Agrisost Year 2017, Vol.23, No.3: páginas: 112-123 ISSN 1025-0247
Available: http://revistas.reduc.edu.cu/index.php/agrisost/index

Diagnostic Procedure for Inter-Sector Relationships in the Model of Municipal Development.

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Received: 10 de marzo de 2016
Accepted: 16 de julio de 2017

ABSTRACT
Several methods were applied to design a new diagnostic procedure of inter-sector relationships, and the coordination between development strategies and key economic sectors within the strategic planning system in the municipality of Nuevitas, province of Camaguey, Cuba. The methods included analysis-synthesis; systemic, to conceive the character of component relationships; interview, survey, and documentary research. They made possible the characterization of the current situation in the municipality. The diagnostic revealed that the analysis of inter-sector relationships is not usually made, due to ongoing deficiencies regarding a procedure design to perform situational strategic diagnostics. According to the results achieved, insufficiencies in inter-sector relationships among the institutions selected for the study were identified, as a reflection of the poor coordination among the sectors. Potentialities and restrictions, weaknesses, strengths, and opportunities were revealed, which called for the implementation of a diagnostic of inter-sector relationships in the area of development strategies. The methodological proposal rests on the supposition that diagnostics should establish methods to include analysis of horizontal relationships among the sectors, convergence with the local development strategy, and more efficiency of integrated development programs.

KEY WORDS/: Inter-sector relationships, strategic diagnostic, integrated development, local development.

INTRODUCTION
Since a few years ago, local development management processes have played an increasing relevant role in the pursuit of greater wellbeing and progress levels for society as a whole, as well as for the local communities. Moreover, the Guidelines of the Economic and Social Policy, laid out by the communist party and the Cuban revolution, validated by the Sixth Party Congress, grant higher protagonism to local communities.

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As part of the optimization, there is the need for better planning that includes mid-term definition of the elements that make up the system of economy plans.

Such is the case of a new methodology for the Integrated Development Program of the municipalities, a significant step toward optimizing local planning.

At the same time, there is a need to optimize diagnostic methodologies that include local physical planning.

Analysis of the local development factors prevailing in the municipality will contribute to the implementation of a set of local strategic goals that will be followed up along the planning line (De Dios, A. and González, O., 2015).

It is important to gather all the elements that promote proper local development management under the national conditions, considering that it is "... seen as a localized process of sustainable social and economic change". In addition to government leadership, it integrates to resources, and coordinates its potential for development, in order to foster local development, and make possible human wellbeing in concert with the environment (González, R. 2007).

The previous demands proper planning of the relationships that must take place in time, among the different sectors of the economy. Diagnostic must help determine the strategic factors that will define the local goals in each annual period (Almaguer, D. 2014).

Obviously, diagnostic is insufficient to tackle all the local sector interests due to two main issues: firstly, limitation of its participatory character, and the lack of coverage of the wide variety of problems that affect communities; secondly, the diagnostic is linked to a shortsighted strategic approach, as it does not consider the external environment in all its dimensions, but tackles the elements of physical and spatial location.

Accordingly, the aim of this study was to design a new diagnostic procedure of inter-sector relationships, and coordination of development strategies and key economic sectors, to provide variable-factor interdependence of the converging strategies.

MATERIALS AND METHODS

Theoretical and empirical methods were used in this research, including result analysis by the MIC MAC prospective method. The theoretical methods used were, analysis-synthesis; historical-logical: chronological study of the object of investigation, evolution and development; dialectic method: precision on the character of contradictions within intersector relationships and the systemic method: conception of the character of interactions of dynamic relationships among its components. The empirical methods used were, interviews, surveys, observation, and documentary, review, which contributed to characterization of the current situation.

RESULTS AND DISCUSSION

The study was conducted in the municipality of Nuevitas, province of Camaguey, 3 km from Punta del Guincho, in the northeast of the province, covering a total area of 1 372.32 km², with a mainland area comprising 1 119.16 Km², and 253.16 Km² of adjacent keys.

The location shares borders with the Great Bahamas Bank to the north; the municipality of Guaimaro to the south; the municipality of Manati, province of Tunas, to the east; and the municipality of Minas to the west.

Today, Nuevitas is an industrial, agricultural, and touristic region, one of the few cities in Cuba with that relevance. The average population is 61 862 inhabitants, with a density of 45.1 inhabitant/km2. It has 1 012 men per 1 000 women, with an average age of 32.8 years old; aging is 18%, and the average age is 32.8 years. The urban areas comprise 77.1% (ONEI, 2015).

Labor force	**%**
Machinists	35.6
Technicians	52.5
Management	1.9
Service employees	25.1
Executives	4.6

General migration

Internal			**External**		
Immigrants	**Emigrants**	**Balance**	**Immigrants**	**Emigrants**	**Balance**
442	511	(-69)	466	515	(-49)

El movimiento migratorio interno y externo se comporta como sigue a continuación:

Interno			Externo		
Inmigrantes	Emigrantes	Saldo	Inmigrantes	Emigrantes	Saldo
442	511	(-69)	466	515	(-49)

Cultural development

Musical bands……3
Cultural Clubs.....1
Amateur artists……90
Public library……1
Museum……1
Computers Club 5

Results of diagnostic: (situational, participatory, organizational, and strategic)

Situational diagnostic: (technical and service infrastructures, environmental situation, and settlements)

Economy

The main sectors of the economy in the municipality are, industry, tourism, and agriculture, with a new dynamics after the incorporation the Camalote and San Miguel regions, in 1976. The municipality´s production infrastructure comprises each economic sector.
They account for 66.5% of the gross added value, and 84% of commercial production.

Global indicators (economic activity)		Component	U	(2014)
Commercial production	MM Pesos	499.8		
Salary	MMP	96.9		
Mean salary	Pesos	544.00		
Productivity	Pesos	81 827.00		
Active work force	M	38 580		
Average of workers	U	14 856		

Agriculture: Commercial production

2012	2013	2014
11 460.3	16468.1	12904.8

Source: (ONEI 2015).

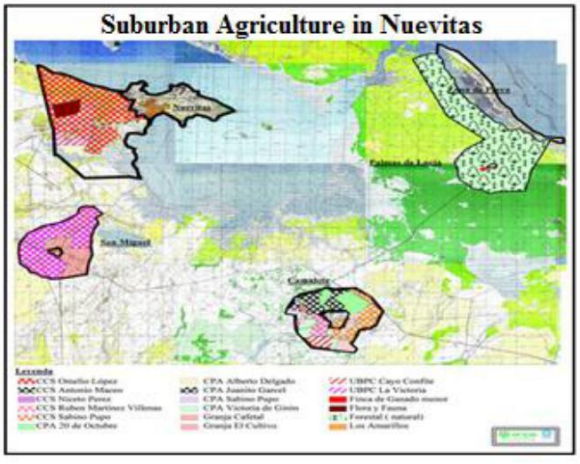
Agriculture

The Ministry of Agriculture as well as the following organizations, Wildlife, Crop Collection, Cold Storage, Santa Isabel Integrated Swine Farms, Agricultural Company, and Apiculture Company have offices in the municipality.

The Agricultural Company of Nuevitas has 16 units in the Farming sector (8 CPAs and 8 CCSs, 3 various crop UEBs, 1 livestock UEB, 1 commercial UEB, 1 technical UEB, and 2 various crop and 1 forestry UBPCs.

Land use for agriculture

The municipality has a total area of 13 7232 ha, with 91981.46 ha in the mainland for different purposes. The agricultural area is 57 580 ha, whereas other lands comprise 79 652 ha, and idle lands take up 28 886 ha (ONEI, 2015).



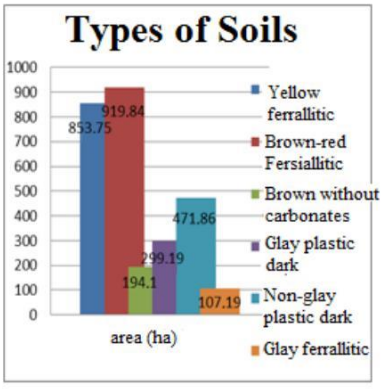


Figure 1. Organization and soil type distribution **Source: ONEI 2013.**

Knowledge of soil types and their limitations, their potential production can be determined: the most suitable soils for suburban agriculture in the municipality are groups 1 and 2. The development program set for 2030 relies on 4 712.51 ha of cropland.

Industry

The industrial cluster is oriented to the chemical, metallurgical, mechanical, electrical, and construction material industries. Also included are harbor activities and small-scale food processing industries.

Leisure and tourism

Today, the Santa Lucia area counts on 1 027 hotel rooms in four resorts, property of Cubanacan Company.

Also included is the provincial main offices of the Ministry of Tourism, and the Islazul hotel chain. Islazul manages hotel Costa Blanca Tararaco and the Santa Lucia Caonaba complex. Cubanacan manages hotels Gran Club Santa Lucia, Club Amigo Mayanabo, Brisas Santa Lucia and Club Caracol.

Environment

Nuevitas is one of the most complex territories in the province, due to the type of economy, considering it has broad and diverse coastal areas, including the bay of Nuevitas. Pollution in the bay is linked to the surrounding industrial activity with poor residual and water treatment, and a growing residential area. In Sabinal Key, the main environmental issues have to do with fragmentation of the habitat, a causeway, and faulty structures that block marine streams, affect lagoons, the coastline, and fresh water systems, with an increase in salinity and temperature. The main impacts observed in Santa Lucia are characterized by:

1-Deforestation of extensive areas that lead to a change and deterioration of wildlife.

2-Total deforestation of the original coastal sand dune vegetation. The original vegetation has been replaced by herbaceous invading vegetation, with predominance of *Cenchrus echinatus* (spiny sandbur).

Hydrocarbon contamination on coastal areas and beaches is produced by ships sailing through the Great Bahamas Bank, which cause the greatest impacts in the swimming and sunbathing areas.

Moreover, the effects of climate change, like droughts, hurricanes, flooding, erosion, etc., and little conditions to assimilate the impact, like irrigation systems can be included as well.

Participatory diagnostic

A diagnostic test to evaluate the participatory character in the community was carried out; the results revealed a number of issues with municipal signification. Below are the main problems,

Inadequate food supply.

Lack of autarchic projects in construction materials.

Deterioration of homes and government buildings.

Organizational diagnostic

The results of the participatory diagnostic will be included in the stock of municipal projects of local development.

1-Small-scale industries for crop processing.
2-An ice factory for the fishing business.
3-A beef processing facility
4-A flower plant nursery for the tourism industry

Strategic municipal diagnostic SWOT analysis

The qualitative analysis was made after the main prospects and restrictions were identified, SWOT analysis of the local strategic system provided more knowledge of the relevant aspects of the interaction among strategic factors.

Table No.1 SWOT analysis

Strengths	Weaknesses
1.- There are suitable areas (Ballenatos, Santa Lucia, and Sabinal) to develop different kinds of tourism.	1.- Deterioration and inexistence of residential infrastructure for social and economic development.
2.- Basic technical and service infrastructure that can be further developed to support tourism and agriculture.	2.- Lack of critical resources (labor force), for new investments, deficient water pumping capacity, and absence of proper renewable energy sources (only 14%). menos del 14%.
3.- Concerted action of the government and the party.	3.- Decreased crop and livestock production, below expectations.
4.- Idle lands for lease, and proper use of the cooperative system.	4.-Environmental pollution generated by the industry with inefficient residual treatment, and inadequate sewage systems.
5.- Industry infrastructure for diversification and development of local production chains and maritime transport.	5.-Environmental vulnerability caused by the ammonia reservoirs, and CUPET (Cuba Petroleum) plant.
6.- Abundance of natural resources that can be used to develop the industry of construction materials.	6.- Inadequate residual water treatment, with ensuing pollution of water basins that flow into the bay; absence of containment grids.

Oportunities	Threats
1.- Government priority to develop tourism as a strategy for social and economic development.	1.- Lack of funds motivated by the economic situation in Cuba.
2.- Financial resources that can be captured from direct foreign investment.	2.-Population aging.
3.- Financial resources that can be captured from bilateral agreements with the BRICS.	3.- Negative migrating balance that reduces work force.
4.- Guidelines to update the Cuban economic model.	4.- Effects of the US blockade on Cuba.
5.- Financial flow granted to initiatives of local municipal development.	5.- Effects of climate change, droughts, and occurrence of natural disasters.
6.- Access to the national system of science and innovation to stimulate development.	6.- Risks of technological accidents.

Source: Coordinating Group and Municipal Advisory Council, of IDP Nuevitas.

Method to optimize the situational municipal diagnostic, and describe intersector relationships.

A procedure to optimize situational analysis in the diagnostic, and to include the analysis of horizontal relationships among the local sectors, is established. It ensures the link to the municipal development strategy. It provides managements with a method to set up converging pathways between the municipal and sector development strategies, to make a more integrated development program.

The new method comprises the following aspects,

Analysis of the model of development, and detailed analysis of the municipal strategic diagnostic, its possibilities and restrictions.

Classification of the 146 municipal organizations according to different sectors of the economy.

Behavior of the economic analysis indicators to set up intersector relations (commercial production, VAB, and material consumption).

A summary of the method to diagnose intersector relationships

Phase 1: Selection of the most significant municipal organizations.

Results: According to the analysis of economic indicators (Commercial production, VAB, and material consumption).

a)-Total organizations ……..146

b)-Chosen……. ……..48

Phase 2: Selection of the pivotal sector for long-term development in the municipality. (Observation of selection analysis at the end of method application)

Results: the pivotal sector for long-term development in the municipality. Based on the local scenario (2015-2020), and the method for strategic prospective.

Phase 3: Relationships between the most significant local organizations with the pivotal sector.

Objectives: To identify the most relevant organizations and character within the pivotal sector, as well as their plans.

Results: The most relevant organizations and their character in relation to the pivotal sector.

Phase 4: plan integration of major tourist organizations engaged in development.

Objective: To evaluate the interrelations of different management plans of agents implied in tourist development.

Results: Interrelation of management plans based on surveyed information. (Scoring).

Phase 5: Influential relations among the most relevant organizations.

Objectives: To determine the influential or threatening relationships among the agents involved.

Results: the ones posing the greatest threats depending on their resources, based on tourism results in Santa Lucia.

Phase 6: Cooperation relationships among the agents involved.

Objective: To evaluate cooperation among the agents involved.

Results: Cooperation relationships among the agents involved. The most serious problems were based on their capacity to cooperate.

ANALYSIS BASED ON MUNICIPAL SCENARIOS IN NUEVITAS (2014-2015). (Cárdenas, M. 2015).

Phase 2 Selection of the pivotal sector for local long-term development.

a)-Selection of change factors. Highlighted in results of the strategic diagnostic.

Table 2 Change factors

Change factors	Symbol	Internal	External
Internal variables (weaknesses and strengths)			
Inadequate capacity to mitigate pollution (soil, flora, fauna, water, atmosphere), by industries with inefficient or no residual treatment.	Construction materials		X
Technological risk vulnerability	Vpt		X
Risks of technological accidents.	Rat		X
High potential for different types of touristic development (ballenatos isle, santa lucia beach, and sabinal key).	Dtdm		X
Potential to develop solid infrastructure for tourism and agriculture.	Itpdta		X
Idle lands for lease, and proper use of the traditional cooperative system.	Todc		X
Industry infrastructure for diversification and development of local production chains and maritime transport.	Iipdcptm		X
Abundance of natural resources that can be used to develop the industry of construction materials.	Rnpdmc		X
Population aging.	Ep		X
External variables (opportunities and threats)			
Government priority to develop tourism as a strategy for social and economic development.	Pdt		X
Financial resources that can be captured from direct foreign investment.	Rfied		X
Guidelines to update the cuban economic model.	Amec		X
Financial flow granted to initiatives of local municipal development.	Fimdl		X
Restoring of full relations between the u.s. and cuba.	Rrceu		X
Effects of the us blockade on cuba.	Ebeu		X
Effects of climate change, droughts, and occurrence of natural disasters.	Ecc		X

b) Determination of change factors interrelations within the local system chosen, based on the applicati on of the MIC MAC method.

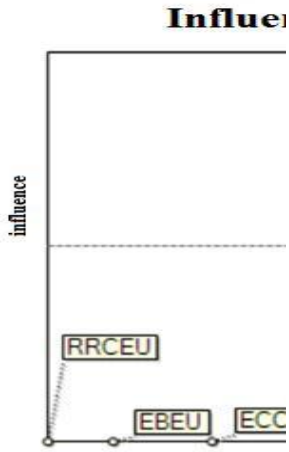


Figure 3: Drive/dependency plane Source: Local scenarios 2015-2020.

The previous refers to the strongest drive and dependent factors chosen, placed in the second quadrant.

C)-Derived from the relationship of full-drive factors.

The results of actor analysis revealed that 90% of them coincided that,

-Tourism is the most dynamic and influential sector of all.

Intersector relationships within the development strategy of Nuevitas.

The diagnostic showed a deficit of most resources that can be used for the development, which should be evaluated.

Analysis based on the Investment Plan for the northern keys.

Works in the northern keys. Community services includes the creation of Romano Key and Sabinal Key landfills. The food processing industry requires technological update. Community services

Program to create infrastructure in Santa Lucia, and to repair roads. Repairs were also evaluated in educational and health centers.

Analysis was made to different companies with deficiencies in the main indicators. The needs for production by 2020 were dealt with as well.

The character and relevance of relations among sectors (organizations) engaged in tourism development were shown. Accordingly, the entities with the highest relevance and character were MINTUR, MINAGRI, Water Resources, Electric Company, PESCACAM, Construction, Services, and Transportation. The interrelation among the organizations was a key element to meet the requirements of the local development plans.

The organizations´ management plans were characterized to determine integration of plans in tourist organizations and companies. On top of that, the influential relationships of the actors involved were critical to determine the threat potential of companies over the organizations, based on their resources, particularly, MINAGRI, fishing, construction, and services.

Cooperation relationships among the agents involved was added. As a result, the organizations with the most negative impacts coincided with the others previously mentioned.

Table 3 (summary of survey results). Cooperation relationships among the agents involved

Agentes	1	2	3	4	5	6	7	8	9	10	11	total
MAIN OFFICE MINTUR (1)		5	4	5	5	5	4	4	3	2	5	4
TRANSMETRO (2)	5		4	4	4	4	3	3	2	2	5	4
CITMA (3)	5	4		4	4	4	4	3	4	4	5	4
DP H.R (4)	5	4	4		5	5	4	4	4	4	5	4
OBE (5)	5	2	5	5		5	5	3	2	5	5	4
ETECSA (6)	5	3	5	5	5		5	5	5	4	5	5
COMMUNITY SERVICES (7)	4	1	4	3	4	5		5	1	4	5	3
MINAGRI (8)	4	2	4	4	5	4	4		1	2	5	3
FISHING (9)	3	2	4	4	5	5	1	1		1	5	3
CONSTRUCTION(10)	2	2	3	4	5	5	4	2	1		5	3
MUNICIPALGOV (11)	5	5	5	5	5	5	5	5	5	5		5

Note: Agree or disagree with the assertion that this agent involved, in row i, has the capacity to COOPERATE with the agent involved in column j Scale: 5- very strong agreement; 4- strong; 3- mid; 2-little; 1- none.

Summary of main difficulties found in the analysis of relationships between several municipal organizations.

1. Soil preservation programs (MINAGRI)
2. Program for organic fertilizer use (MINAGRI)
3. 3. Application of the technological innovation system
4. Development studies
5. PESCACAM. Agreements with tourism organizations must be inserted according to their needs.

Analysis of underlying actors (sectors and companies), according to analysis of local scenarios (2015-2020).

Table 4 Relationship among the key factors and underlying actors.

No	Change factors with full drive	Underlying actors
1	Potential to develop solid infrastructure to tourism and agriculture.	support Tourism and hospitality
2	High potential for different types of touristic development (Ballenatos isle, Santa Lucia Beach , and Sabinal Key).	Tourism and hospitality
3	Idle lands for lease, and proper use of the cooperative system.	Agricultural Company of Nuevitas
4	Government priority to develop tourism as a strategy for social and economic development.	Tourism and hospitality
5	Abundance of natural resources that can be used to develop the industry of construction materials.	1.Wire factory 2. Cement work

6	Existing industry infrastructure for diversification and development of local production chains and maritime transport.	1.Nuevitas harbor 2.Transportation unit, 3.Agricultural Company of Nuevitas, 4.Fertilizer Company

Most dynamic actors in the mid-term

1. Tourism and hospitality.
2. Agricultural Company of Nuevitas.
3. Nuevitas harbor.
4. ECOI 8. Construction

The priority given to tourism and hospitality on the keys north of Nuevitas was maintained during the whole period, which was combined with progressive materialization of foreign investment to guarantee the construction of more hotel rooms, as well as infrastructure investment (roads, connectivity, electricity, drinking water supply), cruises, agriculture, and industrial diversification.

All the previous allows for a progressive rise in the number of hotel rooms in Santa Lucia and Sabinal key, until 2020, when the new hotels are completed. A cruise line will link the bay of Nuevitas to Santa Lucia Beach, and urban tourism will be fostered.

The previous analysis contributed to identification of the most influential variables, the five strategic lines of municipal development, namely, 1) development of tourism and hospitality; 2) development of agriculture; 3) industrial diversification; 4) harbor development; and 5) development of productive and service infrastructure to ensure tourism, and agricultural development. Moreover, it will bring about solution to environmental, social and community problems.

CONCLUSIONS

A method was designed to optimize the Situational Strategic Diagnostic and the intersector relationships, particularly the status of intersector relationships in the municipal development model, and its influence on managing the development plans. Overall, it favors the convergence among sector development strategies and the local development strategy. This process complements the development strategy of the municipality and its management system, in a remarkable way.

REFERENCES

Almaguer, D. (2014). *Instrumentos de análisis del potencial de desarrollo local para perfeccionar el Diagnóstico Estratégico Municipal.* Disertación doctoral no publicada, Universidad de Camagüey, Camagüey, Cuba.

Cárdenas, M. (2015). *Escenarios del Municipio Nuevitas período 2015-2020.* Tesis de maestría no publicada, Universidad de Camagüey, Camagüey, Cuba.

De Dios, A. y González, O. (2015). *Propuesta instrumental para medir la correspondencia entre los objetivo estratégicos del territorio y el potencial de desarrollo municipal.* Disertación no publicada, Universidad de Camagüey, Cuba.

García, D. y Salazar, M.I. (2014). *Programa de desarrollo integral de Nuevitas*. Camagüey, Cuba.

González, R. (2007). El desarrollo local en Cuba con un enfoque integrador. *Revista Retos de la Dirección.* 1(1), 45-62.

González, R. (2015). La implementación de la estrategia de desarrollo municipal, eje articulador del sistema de gestión de desarrollo local. *Revista Retos de la Dirección, 9* (1), 16-33.

Guía para la Elaboración de la estrategia de desarrollo local de un Municipio. (2013). Camagüey, Cuba: Universidad de Camagüey: CEDET.

ONEI (2015). *Anuario Estadístico Municipal 2014*. La Habana: Author.

Partido Comunista de Cuba. (2016). *Actualización de los Lineamientos para la política económica y social del Partido y la Revolución. VI Congreso del Partido.* La Habana: Author.