

The Methodology Of The Logical Framework Key Tool In The Identification Of Agricultural Projects. Caducifolio Case Study In Colombia

Gloria Acened Puentes Montañez¹, Ana Milena Serrano Amado², Daniel Fernando Prieto Puentes³

¹ *Administradora Agrícola, Esp Proyectos de Desarrollo, Magister en Ciencias agrarias, docente asociada e Investigadora grupo CERES. Universidad pedagógica y tecnológica de Colombia, glorispuentes@hotmail.com*

² *Doctora en Administración UAQ. Docente Investigadora. Escuela de Administración de Empresas Agropecuarias. Universidad Pedagógica y Tecnológica de Colombia. ana.serrano@uptc.edu.co. orcid.org/0000-0003-0579-5722*

³ *Especialista en Gestión Estratégica de Proyectos, Servicio Nacional de Aprendizaje SENA, Boyacá Colombia.dfprieto@misena.edu.co. Orcid: <https://orcid.org/0000-0002-8661-8973>*

Abstract

The subject of Logical Framework Methodology, is treated since 1956, with great development during the period from 2004 to 2016 and with a boom specifically in 2010, according to the scopus database, however, this methodology has been applied to areas such as social sciences, engineering and mathematics, with low application to the agricultural area. This is how this research is presented, which took steps such as: Document review. Structure of questions, field visits, records of notes and interviews with project formulators, to compile authors who have worked on the subject in the last 10 years, with important contributions; define the administrative tools in each step and relate important aspects when working this methodology in the formulation of projects in countries such as Colombia and Mexico with calls for the agricultural sector.

Keywords: planning, involved, problem.

Introduction

Global organizations such as the Organization for Economic Cooperation and Development (OECD), the World Bank (WB), the Inter-American Development Bank (IDB), the International Monetary Fund (IMF), the Latin American and Caribbean Institute for Economic and Social Planning (ILPES), among others, have promoted worldwide the use of the Logical Framework Methodology as the main planning instrument. through which economic and

financial resources can be accessed to carry out plans, programs and projects of social development, countries such as Mexico and Colombia, make use of this methodology according to the needs of the population.

In Mexico, the planning of the social and economic development of the country is governed by the Planning Law published in the Official Gazette of the Federation on January 5, 1983. Here the emphasis given to the participation of the population and the different

social groups in the elaboration of the Plans, Programs and Projects is highlighted.

This Law empowers the Ministry of Finance and Public Credit (SHCP) to coordinate research and training activities for planning, to promote the incorporation of indicators that facilitate the diagnosis of the impact of programs, to project and calculate the use of resources for the fulfillment of the objectives and to evaluate and monitor the application of resources.

The Planning Law does not establish the methodology or model that should be used to prepare plans, programs and projects, this is the responsibility of the SHCP, which has determined as a fundamental part of the administrative procedures of national planning the Logical Framework Methodology. The planning, programming and budgeting process established by the SHCP, is based on Management for Results as a new form of institutional organization, also applies the Results-Based Budgeting which is a process based on objective considerations about the expected and achieved results for the allocation of resources.

As can be seen the Logical Framework Methodology is only one of the parts of the entire planning, programming and budget process established in the National Planning System, in turn, this Methodology is the basis of the following stages or processes: analysis of the participants; analysis of the problem; definition of objectives; choice of alternative; definition of the analytical structure of the budget and preparation of the Matrix of Indicators for Results (MIR).

The Planning Law of Colombia, Law 152 of 1994, establishes the principles under which all national development planning actions must be oriented, as well as those related to public spending and financing, which are required for the implementation of plans, programs and projects. These principles include: autonomy between territorial entities; organisation of competences; coordination; priority of public

spending and environmental sustainability, among others.

In Colombia, the Adjusted General Methodology includes the use of the MML in the pre-investment stage, in the process of identifying the project and defining the alternative solution. It is noteworthy that the analysis of the participants as part of the methodology is applied once the project to be developed has been defined.

A peculiarity of the General Adjusted methodology is that the National Planning Department has a bank of projects that can be accessed through the computer system and adjust a project already prepared to the current needs of a certain community or population.

The methodology applied is qualitative, developed in two phases, initiating a documentary analysis of the different studies that implements the logical framework methodology, later with this information a development case study is implemented for deciduous producers in the municipality of tuta department of Boyacá, applying the Logical Framework Methodology, as well as what administrative instruments are used and who leads the process of the analysis of the participants and selection of the project, it is interesting to know each and every one of the instruments and procedures that are applied to categorize, group or prioritize the importance of the intervention of each of the participants in the formulation, elaboration, monitoring and evaluation of the project to be developed.

Theoretical foundation

Logical Framework Methodology. As stated (Ortegón, 2005), it is used to identify problems and needs in a sector of society, facilitates the selection and prioritization of problems and then select projects; With this tool, development projects can be planned in an effective way that facilitates the monitoring and evaluation of programs.

It is also an analytical tool for project and program management, used to define, distinguish, relate and structure, precisely, the main elements of an intervention (project or program), underlining the logical links between the expected inputs, the planned activities, the expected results, the objectives that are proposed and other elements of the intervention. By studying, analyzing and applying the Logical Framework Methodology, the study aims to deepen its use, bring together the different theories and develop a useful and dynamic proposal for the development of projects in the agricultural sector, in such a way that facilitates the identification of solutions that contribute to the revitalization of the sector.

When the United Nations (UN) and the World Bank were formed, the need arose to support developing countries through economic and technical resources so that they could carry out initiatives to improve the economic and social conditions of their inhabitants. This will require an instrument that facilitates the detection of priority social needs and that guarantees the effectiveness of the destination of resources, that is, to monitor and control compliance with the objectives and goals around social benefit. In the late 1979s and early 1980s the Logical Framework Methodology was conceived by Leon Rosenberg and Lawrence Posner, quoted by La Gra (1993), the U.S. Agency for International Development USAID, this began to be formally used in the planning of their projects, according to (Aldunate & Córdoba, 2011) taking great boom due to its easy handling in terms of elaboration, evaluation and execution of projects.

Since the logical framework began to be known by many entities and authors, studies, reviews and contributions have been made in the structure of the MML, where they add something new or focus on some aspects, seeking to identify and explain more clearly the problems, objectives, people involved, activities or even the cost of the projects that can benefit and facilitate their

application in the different sectors. The MML consists of the analysis of stakeholders, problems, objectives, alternative, and design of the matrix of the logical framework, under this system many authors have made their respective contributions and approaches.

Among these authors is (De la Fuente Olguin, 2010) who points out that it is a tool that reduces ambiguities and improves communication by giving a precise contribution on the objectives, indicators, goals and risk, but at the same time indicates that it is necessary that the objectives are updated since these over time and external circumstances are losing validity and new ones arise, One of the characteristics in the methodology used by this author is to establish and identify those involved in both the problems, objectives and alternative solution of the project problem.

While for the Latin American and Caribbean Institute for Economic and Social Planning (ILPES) Area of projects and investment programming (2005), they focus on identifying and clearly describing the MML, in which it gives importance to the means of verification indicating the method of collection and analysis, the frequency and the person responsible for said activity or component, It also proposes a thorough analysis of the assumptions indicating whether the risk factor is financial, political, social, environmental or legal.

The (Regional Autonomous Corporation of Cauca, 2007) establishes that the MML not only goes to the matrix scheme, but that apart from these tools the global operational plan is established, which consists of establishing the resources, the budget, the schedule of project activities, monitoring and evaluation, where the follow-up of the indicators and activities that were established in the matrix of the logical framework and their respective evaluation is established.

For many authors the analysis of those involved is the first thing that is done in the logical

framework methodology but for (Castro, 2009) the analysis of those involved is carried out after having analyzed the problems and objectives, since for this author having identified the problem and the objective that the project intends can be identified more clearly who are the direct and indirect beneficiaries of the project.

Apart from this clear difference in the methodology it handles (Castro, 2009), it refers to the fact that the selection of alternatives must be made through the comparison of socioeconomic characteristics (includes the level of expected benefits), environmental, technical (which may include the cost of implementing the alternative) and institutional (capacity development or organizational improvement). It also includes making a monitoring matrix in which it includes the term and the percentage that must be achieved for each activity in that certain period. According to (Galán, 2003) the use of MML does not consist of supplementing a project form. This task must be the final result of an identification and design process in which, with the help of the actors involved, the elements that will make up the intervention are defined.

Agricultural projects

In the agricultural sector, different types of projects are presented, such as: investment, social projects, innovation, technological development, research and production; used as a tool that allows to induce a change in production processes and systems from the initiatives of the actors that interact in a specific territory or sector. Usually in the field of social management, the concepts of projects, plans, programs and even public policies are handled indistinctly, which is a conceptual error that can cause inconsistencies in the analysis and intervention on the local reality (Herrera, 2015).

It is important to note that socio-environmental and agricultural systems are characterized with a high degree of complexity, hence the decision processes are difficult and lead

to great concern, (De Luca, 2015), in the formulation of projects for these areas, maintains this premise, hence it is required to work on structures that relate the differences of the agricultural sector, to facilitate the calls made by public entities, the results of the same and therefore the positive impact on the economic development of the regions.

The allocation of resources for communities is born from public policies that involve socio-political and technical processes that are decision-making on issues of public interest in which the government and citizens concur to derive plans, programs and projects (Herrera, 2015). To make a decision on a project it is necessary to submit it to the multidisciplinary analysis of different specialists. Such a decision cannot be made by a single person with a narrow focus, or be analyzed only from one point of view. A decision must always be based on the analysis of countless antecedents with the application of a logical methodology that encompasses the consideration of all the factors that participate and affect the project (Baca, 2013)

When developing work in the aspect of development planning, public institutions coordinate activities between the different levels of government, where when this purpose is not fulfilled, problems arise from the management of projects, starting from the definition of the same to reach the results and impacts in the execution.

For (Sakyi, 2018) the investigations regarding failures or failures in the projects, have focused on construction projects; are rare and almost null the works advanced in other sectors; as for the reviewed study, 4 important topics were found that led to the failures in the projects: leadership, management practices, resources and external forces, It is essential to use these findings as a guide during the implementation of government projects in order to reduce and/or avoid failure of government projects, give originality/value to those that prevail.

Causes of failure in agricultural projects

Public projects in Colombia are not approved due to planning problems or lack of financing, there are other reasons that lead the entities in charge of allocating resources not to give the endorsement to the project, among which are:

The Ministry of Agriculture of Colombia mentions that agricultural projects fail for the following reasons: **The lack of financial education** for small producers, **inadequate identification of the problem** or problems not felt by the beneficiaries, that is to say that the problems that the project aims to solve are not the real problems for its beneficiaries, the level of 'commitment' to the project will be very low and the chances of success of its activities very limited, it is important to highlight here the figure of "false community leaders" people who serve their own interests and in function of achieving control over the community, which leads to choosing certain alternatives that do not meet the real or felt needs of it.

Another aspect according to (Tapella, 2007) is that of **too ambitious objectives**. Many times in the eagerness to want to solve 'all' the problems of the poor inhabitants, projects are generated with very ambitious objectives, or, in other words, objectives that are very difficult to achieve with the available resources, the lack of coordination of the formulation team and agency, clearly results in execution problems, in all work teams there is a **lack of** understanding and correct articulation between the different actors involved. Directly with the project, this leads to losses of time and resources that over time serve only to wear down the project and its beneficiaries, leading them most of the time to failure. **Bureaucratic disbursement mechanisms**. They threaten the achievement of the objectives, not only because of the level of uncertainty of their beneficiaries, but also because the problems are subject to processes of change, in this sense, it usually happens that when the financing 'arrives'

the problem is no longer the same for which the resources were requested.

In addition to the above reasons, there is the **weakness of the executing agency**. This is common in projects supported by state institutions, which are subject to changes in political leadership (changes of governments and officials). Constantly a sector, area or institution that was a priority in one period of government, ceases to be so for the next; In this sense, it loses the support and legitimacy of the authorities, which ends in an abandonment of the projects they were executing.

Many projects also fail because of the **famous 'political clientelism'**, of which there are many experiences, this is clearly observed when the rulers want to 'benefit' only certain sectors and neglect others, this is how they oversize the objectives of the interested sector and distort others.

As for the **problems of formulation**, in Colombia in the last ten years most of the resources of social policy are delivered through projects, it is important that the group of professionals and intermediate technicians have training and experience to operate under the logic of project-centered management.

Methodology

As a methodology, a qualitative methodology is implemented, being the one that "studies reality in its natural context and how it happens, taking out and interpreting phenomena according to the people involved" (Guelmes and Nieto, 2015, p.24). It uses a variety of instruments to collect information such as interviews, images, observations, life stories, in which routines and problematic situations are described, as well as the meanings in the lives of the participants.

This methodology is developed in two phases; initiating a documentary analysis of 30 studies in the last ten years, related to the development of agricultural projects implementing the methodology of Logical Framework which is

analyzed through comparative and knowledge tables being reflected in the results of the document, this information in order to identify the most relevant studies according to the research that was developed, subsequently it is applied as a case study specifically for the deciduous producers of the municipality of Tuta.

Participants: Researchers of the CERES research group, research seedbeds, project advisors and producers.

Materials and instruments: When carrying out a documentary analysis, the bibliographic records were elaborated, in tables in Excel the results of authors, documents and contributions to the Logical Framework were tabulated, a structured survey was elaborated for the experts.

Procedure For the development of this methodology, a series of information collection and analysis techniques were established to achieve each of the proposed objectives, which are proposed as follows:

Search and analysis of documents: To know what has been investigated in relation to the Logical Framework Methodology, the primary sources that were the results of the analysis with experts that record or corroborate the immediate knowledge of the research (Quesada, 2010) and the secondary sources consisted of compilations, summaries, lists of published references, as shown in Table 1

Table 1. Primary and secondary sources

| Primary sources | Secondary sources |
|---|---|
| Expert work. Results of surveys, on the operation of the MML. | Manuals, Encyclopedias, Primers, Articles, Books Monographs. Official documents Partnership Reports |

Source: Authors.

At the end of the search and selection of the documents that were used in this work, we proceeded to analyze the contributions of the different authors or entities that have carried out and researched in the MML, by means of a table. **Selection of administrative tools:** S and inquired about the administrative tools used in each of the stages of the MML, in each step important aspects to be taken into account in practice were described and analyzed.

Results

Collection and analysis of documents on The Logical Framework Methodology

In the review of the documents it was decided to classify them according to the authors who handle

the methodology established by Rosenberg and Lawrence (1879), cited by La Gra (1993), identification of involved, problem analysis, objective analysis, analysis of alternatives and logical framework matrix, who based on the established methodology made new and novel analyses, from which it could be deduced that most authors handle the MML in different ways making it useful for the development of projects in the areas they handle.

In each step of the method it was analyzed how each author handles and contributes to the MML. In summary, it can be said that the logical framework is used to design projects and programmes, as well as to check their progress and to check whether the objectives are being achieved. It is particularly useful for planning the

activities, resources and inputs required to achieve the objectives of the project (Universidad Autónoma De Occidente, 2007).

It is a planning tool by objectives that has become the main planning instrument in development cooperation. The remote antecedents of this method are found in the military use of planning by objectives.

It is important to note that it is a living tool, which needs to be constantly updated depending on the evolution of the project. It also helps determine the roles that different participants will play.

(National Infrastructure Agency of Bogotá, 2012).

According to (Ortegón et al., 2015), they refer to the Logical Framework Methodology can be used in the identification and evaluation of activities that fit into the framework of country programs, in the preparation of project design in a systematic and logical manner, in the assessment of project design, in the implementation of approved projects and in Monitoring, review and evaluation of project progress and performance as shown in Table 2.

Table 2. Studies with Logical Framework methodology

| Year | Author | Document Name | Logical Framework methodology concept |
|------|---|---|---|
| 2001 | (Camacho, 2001) | The ML Approach: 10 Case Studies, Notebook for the Identification and Design of Development Projects | This method has become an obligatory reference for planning professionals and an essential requirement for obtaining funding from different donor agencies and agencies. |
| 2002 | (Ferrero & Loma-Osorio, 2002) | Identification and Formulation of Development Cooperation Projects: Project Cycle Management and Logical Framework Approach | The ML Approach can improve the approach of a project. But it is no guarantee of its quality or success. |
| Year | Author | Document Name | Logical Framework methodology concept |
| 2004 | (Latin American and Caribbean Institute for Economic and Social Planning (ILPES), 2004) | Bulletin of the Institute | If the MML has been prepared correctly, you can be sure that no unnecessary activities are being executed, as well as that no activity is missing to complete the project. Likewise, it will be known that the goods and / or services that the project will generate are necessary and sufficient to solve the problem that gave rise to it. |
| 2005 | (Ortegón, 2005) | A Summary of the Theory Underpinning the Logical Framework Method, Logical Framework Method | The method can also be used for project analysis, evaluation, monitoring and evaluation. The use of the method depends on the role of the users and their needs |
| 2007 | (Ortegón, 2007) | Methodology of the logical framework for planning, monitoring and evaluation of projects and programmes | The wide reception that MML has received among planners and administrators in recent years is largely due to its virtues and advantages over other tools with similar purposes. |

| | | | |
|------|---|--|---|
| 2007 | (Autonomous University of the West, 2007) Office of Planning and Institutional Development – Projects Area | Guide to the development of the logical framework | The MML is particularly useful for planning the activities, resources and inputs required to achieve project objectives. |
| 2007 | (Regional Autonomous Corporation of Cauca, 2007) Planning Advisory Office | The methodology of the logical framework of the project | Goal-Oriented Project Planning – ZOPP (Ziel Orientierte Project Planung) is nothing more than an expression of the "Project MML" adopted since 1983 as the official method of project planning in the German Cooperation Agency (Deutsche Gesellschaft fur Technische Zusammenarbeit – GTZ |
| 2007 | (Sanchez, 2007) Prof. Lic. Alejandra Marcela Nardi | The logical framework. Methodology for planning, monitoring and evaluating projects Project Design Under the Logical Framework Approach. (Part 1) | The MML is a tool that solves with it some problems that had been presented in the execution of the projects, since it offers a series of advantages over other less structured approaches The ML can be modified and improved repeatedly both during the preparation and during the execution of the project. |

| Year | Author | Document Name | Logical Framework methodology concept |
|-------------|-----------------|--|--|
| 2007 | (Ortegón, 2007) | Manual of foresight and strategic decision. | The MML can be used in all stages of the project, in the identification and evaluation of activities, in the preparation of the design of the projects in a systematic and logical way, in the evaluation of the design, in the implementation of the approved ones and in the Monitoring, review and evaluation of the progress and performance of these. |
| 2008 | (Sanin, 2008) | Logical Framework for the Formulation of Development Projects | A project is born from a problem that must be solved. The starting point is, therefore, the identification of the problem, considering the affected population and its environment and the search for alternative solutions. |
| 2009 | (Castro, 2009) | Design of investment projects with the logical framework approach | The ML Approach helps clarify the purpose of a project, analyzes its implementation, allows it to be tracked and helps measure its successes. |
| 2009 | (Zurita, 2009) | Project Identification and Formulation A practical guide based on the Logical Framework Approach | The EML clearly defines the responsibilities of the executing entity and other actors involved, delimiting and weighing external risks |

| | | | |
|-------------|---|---|--|
| 2009 | Budget Directorate, Management Control Division | Methodology for the Development of Logical Framework Matrix | The logical framework makes it possible to present in a systematic and logical way the objectives of a programme and its causal relationships. It also serves to evaluate the objectives. |
| 2009 | (Carrasco, 2009) | Logical Framework. Project Formulation Tool | The ML is both an exercise and a method of analysis, as well as being a structuring of the results of this exercise, which allows to present in a systematic and logical way the objectives of a project and its causal relationships, dependence, conditions or requirements. |
| 2009 | (International Tropical Timber Organization (ITTO), 2009) | ITTO Project Development Manual | This rigorous goal-oriented methodology starts with a project idea and continues with an analysis of the actors/beneficiaries, an assessment of needs, and the identification of the key problem along with its causes and effects. |
| Year | Author | Document Name | Logical Framework methodology concept |
| 2010 | (From the Olguin Fountain, 2010) | Toolbox What is the Logical Framework Methodology and What is it for? | The popularity of the logical framework methodology is related to the simplicity and coherence with which its objectives are developed and the way to measure them. |
| 2011 | (Müller, 2011) | Manual for the Presentation of Sustainable Productive Projects | The MML is an analytical and decision-making tool, the principles of which oblige the designer to systematically examine the decisive elements of his proposal. |
| 2011 | (Aldúnate & Cordoba, 2011) | Programme formulation using the logical framework methodology | The MML has three main phases: in the first, the problem to be solved is identified, in the second, the conditions for the problem to be solved are expressed; and in the third, a managerial instrument is built that records the solution strategy, in the form of a matrix of sequential objectives to be achieved. |
| 2011 | (Crespo, 2011) | Guide to the Design of Community Social Projects Under the Logical Framework Approach | The advantage of MML, over other methods, is that it allows to communicate, both the essential information about the idea to be developed and its main characteristics, as well as its identification, determination of causes, consequences and means. |
| 2011 | Gloria Acened Bridges | Formulation and evaluation of agricultural projects (1st edition) | It is a methodological and technical instrument that allows to elaborate in a coherent and articulated way a profile of the central components that make up the proposal of a project and that are located in a matrix of five columns by four rows. |
| 2012 | Presidential Agency for International | Manual for the Formulation of | The main results of this process are summarized in an ML matrix that logically describes the most important aspects of a project/program. |

| | | | |
|-------------|--|---|---|
| | Cooperation of Colombia | International Cooperation Projects | |
| 2012 | National Infrastructure Agenda of Bogotá | Logical framework methodology | The MML is a living tool, that is, it is a tool that needs to be constantly updated depending on the evolution of the project. It also helps determine the roles that different participants will play. |
| | Presidency of the Council of Ministers | Practical Guide to Developing the Logical Framework of a Technology Project | MML is a "thinking aid" and not a substitute for creative analysis, it is an instrument that helps creative analysis. |
| Year | Author | Document Name | Logical Framework methodology concept |
| 2012 | (Arenas, 2012) | Project Design, Development and Evaluation, Framework Methodology Development | The MML is an evolutionary process that starts from the recognition of a problem that affects specific population groups and that through a participatory methodology situations and causal relationships that define the type of intervention to be carried out are analyzed. |
| 2013 | (National Planning Department of the Republic of Colombia, 2013) (Grove, 2007) | Conceptual Support Manual General Methodology for Project Formulation and Evaluation Project formulation and evaluation | Investment projects must have attributes such as: being unique; temporary (limited in time), have a specific geographical scope, have specific activities and defined beneficiaries. The above, depending on the value chain and the MML The logical framework is a methodology of program formulation, widely used in recent years by the various governmental and non-governmental agencies to prepare and evaluate programmes, including social programmes. |
| 2017 | Innpulsa Colombia | Guide for the formulation of projects under the Logical Framework approach | The Logical Framework (ML) methodology can be used throughout the project management cycle, i.e. to identify, prepare, execute, monitor and evaluate projects. Whether ML is used to conceptualize projects. |
| 2017 | (Velásquez et al., 2018) | Development of a multimedia web platform for the elaboration of projects under the logical framework methodology | This tool was originally created to mitigate three common problems in the formulation of a project: planning lacking precision, ambiguity in defining the scope and responsibility of the authors and lack of clarity of what the project would look like if it were successful. (H. R. Perez) |
| 2018 | (Londoño Marín et al., 2018) | Interactive guide for project development | "This work begins by showing statistics that showed the main difficulties that companies in Medellín have when generating innovation and |

| | | | |
|------|--|---|--|
| | | under the Logical Framework Methodology | technological development through projects; Subsequently, some of the templates, tools and methodologies currently used in the formulation of projects were identified and analyzed, and that are available for entrepreneurs to apply for these calls. Next, the methodological phases used to generate the base templates that will be developed on the platform are mentioned; finally, the final results and usability of the tool developed to facilitate and apply the formulation and structuring of projects under the logical framework methodology (MML) are shown"(p.1) |
| 2019 | (Puentes et al., 2019) | Formulation and evaluation of agricultural projects (2nd edition) | |
| | (NGO Platform for Social Action, 2012) | Formulation of Social Projects with Logical Framework | ML is a method with different steps ranging from identification to formulation and its final result should be the development of a project planning matrix |

With this research, it can be affirmed that the MML is in force, in countries such as Colombia and Mexico, it is confirmed by the national calls for entities in the different sectors, the formulation of projects for the National Planning Department (DNP), as well as the formulation of projects in the platform with adjusted General Methodology, MGA; the calls presented by COLCIENCIAS, the calls of Foundations, NGOs and academic entities of Colombia. The same happens in the case of Mexico, every year the various federal agencies summon the various sectors to participate in the calls for the development of projects, because of their programs under the guidelines and methodologies established by the SHCP itself.

According to review of projects by peer evaluators, who were consulted, in the evaluation formats, a specific item is asked about the coherence of the problem, the justification, the objectives, the methodology, the activities and the budget of a project; aspect that summarizes the application of the MML in the process of project identification and formulation; However,

it is noted that there are still projects with serious deficiencies in relation to the logic of the aspects.

Logical Framework Methodology As proposed (Arboleda, 1998) for this research it is considered that the MML summarizes the most important items in the construction of the project, identification of stakeholders, problem analysis, objective analysis, alternative analysis and logical framework matrix. Next, each of the aspects of the MML will be shown with explanation, analysis and illustration in a case study with deciduous producers in the municipality of Duitama, Boyacá. To start the work of identifying the project, a description of the case is made.

CASE: System of production and commercialization of deciduous in the municipality of Duitama, Boyacá.

In Colombia, the harvested area of deciduous fruit trees (peaches-peach, plums, pears and apples) in 2010 corresponded to 5,382 hectares; with percentage participation of 36.3, 32.7, 26.9

and 3.9%, respectively (Álvarez, 2012). The department of Boyacá is the first producer of these fruits, with (67.9%) and the municipalities of Tuta, Cómbita and Sotaquirá are the most outstanding, with a history of 60 years, average area of 3.72 hectares, high slopes 18.29% in 62% of the farms, with a minimum of 0.48 ha of the farm dedicated to this crop, 133 trees/farm, average age of 7.79 years and yield of 27.47 t./ha/year.

Producers of deciduous fruits, increasingly receive less income generated by the sale of fresh fruit since these remain very low since 10 years ago, the high losses of fruits are quantified at 32% of the total harvest; aspect that is exacerbated at certain times of the year by overproduction. On the other hand, it is observed that the quality of the fruit produced does not meet the standards demanded by the market, reducing its sale price and affecting its competitiveness, together with this, production problems persist, among these are mentioned, incidence of diseases, traditional management of crops low productivity of the farms, low added value to the fruits, deficient and research in the sector.

to. Identification of stakeholders: Some authors call it analysis of actors or analysis of participants, which consists of determining which people and entities and groups will be in contact with the project, the contributions they will generate both financially, technically and professionally. It also allows to identify those who will hinder the development of the project (Camacho, 2001), point out that the objective of the participation analysis offers an overview of all the people, groups, organizations, institutions, authorities, etc. that in some way will be affected by the development action of the project. (Tapella) affirms that it is about analyzing the social relations (conflicts, alliances, consensus)

between people and groups that belong to the reality on which it is intended to intervene and each group must be identified with its interests and expectations, determining the existing relationships between the different groups. The (National Infrastructure Agency of Bogotá., 2012) refers that this analysis allows to optimize the social and institutional benefits of the project. By analyzing their interests and expectations, it is possible to take advantage of and enhance the support of those with overlapping or complementary interests to the project and reduce the opposition of those with opposite interests, (Ortegón, 2005) points out that the analysis of those involved allows to optimize the social and institutional benefits of the project and limit the negative impacts, (Müller, 2011) contributes that for the analysis of stakeholders it is important to clarify and identify the following Questions:

How do different groups perceive the causes and effects of the problem?

Which groups would support a particular strategy proposed to overcome a development problem and which groups would oppose it?

How to maximize support and minimize resistance when the project starts to run?

In addition, it considers the power (legal or statutory mandate) that organizations have to support or hinder the solution of the problem, as well as the resources they have to support or hinder or prevent the solution of the problem through the proposed strategy. When conceiving an idea and wanting to develop it, it is important to identify the groups of actors that can intervene, as well as the possible opponents of the project; In this aspect, different tables, network diagrams, matrices are used and each author adapts them according to the objectives pursued. See Table 2.

Table 3. Studies with Logical Framework methodology

| Group of actors | Role of actors | Resources/mandates | Importance (high, medium, low) | Interest in the Project | Attitude rating (cooperation, conflict, indifferent) | influence (I) (Mucha=3, regular= 2 and Poca=1) | force (F) (Mucha=3, regular= 2 and Poca=1) |
|------------------------|--|---|---------------------------------------|--|---|---|---|
| Farmers | First in the production chain generate the good | They supply the market with | Loud | They have an interest in the project, even if they don't understand it | Cooperation | 2 | 2 |
| Group of actors | Role of actors | Resources/mandates | Importance (high, medium, low) | Interest in the Project | Attitude rating (cooperation, conflict, indifferent) | influence (I) (Mucha=3, regular= 2 and Poca=1) | force (F) (Mucha=3, regular= 2 and Poca=1) |
| Intermediaries | They buy from the producers and distribute the fruit | They buy the product from farmers and distribute it through different networks (local markets, supermarkets, etc.). | Loud | They are not interested because they would be harmed | Conflict | -2 | 1 |
| Users | Who buys the products | They are the ones who demand the product, subject to price changes, but without the option of influencing | Casualty | They don't know | Indifferent | 1 | 1 |

| | | | | | | | |
|---------------------|--|---|------|--|-------------|---|---|
| Agricultural Gremio | They join the producers and give incentives for production, they are negotiators before the government and its agricultural policies | They have great interest, but they fail to cover the entire sector or producers. They can generate production or project incentives | Loud | Have interest and resources to support the project | Cooperation | 3 | 3 |
|---------------------|--|---|------|--|-------------|---|---|

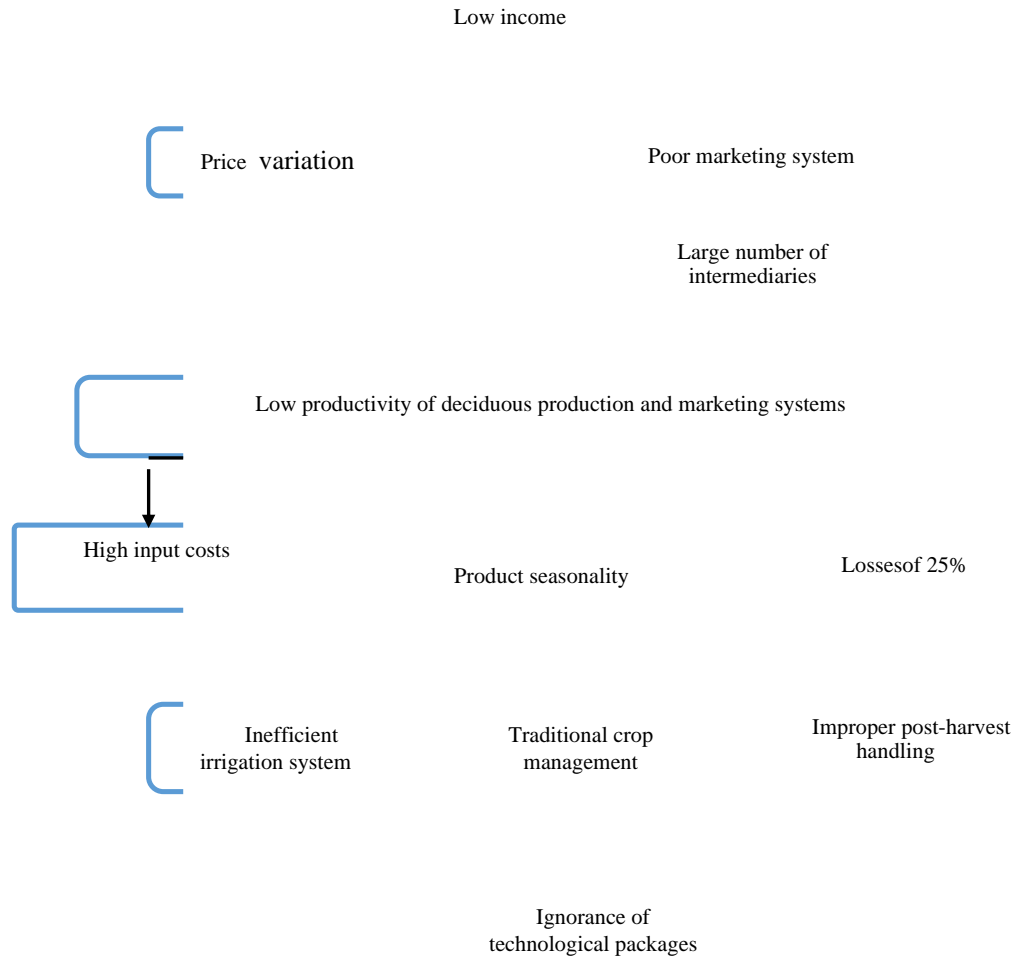
b. Problem analysis: Problem analysis consists of identifying real and solvable problems that affect the community. This analysis seeks to identify the real problems that affect the beneficiary group with which you want to work and not the possible, potential or future problems. Para (Sánchez, 2007) and (Ortegón, 2005) point out that the participation of the people involved in the project is important since the analysis is more valuable.

This analysis is considered to be the most important step in the MML, since the following question is asked: What would happen where the problem was misidentified?, the answer would be, the project is misidentified, and all the steps that follow, time, resources, contributions, credibility, work and everything that this entails would be lost; Hence, the importance of this aspect in project work is highlighted, there are different tools that facilitate the identification of the problem, the causes and the consequences or

effects of the problem; like the problem tree, the Vester matrix, the Ishikawa diagram, the cause relationship effect, the matrix of importance governability (IGO), the weighting and prioritization matrices.

Some designers consider the problem tree to be unique, rigid and irreplaceable; This is not so; (Puentes, 2011) states that this tool is only a guide that facilitates the identification of problems and therefore is subject to adjustments, complements to updates; exercises have been done that to reach a tree of problems that satisfies the majority of participants in the identification of the project, are performed up to 20 times or more, this tool can be complemented, it is only a common thread that presents an outline of the real situation and many times can be complemented with problems that were not taken into account in the meetings with the actors, If it is important to put it for consideration of the interested parties and validate it.

Figure 1. Problem tree representation



It is important to note as shown in Table 4.

Table 4. To increase revenues for the development of the region

| Purpose: To increase revenues for the development of the region | | | | | |
|--|----------------------------------|--|---|-----------------------------------|---|
| Narrative summary | Goals | Indicators | Formula | Sources of verification | Assumptions |
| Purpose Improve the productivity of the fruit system in the region | Production increases by 10% | Increase in production in kg compared to the previous year | $\frac{\text{kgPn}}{\text{ha} \cdot \text{bd}}$ | Surveys Production records | * There is good availability of labor * The products invest in the crops * The land is suitable |
| Component 1. Constant production of deciduous | 5 planned farms | N° planned farms | | Field visits Photo record | * Constant water supply * The cost of water is affordable |
| Activity 1 Improvement in irrigation systems | 5 irrigation systems installed | N° of irrigation system installed | | Interviews with producers | * Producers continue with production schedules |
| Activity 2 Technified crops | 5 production programs elaborated | Programmi ng No. | | | * Acceptability of products in markets |
| Activity 3 Crop scheduling | | | | | |
| Activity 4 Market research | 1 market research | | | | |

Source: Authors.

c) Analysis of objectives: The analysis of the objectives allows to describe the future situation to be reached once the problems have been solved. Sanchez, 2007). Some authors explain that problems are stated as "negative situations" and become "positive conditions for the future" or "states reached".

In practice, some mistakes are made in this step such as: the project team finds it difficult to pass the negative situation to positive and change the sense of the problem or cause, by changing the word; they ignore the wording, they do not take

into account the conformation of a sentence with its parts; Sometimes what is done is to invent a positive phrase that has nothing to do with the condition in negative terms. In short, it is to trace the tree of problems and in the same boxes, change the wording from negative to positive.

d) Analysis of alternatives: Indicates the step to the design of the project, indicating the alternative solutions that can become strategies of a development action (Camacho, 2001).

The contribution that is made to this step with this study is that one way to work it, is to discover several ways to achieve the general objective, there are different routes that allow to develop the project, you can take one, two or more components, attending the contributions and capacities of the actors involved and the real situation, thus 1,2,3,or more alternative solutions come out; in many cases the entire scheme is attended and it should not be forgotten that the MML tool allows you to analyze and define programs and projects, if it is a program, each alternative indicated would give rise to a project.

e) Logical framework matrix: The logical framework matrix, according to (Arboleda, 2007), consists of a horizontal logic (narrative summary, indicators, means of verification and assumptions) and a vertical logic (end, purpose, components and activities), designed in a table of four rows and four columns (4X4).

According to (Aldunate & Córdoba, 2011) they make greater reference to the logical framework matrix, where they point out that:

The MML is not only a way of presenting information, but also contributes to ensuring a good conceptualization and design of investment initiatives. If the MML has been prepared correctly, you will be assured that no unnecessary activities are being carried out, as well as that no activity is missing to complete the delivery of the goods and services of the program. Likewise, it will be known that the goods and / or services generated by the program are necessary and sufficient to solve the problem that gave rise to [...]

They also refer to the analysis of objectives, analysis of problems, analysis of alternatives in a general way where it states that "The Logical Framework includes what is proposed by the Behavioral School "set results and let act" and

combines it with another contribution of the systemic vision: the analytical breakdown of objectives.", where they point out that the analytical breakdown of objectives comes from the cause-effect relationship, which is located in the problem tree.

For these authors the tree of problems is the one that deals extensively with the Logical Framework Methodology, since through this tool it is possible to break down analytically the causes by which the problems are formed and the effects that they cause, it allows to identify the solutions and alternatives for the elaboration of the project.

All these aspects that contemplate the logical framework, (Aldunate & Córdoba, 2011), points it out as the conceptual theoretical foundations, since it not only allows to identify the objectives and the alternatives to solve the problems, but they are the bases that justify the strategies and activities that are reflected in the logical framework matrix.

Conclusions

The Logical Framework Methodology will undoubtedly continue to be the main instrument of many international organizations that affect social development, as well as many countries that base their planning processes on this way of solving the problems of the growth of their communities, for the cases of Mexico and Colombia, the Logical Framework Methodology is a current instrument and present throughout the planning process, at the levels of plan, programs and projects, which is increasingly enriched by the addition of new instruments that make the planning process more efficient.

The problems of identifying the participants and defining the problem are undoubtedly the basis of the entire planning process, if the participants are not considered in their entirety, if the position they take in relation to the problem to be solved or in the definition of the same project are not

adequate, then the resource and time dedicated to the project will be lost.

At each stage of the planning process, trained personnel are required to guide and lead the project or program until its completion, in particular, it is required that the initial stages analysis of the participants and determination of the project, be developed by specialized personnel with experience who handle and know the instruments that must be worked, This reduces the uncertainty of the success of the project or program to be implemented.

The Logical Framework Methodology is only one tool in the project planning process, to which adjustments can be made, complements suggested and developed with administrative tools such as prioritization matrices and those used in problem analysis such as the problem tree, the Vester matrix, the IGI matrix, the PEST diagram, these are adapted to the organizations and the project to be developed.

Bibliography

1. National Infrastructure Agency of Bogotá. (2012). Logical Framework Methodology.
2. National Infrastructure Agency of Bogotá. (2012). Logical Framework Methodology.
3. Aldunate, E., & Córdoba, J. (2011). Program Formulation with the Logical Framework Methodology. In Latin American and Caribbean Institute of Economic and Social Planning (ILPES) (ser manual). United Nations publication.
4. Arboleda, G. (1998). Methodology Logical Framework.
5. Arboleda, G. (2007). Project formulation and evaluation.
6. Arenas, A. I. (2012). Design, Development and Evaluation of Projects, Development of the Framework Methodology.
7. Baca, G. (2013). Project evaluation (7 ed.). <https://doi.org/doi.org/10.1007/s00737-016-0666-9>
8. Barclay, C. (2007). Towards an Integrated Framework of Project Performance. Irma International Conference, 1244-1247.
9. Camacho, H. (2001). The Logical Framework Approach, 10 Case Studies: Notebook for the Identification and Design of Development Projects. Cideal, Europe-Spain-Latin America Research Center.
10. Carrasco, L. A. (2009). Logical Framework. Instrument for the Formulation of projects. In Corripio (Ed.), International Federation of Faith and Joy.
11. Castro, H. M. (2009). Design of investment projects with the logical framework approach. IICA.
12. Regional Autonomous Corporation of Cauca. (2007). The methodology of the logical framework of the project.
13. De la Fuente Olguin, J. (2010). What is the Logical Framework Methodology and what is it for?
14. De Luca. (2015). Multidisciplinary and innovative methodologies for sustainable management In agriculture system Mediterranean. University of Reggio Calabria, Department of Agriculture (AGRARIA).
15. National Planning Department Republic of Colombia. (2013). Conceptual Support Manual General Methodology for Project Formulation and Evaluation.
16. Ferrero, & Loma-Osorio. (2002). Identification and Formulation of Development Cooperation Projects: Project Cycle Management and Logical Framework Approach.

17. Florence, & Ling. (2011). International comparison of performance of public projects.
18. Galán, M. G. (2003). Guidelines for applying the logical framework approach: Common mistakes and suggestions to avoid them. CIDEAL.
19. Herrera, F. (2015). Social projects. Design and management for local and rural development. (1st Edition).
20. Latin American and Caribbean Institute for Economic and Social Planning (ILPES). (2004). Logical Framework methodology.
21. Londoño Marín, S., Londoño Gallego, J. A., Castro Maldonado, J. J., & Patiño Murillo, J. A. (2018). Interactive guide for project development under the Logical Framework Methodology. *Espacios*, 39(47). Scopus.
22. Müller, R. (2011). Manual for the Presentation of Sustainable Productive Projects.
23. International Tropical Timber Organization (ITTO). (2009). ITTO Manual for Project Formulation.
24. Ortegón, E. (2005). Methodology of the logical framework for planning, monitoring and evaluation of projects and programmes. United Nations Publications.
25. Ortegón, E. (2007). Manual of foresight and strategic decision: Theoretical bases and instruments for Latin America and the Caribbean.
26. Ortegón, E., Pacheco, F., & Prieto, A. (2015). Methodology of the logical framework for planning, monitoring and evaluation of projects and programmes (Manual 42). Latin American and Caribbean Institute for Economic and Social Planning (ILPES).
27. NGO Platform of Social Action. (2012). Formulation of Social Projects with MANUAL Logical Framework. Analysis and Social Development Consultants, 55.
28. Bridges, G. A. (2011). Formulation and evaluation of agricultural projects.
29. Puentes, G. A., Prieto, D., & Caro, L. S. (2019). Formulation and evaluation of agricultural projects (2nd edition).
30. Sakyi, I. (2018). Causes of government construction projects failure in an emerging economy. *International Journal of Managing Projects in Business*, 11(3), 558-582. <https://doi.org/10.1108/IJMPB-04-2017-0042>
31. Sanchez, N. (2007). The logical framework. Methodology for planning, monitoring and evaluating projects. *Managerial Vision*, 2, 328-343.
32. Sanin. (2008). Logical Framework for the Formulation of Development Projects.
33. Tapella, E. (2007). E L M A P E O D E A C T O R E S C L A V E S 1.
34. Autonomous University of the West. (2007). Guide for the development of the logical framework.
35. Velásquez, S. M., Londoño, Jennifer, A., López, C., & Vahos, J. D. (2018). Development of a multimedia web platform for the elaboration of projects under the logical framework methodology. *Lampsakos*, 1(18), 12. <https://doi.org/10.21501/21454086.2601>
36. Zurita, A. (2009). Identification and Formulation of Projects a Practical Guide Based on the Logical Framework Approach, action against hunger.