

Original article


The contribution of governance to municipal management of the housing deficit in Cuba

La contribución de la gobernanza a la gestión municipal del déficit habitacional en Cuba

A contribuição da governança para a gestão municipal do déficit habitacional em Cuba



Yalily González Díaz¹  0000-0002-8939-5111  yalily@uo.edu.cu

Jorge Luis Mariño Vivar¹  0000-0003-4663-9689  jorge@uo.edu.cu

¹ University of Oriente. Santiago de Cuba, Cuba.

Received: 15/02/2022

Accepted: 01/06/2022

ABSTRACT

Governance and its role in local public management is a recurring theme in contemporary specialized literature due to its contribution to the collective construction capacity of a territorial project; however, the study carried out in the last decades shows diverse conceptions and methodological proposals about it. The objective of this paper is to design a methodology with a governance approach for the municipal management of the housing deficit in the municipality of Palma Soriano, which allows the formulation of public policies and the elaboration of actions for their implementation. Theoretical and empirical methods were used, including dialectical-materialist, historical-logical and systemic-structural methods, accompanied by the techniques of social network analysis and prospective scenarios. The expert method and the Statistical Package for Social Sciences, Decision, Micmac, Multipol, Smic-Prob-Expert, UciNet software were used. The effectiveness of the proposal was validated using the Iadov method. Among the results achieved are the public policies regarding the housing deficit for Palma Soriano and the strategic actions necessary for their implementation.

Keywords: housing deficit; governance; local public management; local public policy; prospective.

RESUMEN

La gobernanza y su rol en la gestión pública local resultan un tema recurrente en la literatura especializada contemporánea por su aporte a la capacidad de construcción colectiva de un proyecto de territorio, sin embargo, el estudio realizado en las últimas décadas evidencia diversas concepciones y propuestas metodológicas en torno al mismo. El objetivo del presente trabajo es diseñar una metodología con enfoque de gobernanza para la gestión municipal del déficit habitacional en el municipio de Palma Soriano, que permita formular las políticas públicas y elaborar las acciones para su implementación. Se utilizaron métodos teóricos y empíricos que incluyeron el dialéctico-materialista, el histórico-lógico y el sistémico-estructural, acompañados de las técnicas de análisis de redes sociales y de los escenarios de la prospectiva. Se emplearon el método de expertos y los softwares Statistical Package for Social Sciences, Decisión, Micmac, Multipol, Smic-Prob-Expert, UciNet. La efectividad de la propuesta se validó mediante el método Iadov. Entre los resultados alcanzados se encuentran las políticas públicas en materia de déficit habitacional para Palma Soriano y las acciones estratégicas necesarias para su implementación.

Palabras clave: déficit habitacional; gobernanza; gestión pública local; política pública local; prospectiva.

RESUMO

A governança e seu papel na gestão pública local é um tema recorrente na literatura especializada contemporânea devido à sua contribuição para a capacidade de construção coletiva de um projeto territorial. Entretanto, o estudo realizado nas últimas décadas mostra diversas concepções e propostas metodológicas sobre o tema. O objetivo deste documento é projetar uma metodologia com uma abordagem de governança para a gestão municipal do déficit habitacional no município de Palma Soriano, que permita a formulação de políticas públicas e a elaboração de ações para sua implementação. Foram utilizados métodos teóricos e empíricos, incluindo métodos dialéctico-materialista, histórico-lógico e sistémico-estrutural, acompanhados pelas técnicas de análise de redes sociais e cenários prospectivos. O método especialista e o software Statistical Package for

Social Sciences, Decision, Micmac, Multipol, Smic-Prob-Expert, UciNet foram utilizados. A eficácia da proposta foi validada usando o método Iadov. Entre os resultados alcançados estão as políticas públicas relativas ao déficit habitacional para Palma Soriano e as ações estratégicas necessárias para sua implementação.

Palavras-chave: déficit habitacional; governança; gestão pública local; política pública local; prospectiva.

INTRODUCTION

The current decentralization and modernization processes taking place in Latin America and the Caribbean constitute a cornerstone for local governments to rethink their role as promoters of integral development. These governments must modify their traditional management methods and incorporate integrated actions that allow for the adding of resources and alternative solutions to local problems.

It is not enough to improve the managerial capacities of local governments. It is essential to move towards a government of collaboration among leaders and the establishment of economic-political alliances or coalitions, where openness, consensus and innovation are the keys to success and are approached from the diversity of interests and practices in relation to the territory.

From this perspective, governance is identified as "a new way of managing public policies" (Rosas Ferrusca et al., 2018), "a framework that preludes the evolution of democracies in the 21st century" (Porrás Nadales, 2021, p. 6), where civil society and government are co-responsible for the political task.

By virtue of the above, governance has become an innovative perspective for local public management. It is the instrument that allows transforming sectoral and *top-down* approaches into territorial approaches of multilevel, multistakeholder and multifactorial coordination, where the territory is revalued as the ideal space to make the integral and joint solution of public problems more viable and where local governments modify their role to assume their responsibility for the present and future of their territories.

In Cuba, the implementation of the Guidelines of the Economic and Social Policy of the Party and the Revolution, within the framework of the updating of the economic model, synthesizes the main axes of one of the most profound transformations in terms of policy that has been carried out in the revolutionary period and defines, at the same time, ambitious goals for economic and social development with special emphasis on local autonomy. A large part of the solutions to the problems of the territories are located on this scale.

Díaz-Canel and Delgado (2020) recognize that government management in Cuba requires "generating and strengthening capacities¹ for the management of programs, public policies and strategies that favor the fulfillment of short, medium and long-term goals, aligned with the Sustainable Development Goals, as well as the satisfaction of citizens' needs, which is one of the main challenges faced by countries today".

Good governance is supported by principles, a coherent legal framework that responds to the context and needs, an institutional framework and strategic planning aimed at innovation in government management and in all areas of society (Díaz-Canel Bermúdez & Delgado Fernández, 2021).

Consequently, the innovative search for management alternatives that contribute at the local level to meeting the population's satisfaction standards is promoted, and when it comes to demands, the issue of housing is a recurrent item on the agendas of local governments.

Housing and its problematic constitute one of the manifestations of a broader structural issue within a complex system of relations, which approach requires taking into account the historical, social, economic and financial stakeholders that are intertwined in it, as well as the legal, juridical aspects and its political dimension (García Pérez & Janoschka, 2016).

On this island, investments in this sector have amounted to millions of dollars, however, the gradual deterioration of the housing stock, the accumulated economic limitations and the impossibility of the industry to meet all the needs for construction materials, together with the effects of the continuous onslaught of meteorological events, have caused the country to face the largest housing deficit in its history during the last decade.

¹ The conceptual difference between the terms "training" and "capacity building" must be taken into account. Training can be considered an input to capacity building. Capacity building will have to occur fundamentally in the process of learning by doing, in the territory, with the participation of qualified trainers. Capacity building is a continuous process that does not end.

Since 2011, the State began to implement a group of measures aimed at addressing this problem, which have been favored by the conception of local integrated management as a decisive element to achieve the territorialization and materialization of the objectives of the National Housing Program, being the municipal governments the most responsible for its results.

Despite the efforts made by the State, the biannual evaluations of the National Housing Program revealed that there are problems of efficiency and effectiveness in its management. The goals set are not being met and the amount of housing built does not correspond to the resources allocated; there are subjective stakeholders that hinder the expected results.

Díaz-Canel (2021) recognizes that "governance schemes for sustainable development and social inclusion require greater citizen participation, in which people do not behave as passive beneficiaries, but become involved as stakeholders in the processes of generating solutions to their problems, participate in the creation of opportunities and in decision-making."

In this sense Claudiu (2020, p. 136) states that "management in public institutions requires the implementation of the network model to improve problem-solving capacity and increase citizen participation in decision-making".

In the specific case of the municipality of Palma Soriano, the documentary review of the results of the evaluations and audits carried out, the performance of surveys and participant observation, made it possible to confirm that in this territory there are still insufficiencies that hinder the results that could be achieved in terms of municipal management of the housing deficit. Among the most significant shortcomings are: excessive bureaucracy and slowness in the established procedures, the absence of a system capable of guaranteeing daily information on productive results and their destination, insufficient use of the capital potentialities existing in the municipality, irregularities in the quality of production and works, insufficient articulation between public and private stakeholders, failures in administrative controls and insufficient support for popular control.

In practice, it is evident that governance and its determinants are not applied as component parts of integrated management to contribute to decision-making and the systematic implementation of viable and sustainable alternative solutions. In addition, there is a lack of definition of probable scenarios and indicators to measure the impact of management.

The aspects addressed show the need to have a tool that, from the governance processes, contributes to an integrated and sustainable management of local stakeholders, which allows and enhances the use of endogenous and exogenous resources of the locality, coherently articulating national, branch and territorial interests.

The objective of this work is to design a methodology with a governance approach for the municipal management of the housing deficit in the municipality of Palma Soriano, which allows the formulation of local public policies and actions for their implementation.

This methodology takes into account the perspective of equity and social inclusion, the integrated and sustainable management of local stakeholders, the use of endogenous and exogenous resources of the locality and the coherent articulation of national, branch and territorial interests.

MATERIALS AND METHODS

The dialectical-materialistic method was present throughout the research process, providing the research and expository logic to structure the work. The analytical-synthetic method contributed to the detailed study of the information gathered from the different sources consulted.

The historical-logical method was used during the literature review process to identify in the theoretical and practical experiences of governance and management of the housing shortage, the good practices and experiences that make up the theoretical-methodological references of the research.

The systemic-structural method made it possible to study the components and links of the stakeholders involved in municipal management, as well as to identify internal and external stakeholders of the management process.

The techniques of social network analysis and scenario building made it possible to highlight the main challenges of the future in relation to the problem studied. The design of the scenarios required the consultation of experts, collective construction workshops and the use of Statistical Package for Social Sciences (SPSS) v.22, Decision, Micmac, Multipol, Smic-Prob-Expert, Ucinet v.6.717.

In relation to the validation of the results, from a practical point of view, the Iadov method (based on user criteria) was used as a scientific methodological procedure for processing the results. This technique constitutes an indirect way to study customer satisfaction.

The methodological proposal designed consists of three phases: I. Construction of the base; II. Definition of scenarios; III. Formulation of local public policies and actions.

Phase I. Construction of the base

The multifactorial, multi-stakeholder and complex nature of municipal management of the housing deficit required the collective construction of a dynamic and explanatory situation analysis of housing-related processes, which would serve for decision-making on the basis of potentialities and constraints. It was therefore advisable to analyze the environment, the network of stakeholders, the behavior of governance determinants and to identify key variables.

It required the formation of a group of experts and the realization of collective construction workshops where group work and problem solving techniques were used.

The analysis of the macro-environment surrounding the municipal management of the housing deficit allowed the identification of external strategic stakeholders (Threats and Opportunities).

Once the stakeholders were identified and the adjacency matrix was constructed, the social network analysis was carried out using the Ucinet software. According to Pinto, Nogueira and Domínguez (2019) this technique is particularly interesting, as it made it easier to map the challenges on the social structure itself and to guide policies in a more focused and targeted way with the aim of making the network more resilient.

It was also necessary to: 1) prepare the sociogram; 2) determine the density of the network and the centralization index. This analysis involved the identification of internal (Strengths and Weaknesses) and external strategic stakeholders.

In relation to the subject matter of this study, there is no single criterion in the specialized literature on which governance determinants should be taken into account for the analysis of municipal management of the housing deficit. For this reason, it was necessary for highly qualified and experienced experts to identify these determinants and evaluate their behavior at the municipal

level, in order to identify the stakeholders that can be controlled by the Municipal Administration Council (Cam in Spanish).

The SWOT matrix was prepared, which made it possible to characterize the situation, identify the variables for the construction of scenarios and continue towards the determination of strategic priorities and the design of local public policies.

The structural analysis offered the possibility of describing a system with the help of the Cross Impact Matrix and aimed to identify the key variables (Micmac Method).

It is agreed with Zhang, Qin, Shi and Kang (2019) when they state that the diagnosis constitutes the fundamental core for the reasoning of the system, a support that should lead to the identification and analysis of future scenarios.

Phase II. Scenario definition

Scenarios are a narrative of a future state of the system under study that enables the decision-maker to anticipate the implications of its configuration, i.e., they allow him to "plan and anticipate changes in systems of increasing complexity" (Garrigó Andreu et al., 2021).

In the identification of probable scenarios regarding municipal management of the housing deficit until 2026, it was agreed to: 1) identify the thematic areas, 2) elaborate the hypotheses, 3) select the bet scenario. The selected variables were grouped in correspondence to the thematic areas that originated them and the hypotheses were drafted accordingly.

The set of several hypothesis (n) made up the different futures (for a total of 2, raised to the n). The identification of the bet scenario was done with the help of the experts, which allowed reducing the uncertainty, estimating subjective probabilities of the occurrence of these different combinations or of the different key events for the future (Smic-Prob-Expert Method: Probabilistic Cross Impacts Systems and Matrices).

Phase III. Formulation of local public policies and actions

Parisi and Vargas (2017) state that "the desired future scenario can only become reality when, those who chose it, do what is necessary to make it happen."

The aim was then to describe the path leading from the current situation to the final images, for which local public policies and strategic actions were designed and evaluated by the experts with the support of the Multipol Method: multi-criteria and policies.

The results obtained were validated using the Iadov method, which made it possible to estimate the level of satisfaction of the experts who are, in turn, users of the proposal. This method, used by Roque, Martínez and González (2020), is an indirect method for the study. It is based on the relationships established between three closed questions that are interspersed within a survey questionnaire that is applied and which relationship is unknown to the subject. These three questions are related through what is called the "Iadov's Logical Table". The methodology proposed by Mirabal and Torres (2021) was applied for this analysis.

RESULTS AND DISCUSSION

The municipality of Palma Soriano is located in the eastern region of Cuba, towards the northern part of the province of Santiago de Cuba. Its surface area is 928.24 square kilometers, it occupies 14.9% of the province's surface area and third place among the remaining municipalities. In this territory, 11.7% of the total population of the province is concentrated.

With 121,943 inhabitants, an urbanization rate of 61.89% and a population density of 131.4 inhabitants/km², it is classified as a city with a medium degree of urbanization. The 51.9% of the land is flat and 48.1% corresponds to the mountainous areas of the Sierra Maestra mountain range.

In Palma Soriano there are 21 popular councils comprising 107 population settlements, of which two are urban and 105 are rural (74 are located in the plains and 31 in the mountains). The local economy is characterized by an industrial sector that contributes 51.7% of commercial production, followed by the provision of services with 38%.

The socialist state enterprise is the fundamental link in the economy. At the close of 2021, the private sector in the municipality amounted to 1984 self-employed workers; of these, 8% were linked to activities related to the construction sphere.

Phase I. Construction of the base

Definition of the problem to be studied

With a housing stock of 42,053 houses, the municipality of Palma Soriano faces a housing deficit of 13,414 houses, 67.5% of which corresponds to the quantitative deficit (new houses to be built) and the remaining 32.5% to the qualitative deficit (houses to be rehabilitated, improved or expanded). The construction condition of 45.1% of the existing housing stock is evaluated as between "Fair" and "Poor"; consequently, the loss of housing capacity due to its increasing deterioration is significant.

The aging of the housing stock shows that more than 50% of the dwellings are between 20 and 49 years old and 22% are over 50 years old. This negative fact has been aggravated by the impact of weather events. For example, Hurricane Sandy alone affected 60.1% of the housing units in the municipality of Palma Soriano, a problem that, despite the time elapsed, remains unresolved at 3.86%.

At the end of 2021, the rehabilitation plan is 100% compliant; however, the construction rate is insufficient, since the plan for the phase was for 90 rehabilitations, which represents approximately 0.3% of the housing requiring this type of constructive action.

The conservation process presents a very similar situation. The plan for the year 2021 is 326% fulfilled. Out of a plan of 15, 49 homes are being conserved, representing 1% of the identified needs.

All the aforementioned problems increase the intrinsic vulnerability² and acquired³ of the housing fund in the municipality. Objective and subjective stakeholders have had a negative impact on these results. Among the objective stakeholders, the lack of construction materials in the broad nomenclature required by the activity, especially the supplies allocated by the national government, has a high impact.

In addition to the above, there is the unfavorable impact of subjective stakeholders, such as: excessive bureaucracy and slowness in the established procedures, insufficient articulation and work

² Intrinsic vulnerability: this is the vulnerability derived from the design and execution of the projects. In theory it should be zero at the initial time of the work or project (To).

³ Acquired vulnerability: as its name indicates, its existence and development are related to the use and exploitation of a work over time. They arise due to the lack of specialized maintenance and the lack of attention to the stakeholders leading to building pathologies and anthropogenic actions. Their exacerbation increases risk and can be a determining stakeholder in the intensity of emergencies and disasters.

system between public and private stakeholders, waste of capital potentialities existing in the municipality, absence of a management system capable of guaranteeing daily information on productive results and their destinations, existence of irregularities in the quality of productions and works, failures in administrative controls and support of popular control.

The problem has promoted actions that combine the intervention of Cam with popular participation. A total of 3,600 subsidies have been granted for the construction of Basic Housing Cells (BHC)⁴, but only 51.1% have been completed.

The identification of the housing deficit problem in the municipality of Palma Soriano shows an insufficient management capacity, which justifies the need to implement governance processes that go beyond the welfare vision of previous stages and that bet on an integrated and sustainable management, where all local stakeholders are articulated and ensure social inclusion with greater citizen participation.

Stakeholder network analysis

A total of 30 stakeholders participating in the municipal management of the housing deficit were identified by the experts and the adjacency matrix was drawn up using the Ucinet v.6.717 software, which made it possible to represent the network of relationships of the stakeholders through a sociogram, which shows the existence of a multicentric structure.

The analysis of the structural characteristics of the network yielded the following result:

⁴ BHC is defined as a minimum adequate housing, which consists of: a room, a multifunctional space with a kitchen and a bathroom.

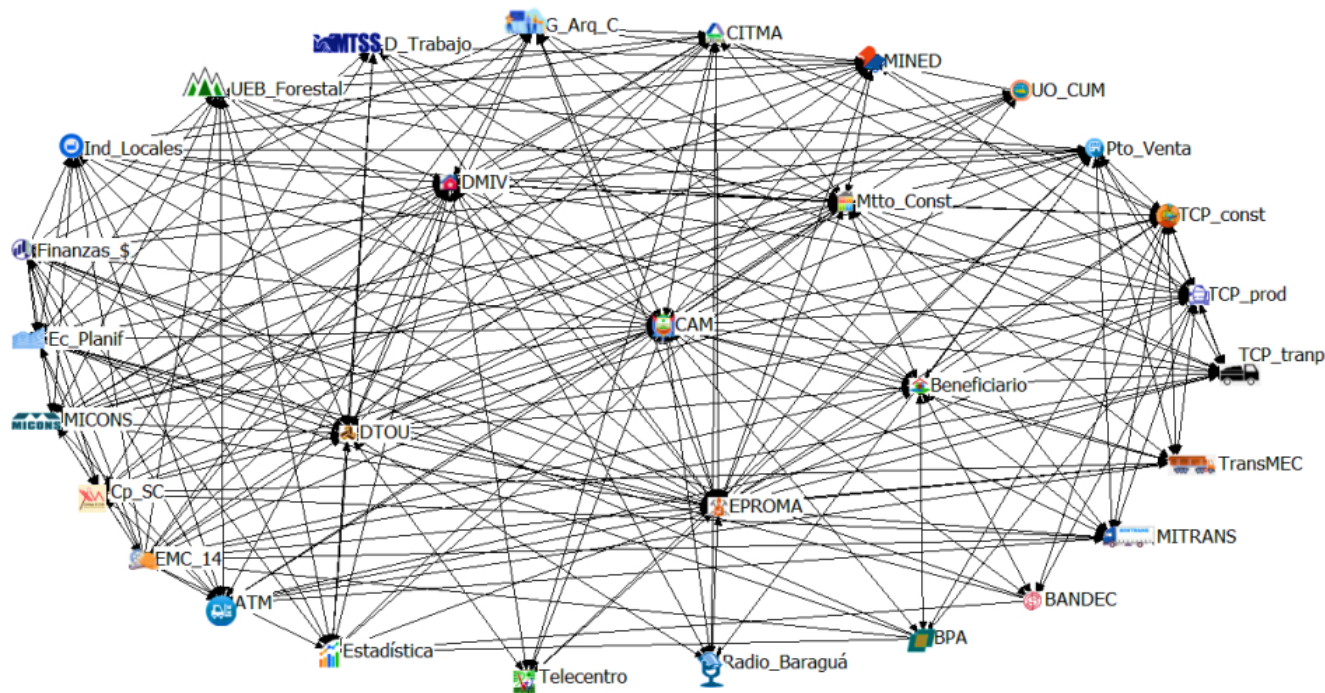


Fig. 1 - Sociogram of the network of stakeholders in the municipal management of the housing shortage

Source: Ucinet software v.6.717

Network density: this indicator obtains a value of 0.421. In other words, of all the relationships that could potentially occur between the stakeholders involved in municipal management of the housing deficit, only 42.1% occur, where the stakeholders have an average of approximately 12 links in a network of 29 possible links.

In the municipal management of the housing deficit, the stakeholders as a compact fabric need to increase cohesion, integration and cooperation among all to generate, from co-management and co-creation, alternative solutions that respond to local needs.

In the process under study, there is not a sufficiently integrated network of stakeholders to achieve effective management. In this direction, a challenge is to increase the articulation and formation of alliances between stakeholders, leading to a network with a higher level of relationships between stakeholders and, thus, to meet more effectively the needs and demands of the local population regarding the housing deficit.

Centralization index: this indicator first identified the Cam as the central stakeholder, with a degree of centrality of 100%, a result that corresponds to its powers as the governing authority to coordinate and mobilize all stakeholders.

Secondly, the weak participation of the new economic stakeholders and of the main science and technology managers in the links for municipal management was evident.

In third place, the following stakeholders stand out for their level of centrality, above 62%: the Municipal Housing Investment Directorate, the Provincial Enterprise of Construction Materials and the Territorial Directorate of Urban Planning and Urbanism, reflecting their power and high dependence on the others. Although Cam is the central stakeholder, the structure of the network is characterized by a consolidated polycentric character.

The analysis of this indicator corroborates that power continues to be centralized in agencies and institutions such as the local government, the Municipal Housing Investment Directorate, the Territorial Planning and Urban Development Directorate and the Provincial Construction Materials Enterprise, which control both decision-making power and resources. This situation is affected by the scarcity of material resources.

As for the population, their links are insufficient compared to the magnitude of the problem to be solved and are the result of the requests and procedures they carry out for their management. This situation, characterized by bureaucratic obstacles, delays and dissatisfaction, creates discomfort, complaints and frustrations among the population. Such a mode of participation does not encourage the proactivity of the beneficiary in the solution of the problem from the popular council.

The experts identified and evaluated the performance of 16 governance determinants in the local context. As a result, it was obtained that none of the determinants has a high positive influence, two (12.5%) show a moderately positive development (equity and social inclusion and transparency in government management), two (12.5%) show a highly negative development (corruption and citizen satisfaction) behavior that corresponds to the results of the audits conducted in the municipality and the statements of opinion.

The remaining twelve determinants (75 %) are evaluated with a moderate negative influence (efficiency, efficacy, effectiveness, decentralization, municipal autonomy, continuous improvement, local development management, multi-centered decision making, networked structures, government

responsiveness, introduction of science, technology and innovation results, and risk and opportunity management).

The causes of this behavior are to be found in:

- the lack of the institutional information and communication system regarding the housing deficit to facilitate popular participation and decision making
- the absence of projects by local entities as an alternative to improve their technologies, in view of their insufficient capacity to access other sources of financing (bank loans)
- the scarce introduction of innovation and creativity processes in the collegiate search for solutions (it is not possible to develop actions at the level of popular councils to generate housing construction materials)
- Cam's insufficient links with the new economic and social stakeholders, and
- the lack of a proactive attitude on the part of the beneficiaries in the management of solutions

Determine the key variables

The analyses carried out in the preceding steps made it possible to identify the internal and external stakeholders that characterize the management of the housing deficit in the municipality of Palma Soriano. Twelve opportunities, 14 threats, 9 strengths and 13 weaknesses were identified. These strategic stakeholders were ranked by the experts and then, by means of the matrix of importance and degree of ease of resolution/reaction, the following were selected as the highest priority stakeholders to be used in the management of the housing deficit in the municipality of Palma Soriano:

Opportunities

1. Wealth of natural deposits in the territory
2. Implementation of the new economic and social development model in the country
3. Political will, state and governmental priority
4. State decentralization process
5. Diversification of sources of financing for municipal development

Threats

1. The U.S. government's blockade of Cuba is intensifying
2. Occurrence of natural and climatological events
3. Limited access to technology and construction materials
4. Strong presence of a mainly technical-productive sectoral approach to construction
5. Increase in the aging rate and negative migration balance with emphasis on the professional labor force and young people
6. Insufficient amount and high interest rates of construction loans
7. Existence of a black market for construction materials

Strengths

1. Priority given to the solution of the housing deficit for the Cam
2. Existence of a development strategy and municipal plans to address the deficit
3. Autonomy of the Cam to decide on the granting of subsidies
4. To have updated plans for the management of the municipality, such as the General Land Management Plan and the General Urban Management Plan
5. Existence of vulnerability and risk studies of the housing fund in the face of different climatological phenomena
6. Presence of non-state stakeholders in activities related to the construction area

Weaknesses

1. Cam's insufficient links with new economic stakeholders
2. Little incentive for the participation of the beneficiaries (population) in the solution of their housing problem
3. Insufficient use of projects with science, innovation and creativity approaches in the collegial search for solutions
4. Insufficient use of constructive alternatives based on endogenous resources
5. Excessive bureaucracy and slowness in established procedures
6. Insufficient integration of the university and science and technology entities in the management of the housing shortage
7. Insufficient levels of local production to supply existing demands
8. Insufficient capacity of local entities to access sources of financing

Based on the SWOT analysis, the experts identified and defined 26 key variables, described the relationships established between them and their environment and constructed the structural analysis matrix, which was entered into the Micmac software. As a result of the software processing, it is initially obtained the plane of potential direct influences/dependencies, the graph of potential direct influences (Fig. 2).

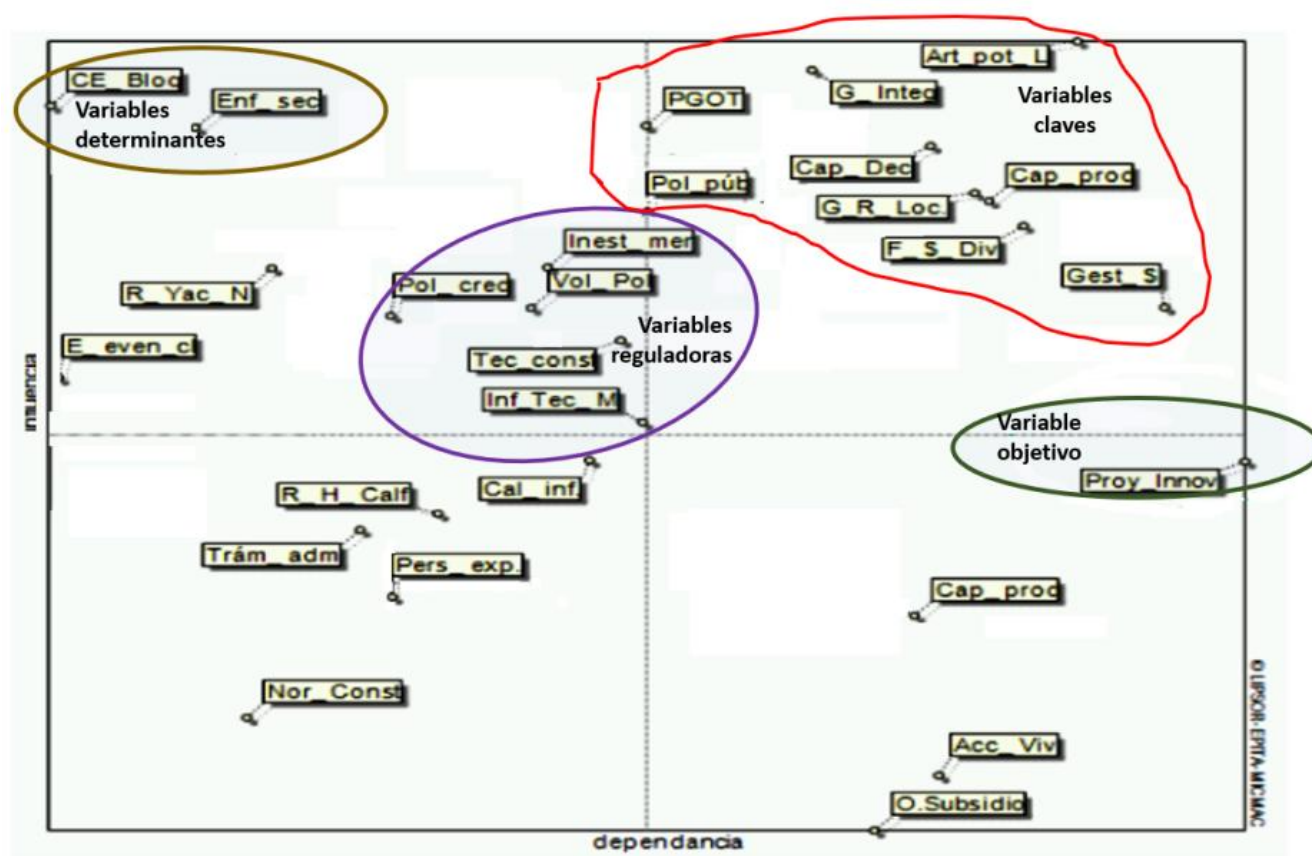


Fig. 2 - Map of potential direct influences/dependencies according to Micmac analysis

Source: Micmac software

As a result of the initial analysis carried out by the experts using consensus techniques, eight (8) key variables, one (1) target variable, five (5) regulating variables and two (2) determining variables were identified. These results were corroborated by means of the graph of potential indirect influences.

Phase II. Scenario definition

The selected variables were grouped by the experts in correspondence with themes linked to the strategic diagnosis to facilitate the direction and formulation of the hypotheses towards important areas in the solution of the municipal housing deficit. Five thematic areas were identified.

The use of the Smic method made it possible to elaborate the scenarios, based on the information provided by the experts, to choose, among a number of possible states through combinations of hypotheses, those that should be studied as most probable, as well as to examine the combinations of them that should be excluded.

The relationship and description of the thematic areas and hypotheses are as follows:

- Construction equipment and infrastructure. H1: The productive capacity of the entities (state and private) is increased through the acquisition and use of new technologies and construction materials
- Financing: H2: Financing increases as a result of diversification and increase in production and services related to construction
- Articulation and integration in management. H3: Municipal autonomy promotes the integrated management of local stakeholders, achieving the articulation of productive potentialities in the construction industry
- Management capacity. H4: Cam promotes the application of science and innovation for local development. The management capacity of the cadres influences the increase in the effectiveness of the decision-making process
- U.S. Government blockade H5: The economic dynamization achieved as a result of the local development achieved makes it possible to cushion the effects of the blockade and the international economic-financial crisis

Scenario selection

The five (5) future hypothesis associated with the problems and key variables were evaluated by the experts and processed using the Smic-Prob-Expert software. This processing allowed obtaining the histogram with the probability of occurrence of the 32 scenarios (Fig. 3), which is presented to the experts for analysis.



Fig. 3 - Probability histogram of the scenarios

Source: Smic-Prob-Expert software

Within the framework of the collective construction workshop, the experts, after evaluating the results of the probability histogram and taking into account the sensitivity analyses of the influences and dependencies of the hypotheses (through the coefficients of the elasticities), decided:

Of the 32 possible scenarios, presented in descending order of probability of occurrence, the first 18 are assumed to be alternative scenarios, with a probability of 78.8%; the remaining 14 scenarios are considered impossible, with a probability of occurrence of 21.2%.

It was decided to concentrate the analysis on the first four scenarios as the trend core, which accumulates 28.9% probability of occurrence.

Of the four scenarios, it was decided not to assume E32-00000 as a bet scenario, although it has the highest probability (12.02%), it corresponds to the trend scenario where all the hypotheses present an extremely negative behavior. This situation should not occur in the reality of the country, since it is considered that the future depends less on the strong trends that would be fatally imposed on men than on the policies that men develop in order to face these trends.

Of the three remaining scenarios, the experts coincide in selecting E06-11010 (with a probability of 5.9 %) as the bet scenario, since in this scenario the hypotheses acquire a morphological structure that is closer to the reality of the country.

This scenario constitutes an intermediate scenario in which progress is made in the acquisition and use of new technologies and construction materials, which allows for the development of productive capacity in the municipality (state + non-state) and, as a result, financing increases. Autonomy is not achieved as a process in the analyzed period and Cam manages to promote the introduction of

science and innovation, and the management capacity of the cadres has an impact on the effectiveness of the decision-making process. The blockade does not worsen in view of the levels achieved and as a result of international public opinion.

Phase III. Formulation of local public policies and actions

Two collective construction workshops were held with the experts to formulate five local public policies (LPP) required for municipal management of the housing deficit and 34 actions necessary for their effective implementation were elaborated.

The results obtained were as follows:

LPP₁ The local production of construction materials will go through the use of endogenous resources and the introduction and generalization of the results of science and technological innovation.

Objective: to increase the production of construction materials in the municipality based on innovative initiatives from each of the communities.

Actions:

- Stimulate self-help construction
- Develop joint innovation projects (Municipal Administration Council - Municipal University Centers - Science, Technology and Innovation Entities)
- Promote I&D activities at the municipal level
- Stimulate the development of local initiative projects to revive the housing fund
- Resumption of the related professions formation in technical- vocational schools
- Raise the preparation of technical personnel at the grassroots level
- Enhance the sustainability of the housing program by increasing local production of materials, village council level where possible

LPP₂ The improvement of human capital management related to municipal management of the housing deficit should be considered a key stakeholder in the transformation of the municipality.

Objective: to improve municipal management of the housing deficit with new governance approaches.

Actions:

- Design a plan for the development of competencies in human capital related to municipal management of the housing deficit, which will allow for the improvement of its management
- Creation of a comprehensive information system that provides the necessary elements for decision making
- Promote the science and innovation approach in decision making and in the development of projects related to municipal management of the housing deficit

LPP₃ Stimulation of the growth of internal accumulation and foreign investment through new forms of non-state management linked to activities that have an impact on the solution of the municipal housing deficit.

Objective: Intensify the search for financial resources to eliminate the housing deficit in the municipality.

Actions:

- Promote the development of a portfolio of opportunities for foreign investment with actions that will have a favorable impact on the elimination of the municipal housing deficit
- Apply an investment process that links the different stakeholders with the correct application of the available sources of financing, based on the approved Land Management Plan
- Introduce and develop appropriate technologies to increase constructive capacity

LPP₄ Transformation of popular participation in decisions on the allocation, use of resources and solution of the housing deficit in their communities, guaranteeing social inclusion with equity and sustainable improvement.

Objective: to increase the integration of the stakeholders involved in the municipal management of the housing deficit.

Actions:

- Increase the protagonism of the people's councils in community transformation actions with the participation of the inhabitants

- Create channels of participation where citizens play a fundamental role and facilitate accountability leading to citizen satisfaction and participation of the population in the distribution of municipal revenues
- Elaborate a housing development project from each popular council
- Conduct a socio-habitational diagnosis of each popular council in order to determine the qualitative and quantitative deficit, arguing each situation
- Identify community leaders who collaborate with the motivation and participation of the population in the projection and materialization of community transformations
- Establishment of coordinated and joint strategies with community stakeholders to motivate the participation of the inhabitants in the solution of their housing problem

LPP5 Alignment of local needs with national policies (victims of climatic events, demographic policy and precarious fund), increasing efficiency in the associated processes, eliminating their bureaucratic burden and slowness, with science and innovation approaches in the management of the municipal housing deficit.

Objective: to transform citizen participation in all popular councils with co-management and co-responsibility approaches, full of proactivity and social inclusion, contributing to the solution of the housing deficit.

Actions:

- Establish priorities from the communities and with transparency on the basis of the diagnosis carried out to concentrate actions on the places that need them most
- To work for programs and projects that allow to achieve integrality in the interventions, thus favoring the quality of the habitat
- Move towards a single-window system, which will facilitate the procedures that the population must carry out for the legalization of self-construction processes and the acquisition of the necessary resources
- Implement more rational urban planning solutions with a better use of land and from the development of urban rehabilitation programs that allow for renovation and make it more functional

Expert opinions in relation to the designed proposal

The questionnaire applied to the expert-users of the designed proposal allowed determining a group satisfaction index, obtaining a value of 0.93, which evidences the general acceptance of the proposal. In view of the above, it can be concluded that the users of the research validate the designed proposal.

In conclusion, it is corroborated that municipal management of the housing deficit finds in the governance schemes a relevant instrument for the identification, elaboration and implementation of local public policies with a proactive criterion based on the use of endogenous and exogenous resources of the locality, the coherent articulation of national, branch and territorial interests, with a focus on science and innovation in local public administration.

The methodology with a governance approach for the municipal management of the housing deficit in the municipality of Palma Soriano constitutes a valuable tool for formulating local public policies and elaborating actions for their implementation, contributing from co-management, co-innovation and co-responsibility of its stakeholders to the achievement of the desired results.

REFERENCES

- Claudiu Florin, D. (2020). The New Public Governance Assumed Through Quality Reports In The Public Sector. *Annals - Economy Series*, (1), 133-138.
<https://ideas.repec.org/a/cbu/jrnlec/y2020v1p133-138.html>
- Díaz-Canel Bermúdez, M. (2021). ¿Por qué necesitamos un sistema de gestión del Gobierno basado en ciencia e innovación? *Anales de la Academia de Ciencias de Cuba*, 11(1), e1000.
<http://revistaccuba.sld.cu/index.php/revacc/article/view/1000>
- Díaz-Canel Bermúdez, M., & Delgado Fernández, M. (2020). Modelo de gestión del gobierno orientado a la innovación. *Revista Cubana de Administración Pública y Empresarial*, 4(3), 300-321. <https://apye.esceg.cu/index.php/apye/article/view/141>
- Díaz-Canel Bermúdez, M., & Delgado Fernández, M. (2021). Gestión del gobierno orientado a la innovación: Contexto y caracterización del modelo. *Revista Universidad y Sociedad*, 13(1),

6-16. http://scielo.sld.cu/scielo.php?script=sci_abstract&pid=S2218-36202021000100006&lng=es&nrm=iso&tlng=es

García Pérez, E., & Janoschka, M. (2016). Derecho a la vivienda y crisis económica: La vivienda como problema en la actual crisis económica. *Ciudad y Territorio Estudios Territoriales*, 48(188), 213-228. <https://recyt.fecyt.es/index.php/CyTET/article/view/76475>

Garrigó Andreu, L. M., Torres Mora, I. J., & Borrás Atienzar, F. F. (2021). *La prospectiva estratégica en función del desarrollo territorial en Cuba*. Editorial Ciencias Económicas. <https://library.fes.de/pdf-files/bueros/fescaribe/18009.pdf>

Mirabal Sarria, Y., & Torres Paez, C. C. (2021). Validación del modelo de gestión pública de la calidad de vida en Cuba. *Cooperativismo y Desarrollo*, 9(3), 919-934. <https://coodes.upr.edu.cu/index.php/coodes/article/view/453>

Parisi, D., & Vargas, M. I. (2017). Análisis del Área Metropolitana de Córdoba mediante un enfoque prospectivo territorial. *Oikonomos*, 2(7), 33-58. <https://revistaelectronica.unlar.edu.ar/index.php/oikonomos/article/view/375>

Pinto, H., Nogueira, C., & Domínguez Gómez, J. A. (2019). Sistemas de innovación y resiliencia regional: Un análisis de redes. *Revista Española de Sociología*, 28(3-Sup1), 35-52. <https://doi.org/10.22325/fes/res.2019.27>

Porras Nadales, A. (2021). Caminos de gobernanza. *Política y Gobernanza. Revista de Investigaciones y Análisis Político*, (5), 5-31. <https://doi.org/10.30827/polygob.i5.24079>

Roque Cala, K., Martínez Bencomo, H. E., & González Salgado, D. (2020). Iadov para medir el nivel de satisfacción de la comunicación oral pedagógica en la carrera informática. *Serie Científica de la Universidad de las Ciencias Informáticas*, 13(12), 76-95. <https://publicaciones.uci.cu/index.php/serie/article/view/673>

Rosas Ferrusca, F., Calderón Maya, J., Campos Alanís, H., & Jiménez Sánchez, P. (2018). Análisis del concepto de gobernanza territorial desde el enfoque del desarrollo urbano. *Estado, Gobierno y Gestión Pública*, (31), 175-210. <https://revistas.uchile.cl/index.php/REGP/article/view/53699>

Zhang, Y., Qin, J., Shi, P., & Kang, Y. (2019). High-order intuitionistic fuzzy cognitive map based on evidential reasoning theory. *IEEE Transactions on Fuzzy Systems*, 27(1), 16-30.

<https://doi.org/10.1109/TFUZZ.2018.2853727>

Conflict of interest:

Authors declare not to have any conflict of interest.

Authors' contribution:

Yalily González Díaz and Jorge Luis Mariño Vivar designed the study, analyzed the data and prepared the draft. Both authors reviewed the writing of the manuscript and approve the version finally submitted.



This work is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License

Copyright (c) Yalily González Díaz; Jorge Luis Mariño Vivar