistics by its acronym in Spanish **DANE**), is particularly vulnerable to the challenges posed by the current situation.

Methodology

Public administration, as a theoretical, conceptual, and applied discipline, is currently undergoing significant changes due to ongoing conceptual debates, technological advancements, societal and organizational transformations, and shifts in the framework of government-society relations (Blanco Peck, 2006). In this context, governmental processes, including decision-making, require high-quality information. Therefore, research and knowledge management on notable experiences in territorial management of public affairs can enhance state action.

In particular, territorial public management is renowned for addressing novel phenomena or those lacking structured information, owing to its practical and contingent nature. Consequently, the case study method is deemed an efficacious instrument for analyzing specific management processes, emphasizing their

distinctiveness and connecting firsthand information with conceptual, legal, and institutional frameworks to establish analyses and even generalizations with an empirical, rather than exclusively theoretical, foundation.

Regarding the methodological design of the research, it is an adaptation of the approach established by Yin (as cited in Martínez, 2006, p. 174). Yin emphasizes that generalization based on case studies is not statistical but analytical. The single or multiple case study allows a theory to be represented or generalized through a case study protocol or procedural guide to ensure its objectivity, both in terms of reliability and validity. According to Martínez (2006), the minimum elements of a protocol are: (a) an overview of the case study, including background, hypotheses, and relevant literature; (b) questions to be answered by the case study to contrast the theoretical propositions of the study with information obtained from various sources; and (c) a guide for the case study report, which is a basic outline of the important evidence for the study and reduces the risk of having to return for additional information.

In this context, the investigation of the case is a component of an institutional research project undertaken by the Higher School of Public Administration (ESAP), which sought to propose departmental and municipal management models for the promotion and activation of territorial economies in Colombia. This project initially involved a descriptive and exploratory study of national and international cases of economic promotion and reactivation, with the objective of identifying experiences that could be replicated in Colombia. Among these, the experience of enhancing the added value of the raw cane sugar sector in Santander de Quilichao was identified.

Upon identifying the experience, a case study protocol was established to ascertain the minimum information content necessary for a comprehensive analysis. Initially, an overview of the study was conducted through a documentary search of open sources of background information and relevant literature, encompassing both conceptual and statistical perspectives on economic development and added value within the local agricultural sector. Subsequently, once the case had been characterized, the conceptual questions and propositions of the study were formulated, with the primary question being: what are the endogenous factors present in the process of strengthening the added value of the raw cane sugar sector in Santander de Quilichao?

Finally, a basic scheme was consolidated for information not readily available in documentary sources, necessitating its collection to address the guiding question of the study. This approach involved physical observation and semi-structured interviews with pertinent actors within the process, enabling the identification of endogenous factors associated with the perceived strengthening. This fieldwork and interviews were conducted at two distinct points in time: November 2022 and December 2023. The results presented herein constitute an analytical synthesis of these three components: overview, questions, and evidence derived from the fieldwork.

The discussion elucidates the challenges associated with local economic activation, with a particular emphasis on the added value generated by the agricultural sector. It provides a definitive answer to the guiding question regarding the endogenous factors influencing the enhancement of the added value of the raw cane sugar sector in Santander de Quilichao. Additionally, it proposes some generalizations that can be revisited for similar management processes.

Results

The case study was conducted to identify the endogenous factors contributing to the strengthening of the added value of the raw cane sugar sector in Santander de Quilichao. Initially, a local socioeconomic characterization was conducted for descriptive and exploratory purposes (case overview). Subsequently, hypothetical frameworks (questions) were established, which were subsequently cross-referenced with evidence obtained from primary sources (observation and interviews). Finally, an analytical synthesis of the identified factors was proposed, as detailed in the three result subsections presented below.

Overview of the case

The successful public management of the raw cane sugar sector in Santander de Quilichao serves as an intriguing example in the national context of how strategic planning and the promotion of local productive sectors, with a focus on governance, have influenced not only the increase in raw cane sugar production but also the incorporation of added value into the local economy through the implementation of policies that promote agricultural technology, strengthen the value chain, and promote quality and sustainability.

To emphasize the management, it is pertinent to present some figures from the sector. For instance, according to data from the Instituto Colombiano Agropecuario [ICA] (2022) and the Ministry of Agriculture and Rural Development, raw cane sugar (“**panela**”) production in the municipality has experienced consistent growth over the past decade. While in 2012, approximately 60,000 tons of **panela** were produced, in 2022, the figure surpassed 80,000 tons, with Cauca being one of the departments where the country’s harvested areas are concentrated (Federación Nacional de Productores de Panela [FEDEPANELA], 2022; Unidad de Planificación Rural Agropecuaria [UPRA], 2022)

The municipality of Santander de Quilichao is situated in the northern region of the Cauca department, between the cities of Popayán and Santiago de Cali. This geographical position grants it a strategic advantage due to its extensive road connectivity to various parts of the country. The total area of the municipality exceeds 500 km², of which the rural area is the predominant sector (Alcaldía de Santander de Quilichao, 2020).

In terms of its demographics, the municipality has a population exceeding 113,000 inhabitants, with a nearly equal distribution of men and women. It is a multi-ethnic municipality that hosts a diverse range of population groups, including Afro-Colombians, indigenous peoples, Raizales, Palenqueros, and peasants, collectively comprising over 50% of the total population. Notably, the southern and eastern regions of the municipality exhibit the highest concentration of indigenous communities, encompassing five reservations and an urban council. Similarly, the majority of Afro-descendant communities are situated in the northern and western parts of the municipality, with six organizations and/or community councils (Alcaldía de Santander de Quilichao, 2020; Departamento Administrativo Nacional de Estadística, 2018; Rivera, 2018).

As per the municipality's Basic Land Use Plan of 2002 (Alcaldía de Santander de Quilichao, 2002), the economic structure is primarily composed of the agricultural, manufacturing, and service sectors. Notably, the agricultural and livestock sub-sectors are characterized by the cultivation of sugar cane and extensive livestock farming. Additionally, the industrial sector is distinguished by the establishment of several companies under the Páez Law.

According to Alonso et al. (2006), Law 218 of 1996, or the Páez Law, is a milestone in the economic and social life of the department of Cauca, especially in the north, due to the impact of the tax incentives provided for the transformation of the productive apparatus and the attraction of investment to the department.

The service sector, encompassing both formal and informal trade, serves as a crucial intermediary for the distribution of goods and services both within the local community and across departments. Its strategic location near Cali, a prominent hub of production and mass consumption in southern Colombia, further enhances its significance. Additionally, its proximity to the port of Buenaventura and the Pan-American Highway, the nation's primary road network, further solidifies its role.

The aforementioned factors, including its geographical position, diverse demographic composition, predominantly rural nature, agricultural and industrial production sectors, and their recognition as institutional priorities, are comprehensively addressed in the current municipal development and planning frameworks. These frameworks establish a vision of socioeconomic development that harmonizes the municipality's agricultural vocation with the competitive advantages for industrialization derived from its advantageous location in an area with extensive road connectivity to the north and east of the country.

The municipality's economy primarily relies on the primary sector, with agriculture and livestock production being the focal points. Notably, the production of sugarcane and **raw cane sugar** ("**panela**" in Spanish), coffee, cassava, pineapple, and other income-generating products plays a significant role in supporting farmers. The benefits of the Páez Law and the establishment of manufacturing companies have further propelled the secondary sector to assume a substantial position within

the local and regional economy. Urban commerce also contributes significantly to the tertiary sector, serving as a source of employment and economic activity.

In the primary sector, sugarcane and panela are the most significant crops for the municipality, occupying over 50% of the cultivated area. Coffee follows with 23.55%, pineapple with 9.73%, cassava with 6.79%, and plantains with 1.87%. Additionally, smaller-scale cultivation of crops such as corn, citrus fruits, fiqué, blackberry, passion fruit, mango, beans, tomatoes, rice, and green beans is prevalent.

The livestock sector is characterized by dual-purpose cattle and pig farming.

The industrial sector stands out for its substantial presence of domestic and foreign industries, including sugar mills, Colombina, Almidones Nacionales, Cacharrería La 14, and Euro Cerámica, among others. Most of these industries are situated in the El Paraíso industrial park and serve as major employment generators for the region.

Various primary and secondary sources consulted concur that the municipality possesses key attributes conducive to the active development of its three economic sectors, positioning it as a competitive hub at the local level. These attributes include a strategic geographical location, a topographical landscape with two distinct areas offering diverse soil conditions and thermal gradients (plains and slopes), an adequate road and communication infrastructure, and a multi-ethnic population.

This favorable situation contrasts with the limitations faced by the central and southern regions of the Cauca department and the neighboring Nariño department. These areas are impacted by persistent disconnection due to physical factors, such as the closure of the Pan-American Highway, and social factors, including blockades orchestrated by social organizations.

Despite its significance, the agricultural sector faces challenges and threats, including a shortage of human talent to meet the diverse demands of the industrial and service sectors. In the agricultural sector, inadequate or limited production and marketing processes have been identified. Organizational challenges and difficulties in accessing resources for associative initiatives are also present. Additionally, there is an oversupply of labor in the industrial and service sectors of the Valley, which absorbs the local workforce.

Given the importance of the agricultural sector, research on public management for local economic activation focused on this sector. It was found that at the institutional level, the 2020-2023 Municipal Development Plan “Quilichao Vive” established two related strategic lines: “Quilichao Lives with Innovation for Territorial Development” (Article 7) and “Quilichao Lives with Competitiveness” (Article 9). These lines proposed cross-sector actions aimed at boosting the municipality’s economic and productive dynamics.

Assumptions

Based on the background information, conceptual and institutional frameworks consulted on added value, along with observations and interviews conducted, it was determined that the project described above constitutes a remarkable local development initiative in the national context. This is because it prioritizes strengthening the municipality's most important production chain and manages this prioritization through a governance approach. This approach involves the participation of the public sector at all three levels of government, the regional private sector, international cooperation agencies, and local associations in the process.

Furthermore, this initiative aims to identify the potential of local knowledge for economic activation and the improvement of the living conditions of local producers. It capitalizes on the location conditions to generate a significant impact on the local economy, both in terms of production and marketing, through the management of two potential routes: a conventional primary and industrial route, and an alternative route based on promoting the local and traditional character of production.

The aforementioned, considering that within the conceptual and applied framework of experiences such as the Marshall districts in Europe, or more recently the localized agri-food systems in Latin America, development processes are gaining momentum to generate added value in the agricultural sector both through industrialization and by strengthening local traditional skills and knowledge.

These experiences deserve to be studied in depth, discussed, and ideally replicated, in order to achieve local economic development processes. This involves establishing how to ensure that productive strengthening is closely linked to the dignification of the productive activities they carry out, in harmony with the appropriation of the territory by its population, and especially leveraged by the capacities and knowledge of the communities that have settled there.

Evidence

To further investigate the assumptions established based on the sources consulted during the documentary phase, fieldwork was conducted in the municipality in November 2022 and December 2023. The objective was to observe the management case and conduct interviews with relevant stakeholders to ascertain the sector's priorities, strategies, accomplishments, and challenges. Those interviewed were Lorena Gómez and Luis Enrique Rivera from the Municipal Secretariat for Economic and Agro-Environmental Development, and Wilderman Zúñiga, raw cane sugar leader and legal representative of the Quilichao liquor association process.

According to the head of the Secretariat of Agricultural Development (L. Gómez, personal communication, November 2022), given the significance of agricultural activities, the development plan prioritized four productive lines: coffee, pineapple, cassava, and cane sugar. These were prioritized due to their involvement with the largest number of families in the activity. Considering that the population exceeds 115,000 inhabitants, with 52% residing in rural areas, the revitalization of the local

economy is heavily reliant on the countryside. This is exemplified by the popular saying, “Without the countryside, there is no city.”

The official emphasized the importance of raw cane sugar, which involves over 320 cane producers identified as Afro-descendants and peasants. However, this product is characterized by highly unstable prices, which have a significant impact on rural economies. Consequently, the municipality recognized the significance of the coordination led by the Office of the High Commissioner for Peace in the context of the Senate debate on the regulation of rural sugar mills. There are currently 80 sugar mills in the municipality, categorized into three types: artisanal mills (pulled by horses), intermediate mills (the majority), and technified mills (approved by the National Institute for Drug and Food Surveillance, INVIMA). The latter have advanced processes for certified cane, converting it into granulated panela for export, and operate a regional collection center. Despite these advancements, they are also affected by price instability.

Several associations within this category, including Asopanela, Trapiche Las Palmeñas, Proamistad, Soiprocan, PoinCauca, Grupo Panela Quilichao, Trapiche los Ibarra, Asopaca, and Aspropaes, collaborated on the innovative project launched in Colombia. This project aims to establish a plant for the transformation of artisanal liquors based on cane juices and honeys, operated by the associations themselves.

This process is jointly financed by national and local governments, as well as international cooperation, amounting to approximately 2 billion pesos. It was executed within the framework of the tripartite contract FP-379 signed on October 20, 2020, between the Office of the High Commissioner for Peace through the Peace Fund, the Mayor’s Office of Santander de Quilichao, and FEDEPANELA. The contract aimed to establish, in the first phase, a satellite fermentation plant in the village of San José.

Given the project’s significance, a second and third phase were added (the latter currently underway). These phases involved the installation of equipment and infrastructure adaptation for distillation and aging, as well as the creation of a business and administrative model, including the necessary environmental and INVIMA licenses. The objective is to comprehensively strengthen the production cycle from planting to marketing for export purposes and to attract tourism to raise awareness of the production of distillates from the organic sugarcane field. This includes the conversion of sugarcane to honey, the fermentation process, distillation, and subsequent packaging and marketing in domestic and international markets (FEDEPANELA, 2022).

During the first phase of fermentation, the Office of the High Commissioner requested adjustments to a warehouse designated for the plant. The warehouse houses two fermenters, a laboratory, and other features typical of an industrial plant. Notably, the Domeq liquor company collaborated with the project, committing to purchase the juices extracted in the first phase for subsequent distillation and aging at its plant in Cali.

The second and third phases of the project, the latter currently under development, encompass the distiller, the aging process, the laboratory, the brand, and the construction of an administrative model that will consolidate a local, associative process for the manufacture of liquors based on cane juice and honey. This pioneering experience in the country is characterized by its public and social nature, as traditionally distilleries and marketing companies have been private entities, both on a large and small scale.

According to officials from the Secretariat of Economic and Agro-Environmental Development (Lorena Gómez and Luis Rivera, personal communication, December 2023), the primary challenge lies in strengthening partnerships and establishing the company in a manner that enables organizations to continue the production of “panela,” while simultaneously diversifying their operations. This diversification would provide them with the opportunity to process honey to produce distillates such as rum, if desired, thereby enhancing their quality of life and that of their families.

The third phase of production and marketing is currently being planned, initially with Domeq licenses, but with the intention of obtaining its own environmental, INVIMA, and administrative model licenses. As stated by the official in charge, “We are aware that a panela loaf is valued at 2,000 pesos, and a bottle of rum can be worth 40,000 pesos. However, attracting tourists and interested members of the public to the sugar mill holds the potential to generate 400,000 pesos. This is the type of business that is projected for the case of raw cane sugar” (Lorena Gómez, personal communication, December 2023).

This project, originating within the associations themselves, gained momentum within the framework of the implementation of Law 2005 of 2019. This law encourages the quality, consumption, and commercialization of panela, virgin honeys, and their derivatives, as well as the restructuring and formalization of sugar mills in Colombia. Among other provisions, it stipulates that liquors produced in small-scale sugar mills will be freely produced and will not be subject to the monopoly established by Law 1816 of 2016.

In the municipality of Santander de Quilichao, the first producer associations established for the production of artisanal aguardiente and rum within the framework of the law are Asopanela Quilichao and Asproemcauca. The objective is to establish a dynamic national and international market, with a strategy to attract tourism, specifically targeting individuals interested in learning about the production of distilled spirits, from the cultivation of sugarcane to the fermentation, distillation, bottling, and marketing processes. This approach is analogous to the strategies employed by the tequila and mezcal industries in Mexico, which have strengthened their international positioning through differentiation strategies and emotional connections with consumers (Maya Garcia, 2024).

Regarding the current status of the strategy, one of the university professionals collaborating with the agency indicated that the Municipal Council approved the transfer of the plant on a loan basis to a second-level social organization registered

with the Chamber of Commerce (See Figure 1). This organization comprises seven small associations conducting tests to produce Quilichao rum, a product that will enhance its added value. This is because, in addition to producers retaining the option of producing honey and panela, they can also choose to process it, thereby generating a more favorable profit margin (Luís Rivera, personal communication, December 2023).



Figure 1. Processing Plant

The third phase of the project is still under development, as indicated by the legal representative of ASOPANELA Quilichao. He reiterated the significance of raw cane sugar production in Colombia. Regarding local strengthening processes, he emphasized the need to equip collection centers, implement organic production certification, and highlight the installation of the first plant in coordination with various stakeholders. He underscored the open-mindedness and leadership of the municipal administration in positioning and promoting the strategy to strengthen the raw cane sugar sector, which is actively promoted by the associated producers themselves (Wilderman Zúñiga, personal communication, December 2023).

He identified the primary challenge in the process as venturing into the new productive line of liquor production, which is traditionally conducted in an artisanal manner. However, the production requirements for obtaining health registrations and ensuring quality are stringent, necessitating that the associations to which the plant was loaned are currently in the pre-operational phase to standardize processes and quality. This process is being undertaken with financial contributions from the

associations themselves, who are committed to the potential that this transformation holds.

From practical experience, the legal representative of the local producers' association emphasized that the key to strengthening the sector lies in working in a coordinated and cross-sectoral manner, promoting specialization and adhering to best production practices, and remaining open to opportunities for change. Furthermore, from the public entities, it is crucial to provide relevant technical assistance, support, and invest in the processes of propagating improved seeds, thereby strengthening knowledge, training, and capacities within the producing sectors (Wilderman Zúñiga, personal communication, December 2023).

Discussion

During the observation, it was observed that this process is still in its developmental phase and is currently in the preparatory stage. The plant is scheduled to become operational and be handed over to local associations at the end of 2023. Consequently, there is no evidence of its specific impact in terms of added value, and only production figures are available. These figures indicate a growth of 20,000 tons between 2012 and 2020, as reported by the Colombian Agricultural Institute (ICA).

As an analytical summary of the documentary and personal evidence gathered, it can be noted that, despite its ongoing development, this process represents a remarkable local management approach within the national context. Its primary objective is to enhance traditional knowledge related to raw cane sugar cultivation and, in addition, to establish conditions for generating added value. This involves strengthening production practices in conjunction with the establishment of conditions for transformation, such as distillation, aging, and subsequent commercialization. These measures are aimed at improving the productive cycle and impacting the price and market conditions for producers.

Therefore, it can be considered a process of local economic development management, as defined by Machado et al. (2003). They describe it as a process that stimulates the local economy and society by leveraging existing endogenous resources, integrating into external economies, and incorporating innovations and knowledge that occur within a specific geographical area. This process possesses the capacity to promote sustainable and human development.

Similarly, the process can be considered an innovation in governance and institutions, as defined by Departamento Nacional de Planeación [DNP] (2018), in the transition from consultative participation of actors to the management of collaborative processes between state, technical, private, and community actors. In this case, the objective is to promote local economic activation, particularly in the formulation and execution of strategies related to the municipal raw cane sugar sector.

Regarding the guiding question about the set of endogenous or local factors present in the process of strengthening the added value of the raw cane sugar sector in Santander de Quilichao, the following were identified in the research (See Figure 2).

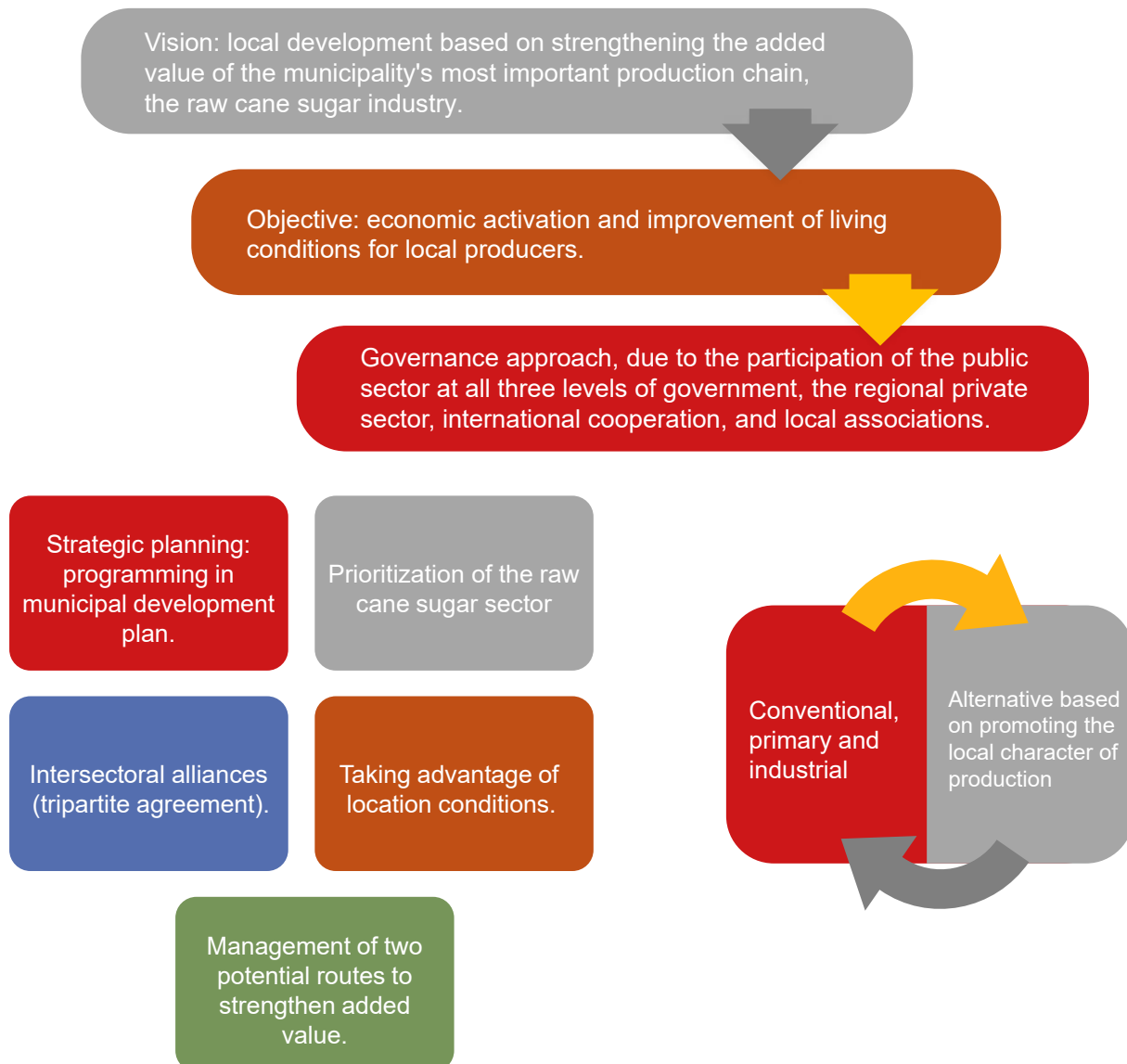


Figure 2. Outline of the significant local development commitment in the national context

1) Strategic planning and programming in municipal development plans: Considering that both the Land Use Plan (POT by its acronym in Spanish) and the Municipal Development Plan (PDM by its acronym in Spanish) are strategic planning and public management instruments that establish the vision, objectives, strategies, and short-, medium-, and long-term action programs for local development, as well as a guide for the effective allocation of resources, the impact of organizations and the

receptivity of the administration to prioritize the sugarcane strengthening strategy within the master planning instruments is noteworthy.

2) Prioritization of the raw cane sugar production sector, which has historically played a significant role in the economy and culture of the municipality and several regions of the country, is crucial. This sector serves as a source of employment and income for small producers. However, despite its importance, it faces numerous challenges that necessitate prioritization strategies for its sustainable development. Notably, it is essential to territorialize the sector's regulatory framework, which establishes quality and safety requirements for raw cane sugar production. Additionally, support policies such as the National Panela Development Fund (FNFP, by its Spanish acronym) are vital for improving the competitiveness of producers through training and financing programs.

3) Promoting inter-sectoral partnerships for local economic activation is imperative. As previously mentioned, local economies encounter challenges such as high unemployment rates and informality, as well as insufficient economic diversification in many regions. These challenges can be effectively addressed by fostering inter-sectoral partnerships to stimulate local economic activation. Collaborative agreements between the government, the private sector, non-profit organizations, and civil society are essential for achieving this goal.

These partnerships can manifest in various forms, including collaboration on infrastructure projects, such as the processing plant, and job training and entrepreneurship programs. Furthermore, the Colombian government has implemented territorial development policies that encourage collaboration between different local actors. These policies promote the creation of industrial clusters and economic diversification in regions, such as competitiveness districts. These initiatives not only contribute to economic growth but also enhance the quality of life of local communities, ultimately contributing to the well-being of the entire nation.

4) Leveraging Geographic Conditions: Both for Production and Marketing in the Local Agricultural Sector

Geographic conditions refer to factors that impact the production and marketing of agricultural products, such as climate, topography, water availability, proximity to markets, and transport infrastructure (See Figure 3).

To enhance location conditions in Colombia's agricultural sector, an institutional framework is necessary to promote investment for development in rural areas. Key institutions in this context include:

The Ministry of Agriculture and Rural Development: Responsible for designing agricultural policies that promote productivity and competitiveness.

- The National Land Agency: In charge of formalizing rural property and managing land for agricultural projects.

- The Colombian Agricultural Institute (ICA): Oversees agricultural health and promotes the adoption of good agricultural practices.
- The National Roads Institute (INVIAS): Responsible for the road infrastructure that facilitates the transport of agricultural products.

In this regard, the experiences of countries such as Mexico, Peru, and Brazil are of interest. While these countries do not offer tax benefits for the agricultural sector, they have made significant progress in policies to promote the mezcal, pisco, and cachaça industries (Barriga Ossa and Rivas Cardona, 2024).



Figure 3. Recommendations for Leveraging Location Conditions

5) Management of two potential routes for strengthening: a conventional primary and industrial route; and an alternative route based on enhancing the local character of production. This is crucial because, as previously noted, the raw cane sugar sector in the municipality, and in Colombia in general, faces challenges related to competitiveness and sustainability. Therefore, it is a priority for local development management to focus on strengthening its added value (See Figure 4).

For the sector, this implies going beyond the production of “**panela**” (**raw cane sugar**) and its derivatives, adding elements that increase its quality, diversity, and market appeal. This includes aspects such as product diversification, quality improvement, attractive packaging, promotion of sustainable practices, and tourism associated with production, among other specific strategies such as those mentioned below.

Quality improvement: The adoption of high-quality production and processing practices is essential to strengthen added value. This involves the implementation of good agricultural practices, improvements in production and processing, and quality certification.

Promotion of sustainable practices: “**Panela**” production must further develop sustainable agricultural practices, such as efficient use of resources, soil conservation, and environmental protection. These practices are not only important for long-term sustainability but can also be a distinguishing factor in the global market.

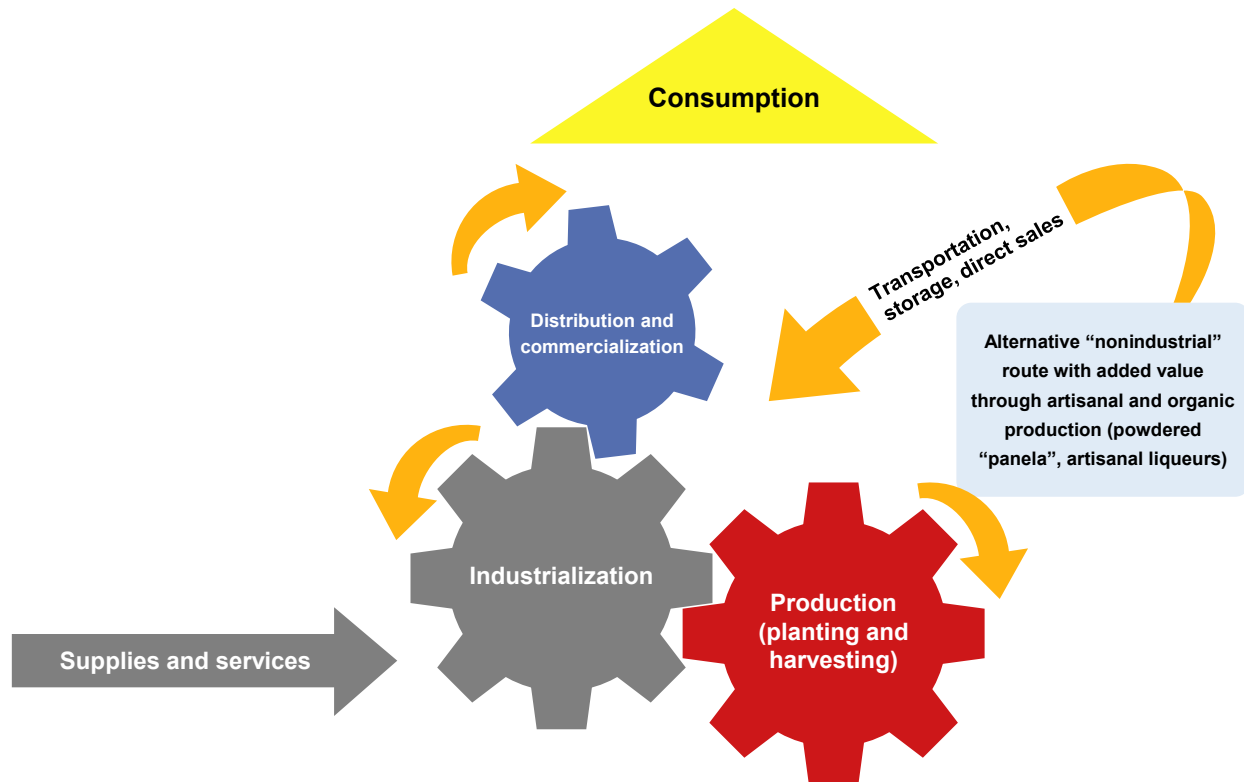


Figure 4. Productive cycle for generating added value

Product diversification: Production can be diversified to include derivative products such as brown sugar, cane honey, sweets, liqueurs, and other products. This strategy not only increases supply but also expands the potential market and adds value to the raw material.

Attractive packaging and labeling: Attractive packaging and informative labeling can significantly impact a product's perception, as consumers increasingly seek visually appealing products that provide clear information about their origin and processing methods.

Conventional or enhanced marketing highlighting the local and ancestral character of the products: Although “**panela**” has traditionally been a staple of the country's food basket, it has undergone substantial changes in recent years, with two predominant approaches: conventional marketing and enhanced marketing. Enhanced marketing focuses on claiming the local and ancestral character of panela, which plays a crucial role in preserving traditions and promoting sustainability.

In this context, it is important to note that the potential of this type of product lies in exploring both conventional distribution channels, such as neighborhood stores or large retail outlets in domestic and international markets, and particularly, less conventional channels, such as online and specialty stores, and even directly in places where beverages are consumed. This differentiating factor is its local and even ancestral character.

Finally, it is important to acknowledge that there are challenges in the “panela” sector that must be addressed, including the following:

- **Low productivity:** Despite its great potential, productivity in the sector is low compared to other countries in the region, primarily due to the incipient technification of production processes and the use of low-yielding sugarcane varieties.
- **Quality issues:** Recent quality guidelines and standards conflict with the persistence of informal production practices, raising concerns about quality and food safety. This affects competitiveness in both domestic and international markets. The challenge lies in harmonizing formal standards with traditional local practices.
- **Access to markets:** Small “panela” producers often encounter difficulties accessing larger markets and obtaining better prices for their products.
- **Consequently, the following actions are recommended for prioritization in local contexts.** These actions should be incorporated into a public policy for prioritizing public investment in the sector, in accordance with the provisions of Law 2005 of 2019, within a comprehensive framework that aims to dignify the economic activity of small and medium-sized panela producers. This framework should include actions such as those outlined below.
- **Financial support:** Establish preferential lines of credit and financing programs for producers, both for those who wish to modernize their operations and for those who choose to strengthen traditional production.
- **Relevant support and training:** Offer relevant support and training programs aimed at both technification and the development of productive alternatives based on traditional knowledge and practices.
- **Harmonize quality criteria:** Adapt quality control and product certification guidelines to be consistent with the production profile, whether technified or traditional, ensuring competitiveness in local, national, and international markets in both cases.
- **Promote partnerships:** Through incentives and training, make it attractive for small producers to establish cooperatives and associations that enable them to increase the added value of their production, for example, by obtaining organic production certifications or producing honey and distilled products.
- **Investment in research and development:** Resources to promote research into sugarcane varieties, biological pest control, technification and/or recognition of traditional knowledge and practices, production and business models, among others.

Conclusions

In Colombia, the production of “**panela**” holds significant economic, social, and cultural importance. According to data compiled by Ballesteros and Palacio (2021), over 300,000 families engage in the sector’s activities, constituting approximately 12% of the rural population. Furthermore, it ranks as the second largest agro-industry after coffee, with Colombia being the world’s leading producer, surpassing India.

However, the panela sector encounters challenges necessitating public policy developments for the implementation of relevant regulatory provisions. These provisions prioritize enhancing productivity, quality, and competitiveness, with the objective of promoting benefits for both medium and small producers and the country’s economy as a whole.

In summary, it is reiterated that the generation of added value in agricultural production within the country presents an opportunity to foster comprehensive rural development. This development should be grounded in innovation in production and the design of commercialization and market opportunities, while considering the management of local knowledge and expertise related to processes, techniques, technologies, and strategies that transform agricultural raw materials into products with distinctive characteristics. Such a strategy necessitates collaborative public management to directly benefit the population of the territory.

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Ethical Considerations

This study complied with ethical principles for social science research.

Conflict of Interest Statement

The author declares that she has no conflict of interest.

Author Contributions

Nathaly Burbano Muñoz: Conceptualization; Methodology; Investigation; Data curation; Formal analysis; Validation; Writing – original draft.

Artificial Intelligence Use Statement

No generative artificial intelligence tools were used in the design of the research.