



RURAL PRODUCTIVE ZONES AS A STRATEGY FOR LOCAL DEVELOPMENT

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Abstract:

This article is the result from a project implemented in the province of Sugamuxi, Boyacá on "Organization and Management of rural areas". The province has been characterized by generating economic returns with agricultural production such as potatoes, corn and vegetables, being its primary economic activity. Even so, there is evidence of backwardness due to governmental neglect, since there is no agricultural reform that provides welfare to the peasant population. The purpose is to strengthen knowledge in rural families, allowing them to create solid productive units with greater administrative autonomy based on sustainable objectives, FAO, UNDP, Food Bank oriented to guarantee Food Security as the axis of Local Development. The Participatory Action Research method was applied to get to know and interpret 8 selected municipalities in their diversity. Using the survey and focus group study. Obtaining a real and significant situational diagnosis. We also achieved the empowerment of 80 rural families through administrative training, financial education, community management, business innovation, among others.

Keywords. Productive zones, farmers, agricultural production, community management.

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ZONAS PRODUCTIVAS RURALES COMO ESTRATEGIA PARA EL DESARROLLO LOCAL

Resumen

El presente artículo se deriva de un proyecto ejecutado en la provincia de Sugamuxi sobre "Organización y Gestión de las zonas campesinas". La cual se ha caracterizado por generar rendimientos económicos con la producción agrícola como papa, maíz y hortaliza, siendo así su actividad primaria de la economía. Aun así, se evidencia el atraso por el abandono gubernamental, ya que no existe una reforma agrícola que le brinde bienestar a la población campesina. El propósito consiste en fortalecer el conocimiento en las familias rurales, que les permita crear unidades productivas sólidas y con mayor autonomía administrativa fundamentada en objetivos sostenibles, la FAO, el PNUD, Banco de Alimentos orientados a garantizar la Seguridad Alimentaria como eje de Desarrollo Local. Se aplica el método de investigación Acción Participativa con la que se logró conocer e interpretar a 8 municipios seleccionados en su diversidad. Utilizando la encuesta y estudio de grupos focales. Obteniendo un diagnóstico situacional real y significativo. Al igual que se logró el empoderamiento de 80 familias campesinas a través de la formación administrativa, en Educación Financiera, Gestión Comunitaria, Innovación empresarial entre otros.

Palabras Claves. Zonas productivas, campesinos, producción agrícola, gestión comunitaria

AS ZONAS PRODUTIVAS CAMPONESAS COMO ESTRATÉGIA DE DESENVOLVIMENTO LOCAL

Resumo:

Este artigo é derivado de um projeto realizado na província de Sugamuxi sobre "Organização e gestão de áreas rurais". A província tem-se caracterizado pela geração de retornos econômicos da produção agrícola, como batata, milho e vegetais, que é a principal atividade da economia. Mesmo assim, há evidências de atraso devido à negligência governamental, pois não há reforma agrícola que proporcione bem-estar à população camponesa. O objetivo é fortalecer o conhecimento das famílias rurais, o que lhes permitirá criar unidades produtivas sólidas com maior autonomia administrativa com base em objetivos sustentáveis, FAO, PNUD, Banco de Alimentos orientados para garantir a Segurança Alimentar como eixo do Desenvolvimento Local. O método de pesquisa-ação participativa foi aplicado para conhecer e interpretar 8 municípios selecionados em sua diversidade. Utilizando pesquisas e grupos focais. Foi obtido um diagnóstico situacional real e significativo. A capacitação de 80 famílias rurais também foi alcançada por meio de treinamento administrativo, educação financeira, gestão comunitária e inovação empresarial, entre outros.

Palavras chave. Zonas produtivas, agricultores, produção agrícola, gestão comunitária.

1. INTRODUCTION:

The Project implemented in eight municipalities in the province of Sugamuxi (Tibasosa, Nobsa, Monguí, Mongua, Tota, Cúitiva and Aquitania) promotes rural development that identifies the productive potential of each of these territories considered as subjects of study. In addition, as a result of these potentialities, strategies are identified that seek to strengthen the local market, promote forms of self-management associations and local organization that articulate the rural with the urban, creating the conditions for everyone to participate in their own development from the local level.

In accordance with the above and as a general objective, the project proposes the need to strengthen the knowledge of rural families that will allow them to create, maintain and project solid productive units, for this purpose a characterization of the population under study is established, productive potentialities are identified and through the methodology participatory action research it is the community itself who defines some strategies to solve their problems, such as training in financial and organizational aspects, training in marketing, training in associativity, among others.

As a result of the research project, the community under study defines potential agricultural products that by tradition and experience have been cultivated and marketed in the area, such as potatoes, onions and corn, but due to the lack of public policy support from the State to favor small producers in advisory, production and marketing, they do not generate sufficient yields for the families involved. The project identifies strategies to empower communities in the productive, administrative, commercial and social areas. In this sense, a technical document is generated for local governments that serves as a guideline in the formulation of regional public policies to improve the standard of living of rural families in the municipalities of the province of Sugamuxi.

2. LITERATURE REVIEW:

Agricultural production

Colombia has 0.08% of the share of organic agriculture worldwide, however, it has shown a decrease in the number of hectares it had in previous years, in 2009 it had 47,776 ha, in 2010 with 33,334, and for 2011 it relates 34,060 ha, the same as in 2012.

Cataloged as one of the largest territories in the country, with a diversity in its spatial structure, geographical variety which has generated as a result an unequal development between the different regions that make it up.

In the 67 municipalities of the "Altiplano Cundiboyacense" there are 42 thousand productive units, 78 thousand people work permanently in the dairy activity and it is estimated that there are 805 thousand milk producing cattle; due to these figures, this region is considered one of the most important dairy basins in the country (Agronet, 2021, paragraph. 7).

Globally, organic production has proven a union between organic production and the progress of small associations of producers and/or collectors in Latin America, which in turn strengthens the social structures where they live. (Sanchez, 2017, p. 157). However, there is a lack of greater technology transfer support and financial resources for small farmers who can incorporate better agricultural practices.

Needing for government support

There is an intention on the part of government entities in the department of Boyacá to improve clean production for the benefit of the participating families and the income generated from the crops. Boyacá Agro's commitment as a competitiveness strategy for the countryside has a series of compatible models of agricultural practices and techniques in potato, arracacha, ahuyama, carrot, banana, corn, common

bean, avocado, cocoa, cabbage and bulb onion crops, citrus, plum, peach, blackberry, tree tomato.

These public policies are focused on agricultural production in order to deepen the path to food security and sovereignty in the department. Many of these municipalities do not yet have access to basic services in their rural areas, which could lead to migration to urban areas. According to data from the National Planning Department (DNP, 2011), aspects such as the high dispersion of the population distributed in the territory, which has led to not having the help of basic services, undeveloped road systems to connect the periphery with main centers, difficulty in marketing their agricultural products, limited access to goods of consumption and added the low income of the population together with a population concentration and socioeconomic dynamics have not allowed this articulation with public policies in the Department (p. 77).

Agrarian reform to improve peasant enterprise

In August 2023, the National Agrarian Reform System was launched, where 8 subsystems were addressed, especially those concerning “research, technical assistance, training, technology transfer and crop diversification, coordinated by the Ministry of Science, Technology and Innovation”. In addition to the formalization of 913 hectares of land in municipalities of Boyacá, the current government carried out the massive titling of land with the objective of regularizing 681,000 hectares by November 2022. Thus, successful agrarian reforms worldwide are closely linked to the fact that peasants are given spaces with which they have some cultural connection. This new mechanism was designed to support the implementation of the new policies and investments established by the government. The government proposes to generate food production in a sustainable manner. Therefore, the rural areas that are part of the reform must coincide with a cultural, historical link in the restitution of lands.

Administrative training for farmers

For the MEN, there is a high number of rural educational establishments (educational institutions and educational centers) created to comply with the legal mandate of providing the complete cycle of education (from preschool to eleventh grade), and due to the high population dispersion in Colombian rural areas. low enrollment averages are evident at the headquarters (MEN, 2020).

Likewise, the commitments are great in educational matters to close the gap between rural and urban education, improve quality and coverage indicators, as has been suggested by current studies carried out by the OECD on education in Colombia.

According to data from the DANE Quality of Life Survey on Multidimensional Poverty Indices (MPI), they show how informal work predominates in rural areas, a lack of health systems, drinking water, as well as low educational indicators among indicators (MEN, 2020).

Business pedagogy establishes a relationship of training people in the workplace, generating, on the one hand, training in training processes to improve productive processes and other components of the organization and, on the other hand, it promotes the development of human dimensions aligned with organizational purposes.

To close social gaps, provide public goods for the countryside and sustainable agricultural development. The implementation of public policies should be in line with the “capacity to meet the country's food demands, within the concept of self-sufficiency and food security. Therefore, the human capital that sustains economic progress must be promoted by the inhabitants of rural areas”.

The political and economic processes of governments with their decisions have created a contemporary rural-urban gap (López, 2019, p. 61). In the Colombian case, the predominance of urban over rural areas demonstrates the permanence of preferences for urban models.

3. METHODOLOGY :

The research uses the Participatory Action Research (PAR) methodology, which in this case allows the community of the eight municipalities under study to participate by identifying and proposing solutions to the problems of their region. Using a non-probabilistic approach, a statistical convenience sampling applied to a total of 116 experimental units was adopted. This sampling is chosen for the advantages in terms of cost efficiency, speed and access to specific data (Otzen and Manterola, 2017). And it is particularly relevant when the aim is to collect information in contexts where access to the population is limited or when seeking to acquire precise data on certain individuals or groups.

As an instrument for the collection of information, a survey was applied to target groups in the 8 municipalities analyzed. This survey consists of 13 questions and took into account obtaining information on the characterization of the families, establishing the level of income, the type of land tenure whether it is owned or leased and the area in which they develop their activities, also identifies the products grown and defines some needs from the vision of the farmer facing the problems they live and that allow proposing lines of training and action strategies to strengthen the peasant economy and its impact on the regional economy. As a commitment, 80 farming families were strengthened in relevant areas such as financial, commercial and administrative education, business innovation, as well as community management and participation as areas of interest that prevailed.

4. RESULTS:

The initiative of structuring and managing the peasant productive zones in the territory of Boyacá facilitated a response to the sustainable progress in the productive activity in the department, specifically in the province of Sugamuxi. This region is recognized for its deep-rooted agricultural and peasant tradition, for its extensive fertile regions, crops marketed fresh, are gathered in

villages and become producers' markets that are then taken to be distributed in representative cities of the country such as Bogota, Medellin, Bucaramanga and other municipalities. These represent a fundamental component of the agri-food industry at the national level and rich in diversity of crops that flourish, becoming a key sector of the economy (Desarrollo productivo, 2019, p. 222).

There is a close relationship between increased agricultural diversification and the indispensable need to implement actions aimed at sustainable yields. Through this process, it was possible to characterize environments conducive to the transformation of the region. Boyacá's economy is based on agricultural and livestock production, mineral exploitation, the iron and steel industry, trade and tourism. Taking into account the most recent reports, the Colombian Federation of Potato Producers (Fedepapa, 2022, p. 2) highlights agricultural activities in the participation of the departmental GDP, being the third group of economic activities, with a contribution of 7.4% for 2019 and 5.9% in 2020.

In 2021 the economy of Boyacá grew 9.1% according to data from the National Administrative Department of Statistics (DANE, 2023), for the year 2022 the economic growth of the Department was 6.4%, where in contrast to the growth of the country which recorded a percentage of 7.3%, placing it as the ninth department with the highest GDP of the Colombian economy. These indicators highlight the department's capacity to participate in the national supply of the main vegetable products (DANE, 2022). Thus, we are the main suppliers of onion and black potato with a participation of 56.6% and 35.5% respectively, second in the supply of black potato with a participation of 21.5% and third in being the department of origin for the supply of carrot at the national level with a participation of 13.2%, these indicators highlight the potential of the department and the need to manage its productive areas.

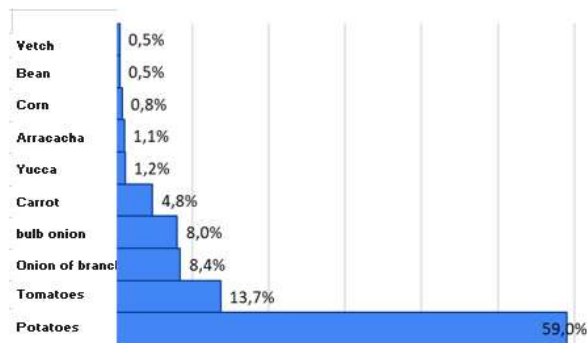
At the national level, there are nine potato-producing departments, of which four account for 90% "of national

production, led by Cundinamarca with a contribution of 36% of the total, followed by Boyacá (27%), Nariño (22%) and Antioquia (5%)” (Fedepapa, 2022, p. 3).

In the context of Cundinamarca and Boyacá, its leadership is based on the intensification of potato cultivation in its lands, consolidating its position as a leading player in the production of the Superior variety, which is highly demanded and marketed locally.

These two departments together contribute 70% of the national supply of this variant (Fedepapa, 2022, p. 3). This fact confirms that potato is a crop of a transitory nature, and its prominent position in the agricultural structure is undeniable. In fact, together with tomato and onion, they account for 89.1% of the transitory crops in Boyacá, as illustrated in Figure 1, just as the efficient management of productive zones involves the implementation of effective strategies and practices to maximize the use of natural, human and economic resources in areas destined for production.

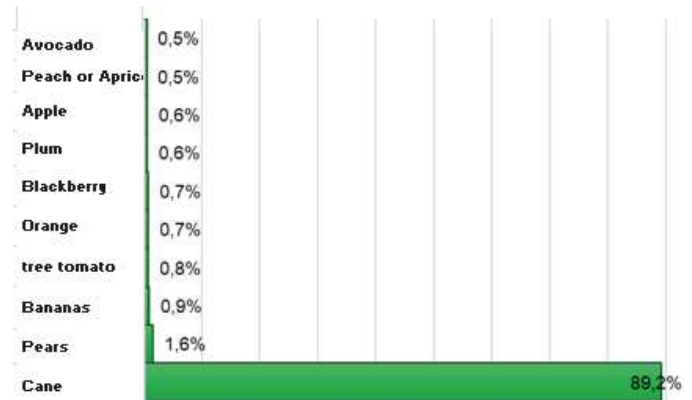
Figure 1.
Transient crops in Boyacá.



Source. EVA Agricultural Base – Ministry of Agriculture and Rural Development. May 2023 – Report 2022.

In relation to permanent crops for the department of Boyacá, sugarcane is representative with 89.2%, followed by other crops such as pear and banana (Figure 2)

Figure 2.
Permanent crops in Boyacá.



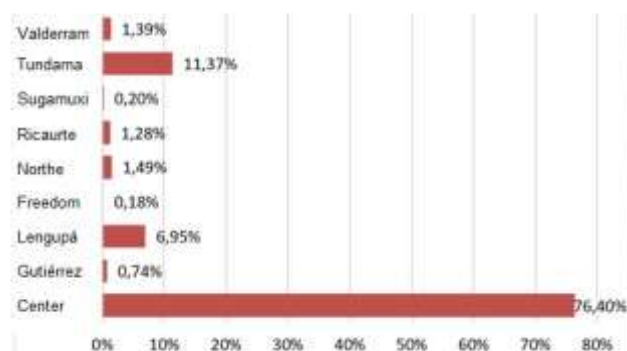
Source. EVA Agricultural Base -Ministry of Agriculture and Rural Development. May 2023 – Report 2022.

When analyzing the productive zones of the department of Boyacá, development nodes in the region are related. This perspective reveals a panorama characterized by a territorial fragmentation in 123 municipalities, 123 townships and 185 police inspectorates. These entities are distributed along 13 provinces, highlighting for this research process the province of Sugamuxi, considered as the second in population with 216,552 inhabitants after the province of Centro. Here, integral aspects will be addressed for its profiling, with the purpose of later identifying productive development strategies. Sugamuxi includes the municipalities of Sogamoso, Aquitania, Cúitiva, Mongua, Pesca, Tota, Gámeza, Tibasosa, Iza, Firavitoba, Nobsa, Tópaga and Monguí. In the area of investment, the Sugamuxi province emerges as one of the most limited recipients of support for comprehensive science, technology and innovation (STI) projects, an important element to consider in public policy. This fact has a profound impact on the productive progress of the region, affecting its innovative initiatives and its competitiveness in development. With only a modest 0.2% of the department's total investment in STI directed towards Sugamuxi, this is a major issue that requires careful management. This problem, in turn, limits the ability to diversify the economic base of the locality and limits the prospects for growth in up-and-coming sectors. In short, underinvestment in comprehensive science, technology and innovation projects can restrict the economic and productive evolution of a region, weaken its ability to compete on a national and international

scale, and limit its ability to meet challenges and capitalize on emerging opportunities.

Figure 3.

Distribution of investment in integral science, technology and innovation projects during 202, by public administration (thousand of pesos).



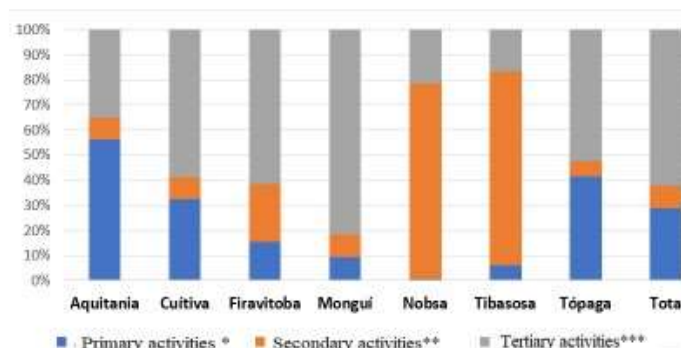
Source. Consolidator of Treasury and Public Information – CHIP; Ministry of Public Treasury - MinHacienda, 2021.

The economic structure of the province of Sugamuxi is present in the classification le of activities in primary, secondary and tertiary sectors. These sectors have different phases in the productive and service chain, contributing significantly to wealth, employment and general welfare. Their balance is the central axis of sustainable economic development. In the area of primary activities, localities such as Aquitania, Tópaga, Cuitiva and Tota stand out, playing a crucial role in providing raw materials and essential foodstuffs. In the secondary sector, Nobsa, Tibasosa and Firavitoba stand out for adding value to raw materials, generating products ready for consumption. Finally, Mongui focuses its economy mostly on the tertiary sector, encompassing activities related to knowledge, technology and human interaction, followed by Firavitoba, Cuitiva, Tópaga and Tota, which also participate (Figure 5).

This intertwining of sectors is the engine that drives economic dynamics and wellbeing in the province.

Figure 4.

Economic activities in the municipalities of Sugamuxi Province.



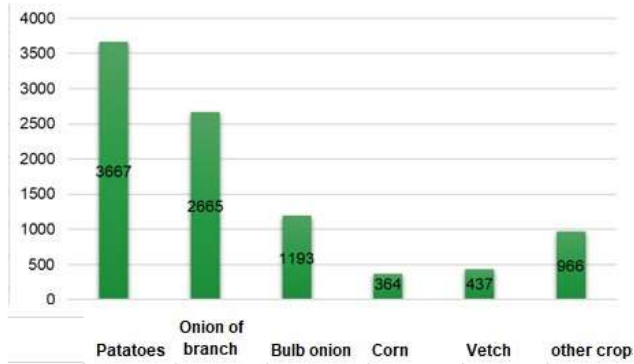
Source. Own elaboration with data from DANE (2020) Value added 2022 Large activities by Municipality.

In the province of Sugamuxi, the agricultural sector plays a representative role in the cultivation of potatoes. We observe that, in the department of Boyacá, the province of Centro leads the production with 884,994 tons, contributing 55.8% of the total in the department. It is followed by the provinces of Occidente, Márquez, Tundama and Sugamuxi, with contributions of 14.1%, 9.5%, 8.6% and 6.8% respectively, while the remaining 5.2% comes from other provinces in the department in 2016 (Gobernación de Boyacá, 2020, p. 24).

Figure 5 shows that potatoes and onions are the crops with the largest planted area in Sugamuxi province, covering 3,667 hectares per year and 2,665 hectares per year, respectively. However, the sector's problems at the national level also affect the region's rural producers, most of whom are located in smallholder farming areas.

They face difficulties in accessing productive factors, depending mainly on the income of their productive units for self-consumption and supplying local and regional markets. The lack of specialization and production planning, as well as the scarcity of labor and the abandonment of the countryside by the young population, also stand out as challenges highlighted in this document.

Figure 5.
Crops with the largest area planted in Ha/year in the province of Sugamuxi.



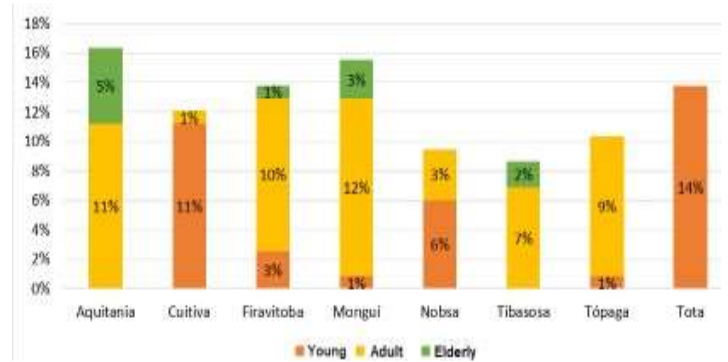
Source. Taken from Gobernación de Boyacá, 2020, p. 26.

In order to delve more precisely into the specific dynamics that characterize the municipalities that make up the province of Sugamuxi, a survey and focus group opinion was conducted to identify and evaluate the most salient aspects. The information gathered yields valuable perspectives on diverse aspects of specific activities developed in the region. Through a detailed analysis of the results, a real situational diagnosis of the municipalities characterized in which key elements of relevance for the development of specific productive management strategies for the province of Sugamuxi are identified.

In this context, the statistical sample by convenience applied for the study comprised a total of the 116 experimental units distributed in eight (Tota, Firavitoba, Cuítiva, Monguí, Nobsa, Tibasosa, Tópaga and Aquitania) of the 13 zones that make up the province of Sugamuxi, the results of which are described in detail below.

Figure 6 shows a representative and proportional distribution among the municipalities, where Aquitania and Monguí stand out as the municipalities with the highest contribution of information. In addition, most of the respondents belong to the adult age group, ranging 26 to 60 years old.

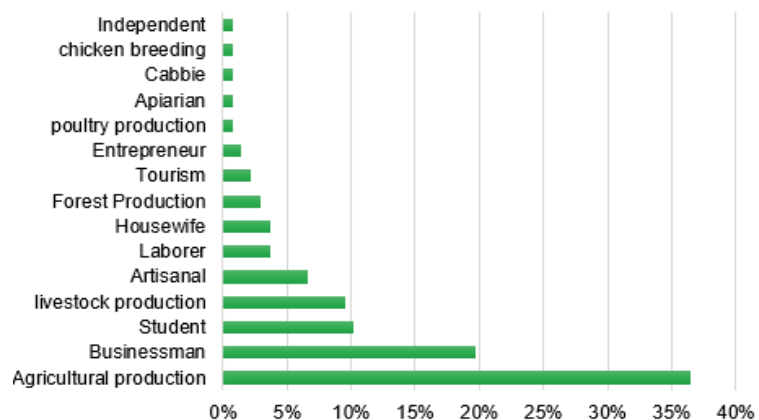
Figure 6.
Municipalities participating in the study.



Source. Own elaboration, 2023.

It is worth mentioning that the province of Sugamuxi, productive activity develops as a key point of economic dynamism and cultural situation, which are articulated to the primary, secondary and tertiary sectors. According to the perceptions of the respondents, agriculture and livestock production are the Preponderant productive activities in this region belonging to the primary sector of the economy. From these two sectors, a significant part of the productive profiles arises, and it should be noted that much of the economic progress is nourished by the activities related to commercialization.

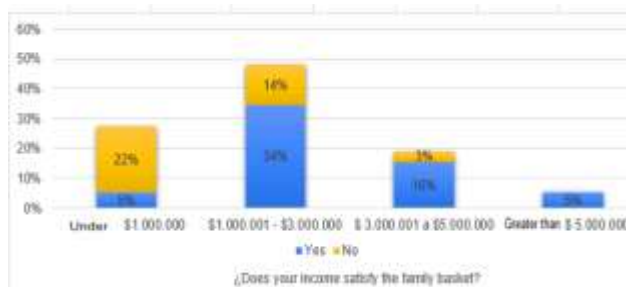
Figure 7.
Productive activities for the Sugamuxi region.



Source. Own elaboration, 2023.

Likewise, one of the variables analyzed is income level, with the majority of those surveyed having a medium income, ranging from \$1,000,000 to \$3,000,000 million pesos per month, representing 48% of the total. Within this range, 34% of the respondents perceive that their income adequately covers the essential needs of the family basket. However, a different picture is revealed for those whose income is below the Minimum Legal Minimum Wage in Force (SMLV), since in this segment a predominant feeling of dissatisfaction with regard to economic conditions is more clearly evident. This aspect takes on marked importance when considering inflation indicators for the year 2023, which significantly affect their quality of life.

Figure 8.
Distribution of average monthly income.

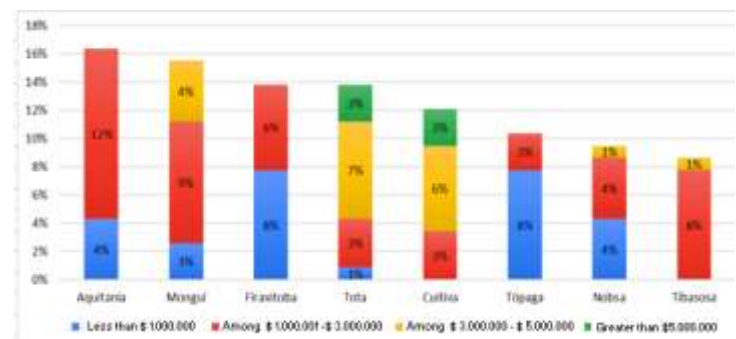


Source. Own elaboration, 2023.

In addition, Figure 8 reflects a marker indicator, 60% of the respondents express that their income is sufficient to cover the family basket. This percentage points to the estimation that the economic activities performed by the surveyed population generate adequate monthly income for their expenses and needs. In contrast, the remaining 40% face insufficient income, possibly due to the high cost of living and inflation. Thing group, which tends to be self-employed, is not part of the formal labor force in Colombia due to the levels of income they receive.

Household incomes vary significantly among the municipalities studied. For example, Aquitania reports incomes ranging between one million and three million pesos for the people included in the study. However, the comparison of incomes in this same range does not yield the same results in other municipalities. For example, in Tópaga and Tota, incomes are lower in relation to this range. In addition, incomes below one million pesos are more frequent in Tópaga and Firavitoba, revealing notable differences in the economic structure of these municipalities.

Figure 9.
Characterization of household income in eight municipalities in the province of Sugamuxi.

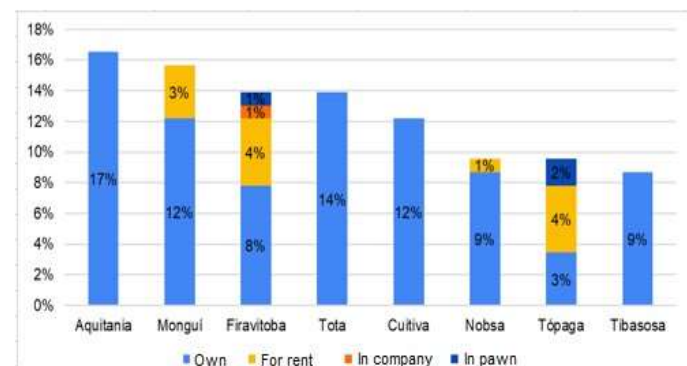


Source. Own elaboration, 2023.

The increase for people earning one million pesos or less is insufficient to cover all basic needs, including rents for those who do not own property. However, it is relevant to point out that the majority of the population under study has a property in their name as far as the productive unit is concerned. This situation not only benefits their quality of life, but also contributes to reducing unemployment in the region.

The concept of productive unit refers to the land where economic activity is developed, especially in the context of agricultural production. In the case of the selected municipalities in the province of Sugamuxi, it is observed that in Cuitiva, Tota and Aquitania, the inhabitants have their own productive unit. In contrast, in Tópaga and Firavitoba, only a small percentage of the population opts for leasing instead of owning the productive unit.

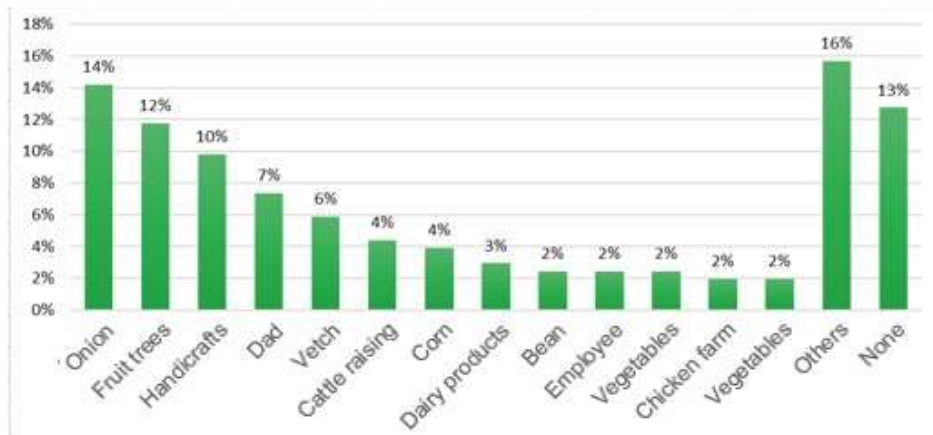
Figure 10.
Type of production unit.



Source. Own elaboration, 2023.

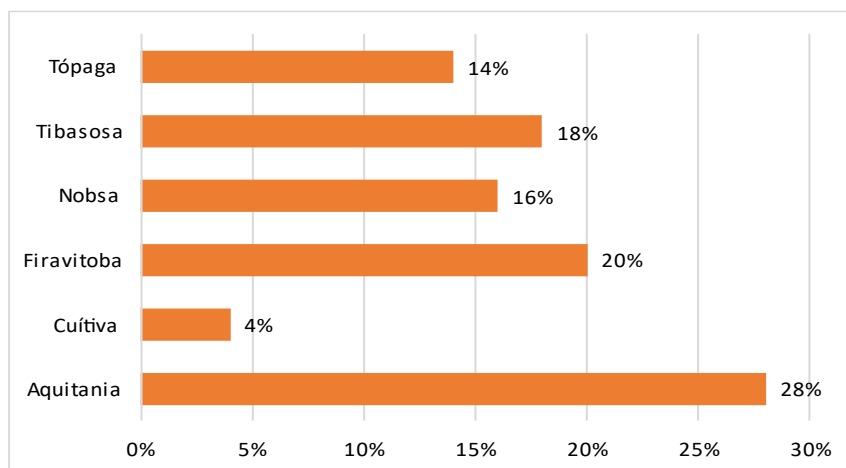
The main crops include onions, fruits, potatoes and peas, while handicraft skills also stand out, especially in the making of footballs, which has become a distinctive feature of the municipality of Monguí (Figure 11). In addition, when analyzing the distribution of agricultural production in the eight municipalities surveyed in the Sugamuxi region, it is observed that the communities in these localities focus on commerce and livestock production. Mining and artisanal activities are also present, although to a lesser extent.

Figure 11.
 Main crops in the province of Sugamuxi.



Source. Own elaboration, 2023.

Figure 12.
 Classification of agricultural participation by municipalities in the province of Sugamuxi.



Source. Own elaboration, 2023.

From the aspects of agricultural participation, Aquitania contributes the most with a very significant percentage of 28%, followed by Firavitoba with 20 %. However, in terms of agricultural production, the localities of Monguí and Cuitiva contribute in a regular, almost non-existent way, in this sector.

Another aspect of analysis focuses on the management of productive zones, and becomes relevant within the research: the strengthening of marketing and sales strategies as the training area of greatest interest to the survey participants. The strategic relationship between commercial promotion and operational efficiency plays a crucial role in the promotion and development of these production areas.

Through a thorough and thoughtful analysis, the fundamentals that make this collaboration so valuable will be explored. From increasing income to consolidating competitiveness, they become essential efforts to redefine and optimize management in productive areas, actions that set a goal of sustained growth and economic progress.

When approached, these areas act as solid building blocks upon which a strong, upwardly mobile economy is built. As we delve deeper into this topic, it shows how the dynamics of a market and the implementation of effective sales strategies come together with financial literacy skills. This not only strengthens economic and management principles, human and social capital, but also creates a solid and building foundation for innovation, sustainable growth and improving the overall wellbeing of the region.

According to the data presented in Table 1, both marketing and sales (36%) and a solid training in the financial area (25%) are the areas that generate the greatest interest among the respondents. These two aspects emerge as essential areas that drive productive development and that constituted training areas among others for the empowerment of families and the rural sector as a possibility for the future.

Table 1.

Areas of interest to strengthen in the province of Sugamuxi.

Area of interest	Administration	Associativity	Systematization	Financial education	Marketing and sales	Tourism
Aquitania	0%	4%	0%	5%	2%	0%
Cuitiva	1%	2%	2%	3%	3%	0%
Firavitoba	3%	3%	4%	5%	9%	1%
Monguí	1%	1%	0%	3%	8%	0%
Nobsa	6%	1%	1%	2%	6%	0%
Tibasosa	1%	3%	0%	3%	1%	0%
Tópaga	1%	2%	1%	1%	4%	0%
Tota	2%	2%	1%	3%	4%	0%
Total	13%	18%	8%	25%	36%	1%

Source. Own elaboration, 2023.

5. DISCUSSION AND CONCLUSIONS :

The proposal seeks to promote the sustainable development of the agricultural sector through strategic alliances and the productive and social inclusion of peasant agriculture, which could revitalize the local economy and promote competitiveness.

Collaboration with the farming communities is essential for the success of the proposal, as their organization and empowerment are fundamental pillars for a participatory approach focused on their needs.

The documents "Dimensión Desarrollo Productivo" and "Boyacá tomo 1" provide a valuable frame of reference for the structuring of the proposal, with the objective of optimizing agricultural production and improving the quality of life of farmers in Boyacá.

Uncertainty in 2023 poses significant challenges for productive activities, especially in terms of production costs and decisions in the industrial sector regarding the behavior of current economic variables.

The distribution of investment in science, technology and innovation projects by the public administration during 2020 indicates a direction toward improving innovation and technological development in the region.

The training and updating processes in administrative and financial areas, as those of greatest interest identified in the research, constitute one of the local development strategies to strengthen the peasant units and enhance the productive development of the region.

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