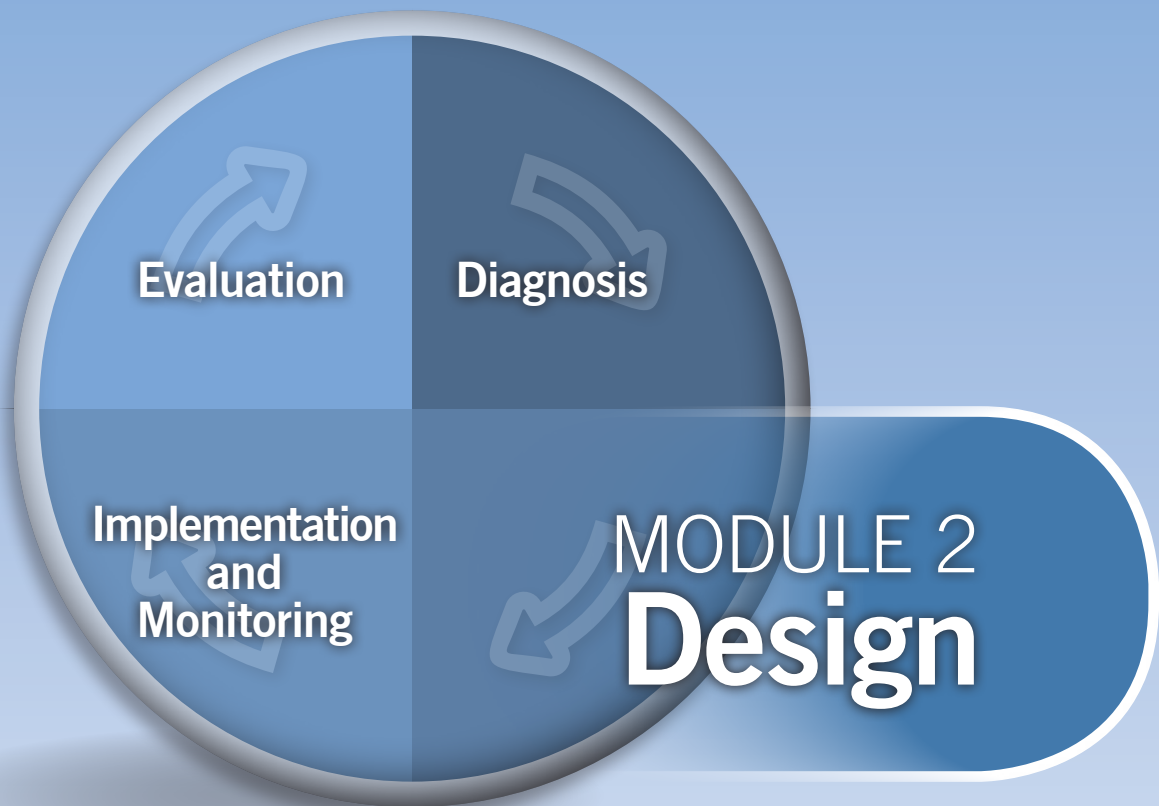




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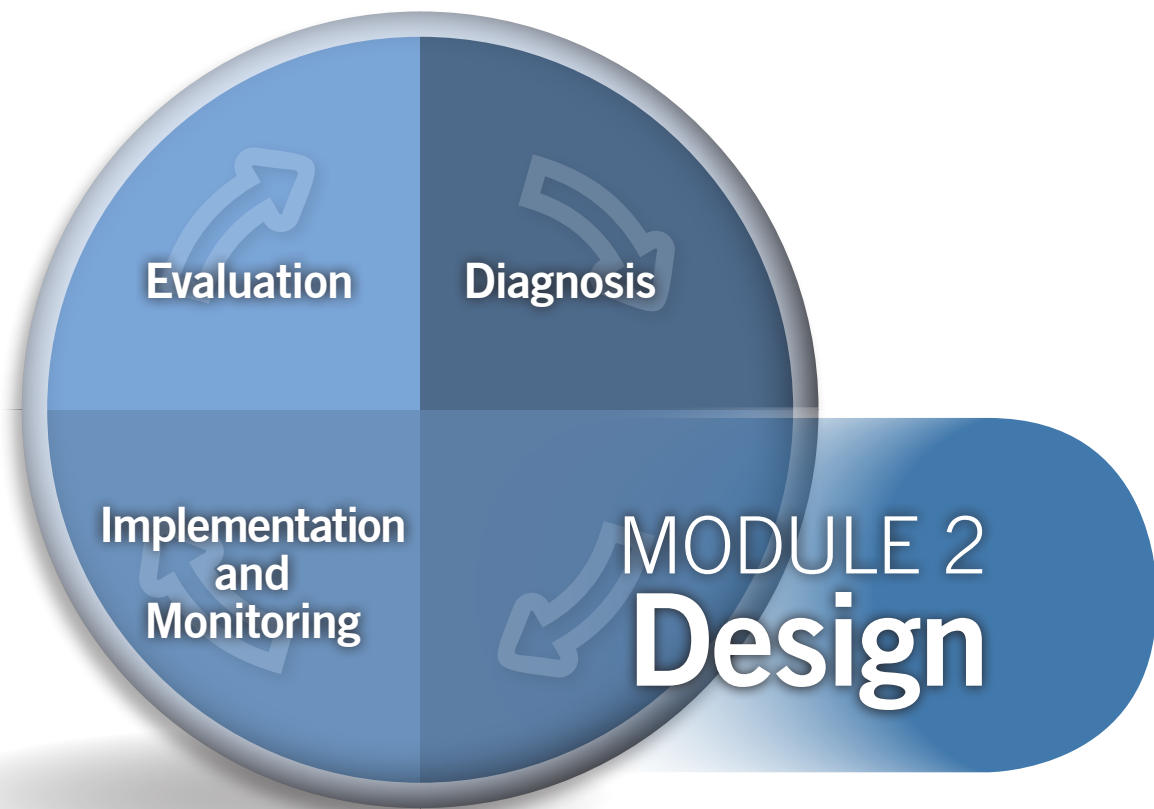
Results-based public management

Tools for the design and
implementation of public rural
development programs with a project
cycle approach



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ACRONYMS

| | |
|----------------|---|
| FAO | Food and Agriculture Organization |
| FW | Fall-Winter |
| IMR | Indicators Matrix for Results |
| LFM | Logical Framework Method |
| REU | Rural Economic Unit |
| RSS | Random Stratified Sampling |
| SAGARPA | Ministry of Agriculture, Livestock, Rural Development, Fishing and Food |
| SRS | Simple Random Sampling |
| SS | Spring-Summer |
| SWOT | Strengths, Weaknesses, Opportunities, and Threats |

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For more than ten years, the United Nations Food and Agriculture Organization (FAO), through ongoing rural policy evaluation and analysis projects, has provided technical assistance to the Ministry of Agriculture, Livestock, Rural Development, Fishing and Food (SAGARPA) of Mexico, in the area of evaluation of programs promoting agriculture, fishing and aquaculture production, and rural development. In the framework of this cooperation, methodological tools have been developed jointly for the management of the different phases of a program: sector diagnosis, design, implementation and evaluation. This document brings together the experiences obtained from the projects so that they can be reproduced or referenced by actors involved in the management of programs or projects with similar characteristics.

In the development of the projects the contributions of the following SAGARPA officers stands out: Arturo Enciso Serrano, Ernesto Ezequiel Abraham Tarrab, Horacio Santoyo, José de Jesús Romo Santos, José Correa, Juan Carlos Vargas Moreno, Lucía Rosas Ortíz, Miguel Ángel López Arreguín, Omar Anaya Mandujano, Alan Kristian Hernández, Pablo Hernández Alarcón, Patricia Valtierra Carrillo, Claudia Gabriela Valadez Romero, Roberto Cedeño, Rogelio Carmona León, Eduardo Benitez Paulín, José Merced Tulais López and Silvia Urbina Hinojosa.

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Finally, the operational leadership of the projects is acknowledged to the Representation Office of FAO in Mexico.

Presentation



Since the Marrakech Round Table in 2004, the international community has supported five specific commitments related to improving the effectiveness of development assistance¹, synthesized in the concept of “Managing for Development Results”. This implies taking into account from the beginning of any initiative, project or program the expected outcomes and how to achieve them. Furthermore, the implementation, progress monitoring, and subsequent evaluation should consider the expected outcomes that were established at the beginning of the process.

In this regard, there is a great challenge for developing countries to adopt a new vision. This means breaking with old customs and patterns in the manner of handling the project cycle, changing from a focus on addressing demand to a planning process for achieving specific outcomes, established from the beginning. While there is no single approach, since each country, each sector and each project presents particular situations, there are experiences that can be systematized and shared.

The preparation of a set of tools for results-based management responds to the need to break with inertial operating schemes of public development programs in the majority of countries, which do not contemplate efficiency and efficacy in achieving results. The absence of such an approach implies that substantial resources are spent without a timeframe for resolving the problems that the public interventions are intended for.

This document brings together the experiences obtained from the Evaluation and Analysis of Rural Policies Project undertaken by the United Nations Food and Agriculture Organization (FAO) and the Mexican Ministry of Agriculture, Livestock, Rural Development, Fishing and Food (SAGARPA) during the implementation of the “Results-Based Management” focus in its different Programs. In this respect, on four occasions the National Council for the Evaluation of Social Development Policy of Mexico has granted recognition to SAGARPA for its good practices in the development, execution and evaluation of public policy in the field since 2007, taking an important step toward improving its programs and orienting them toward performance and impact in the rural sector.

The document “Results-based public management: Tools for the design and implementation of public rural development programs with a project cycle approach” includes the four phases of the life cycle of a project or program. The first module includes the methodological tools for conducting a sector diagnosis, which constitutes the first step that justifies the intervention by making it possible to identify a problem, dimension it, identify and quantify the population or area facing the problem, and stratify such population.

The second module presents the procedure and methodological tools for the design of a program or project which will be synthesized in the Logical Framework. In this module the methodology is shown for conducting the objectives analysis and the alternatives analysis, constructing performance indicators, identifying the means of verification, identifying risk and assumptions, and collecting counterfactual data for a baseline of the performance indicators of the program or project.

1 The principles of Results-Based Management agreed on during the Second Round Table on managing for development results in 2004, are: 1) focus the dialog on results in all the phases of the development process; 2) align programming, monitoring and evaluation with results; 3) keep measurement and reporting simple; 4) manage for, not by, results; and 5) use results information for learning and decision-making.

The third module provides the methodology for the implementation of a program or project which, under the results approach, should include a monitoring and evaluation system consistent with its design, budgeting, and regulation, as well as design and processes evaluations in the first year of implementation of the program or project.

The fourth module consists of the methodology for evaluating the outcomes obtained by the program or project as a result of its implementation through the design of the results and impact evaluation of a program or project.

Each module is structured with a chapter on theory and a chapter on experience referring to the mentioned Project, and complemented with the systematization of the methodological tools for a better understanding of the sections

Salomón Salcedo Baca

Senior Policy Officer

Alfredo González Cambero

Project Director (2007-2012)

Introduction

The objectives or expected outcomes of public policy are established at the time of designing the programs or projects that will implement the public policy. For its part, the design of public development programs begins with the proper identification of development problems.

However, it is common to find that development programs or projects do not have a documented design. In the majority of cases, the design is limited to the narrative summary and specific indicators in the matrixes of the logical framework of such programs or projects. The essence of the design of a program or project, therefore, depends on the interpretation each officer makes of such narrative summary.

The primary areas of opportunity regarding the design of programs or projects lie in the unclear definition of, or sometimes complete failure to identify, the problem to be addressed, and in the establishing of objectives as activities, rather than desired or achieved situations. Another area of opportunity is defining the target population of a program or project. While many programs or projects establish the target population to which they are directed, the inadequate definition of such target population often results in a universal application of the program, which may even include those who do not have the problem that the program or project addresses.

This module's integrated tool set provides the technical elements necessary for the design of programs or projects, and also includes the syntax used in establishing objectives so that they reflect achieved situations and not actions, as commonly occurs.

To achieve the above, the integrated tool set includes the logical framework methodology so that orderly steps are followed in the design of a program or project, ensuring internal logic with regard to its goal and purpose, as well as the outputs and activities to achieve it.

Through the stakeholders analysis a panorama is offered of all the persons, groups, organizations, institutions, state governments, municipal governments, etc. that are involved in the actions of the program, as well as the institutional arrangement that is required for the execution of the program or project.

For its part, through the problems analysis the development problem that underlies the design of a program or project is identified and defined, as well as the causes and effects of such problem.

Through the objectives analysis the future situation that it is desired to reach with the execution of a program or project is established, maintaining the correspondence with the identified problem and its causes, so that the situation that would exist after the problem is resolved is described.

The alternatives analysis allows for the design of a more succinct program or project. This step makes it possible to identify the alternative strategies that, if executed, would contribute to changing the current situation into a desired situation. The alternatives analysis also includes the analysis of their feasibility so that the appropriate alternatives are chosen in function of the objectives established by the program or project.

As part of this module dedicated to the design of programs and projects, the methodology is shown for completing, after the analysis of objectives and alternatives, the logical framework matrix of a program, which includes the narrative summary, performance indicators, means of verification, and risks and assumptions.

Finally, a methodological section is presented for the development of counterfactual information, which is useful for monitoring and evaluating the performance of a program or project. This component of the integrated tool set includes the procedure for developing a baseline.

I Program and project design



Chapter 1

Methodology for program and project design

This document contains the methodological tools for the design of a program or project, a stage that is carried out once the problems affecting the sector under study and the potential population are identified and dimensioned. The design of a project or program constitutes the second phase of the project cycle (Figure 1), and includes the elements that compose a project and enable it to achieve results. The steps of the design stage are:

- Analysis of objectives
- Analysis of alternatives
- Development of performance indicators
- Identification of the means of verification
- Identification of risks and assumptions
- Counterfactual data collection.

FIGURE 1. PROJECT LIFE CYCLE: DESIGN

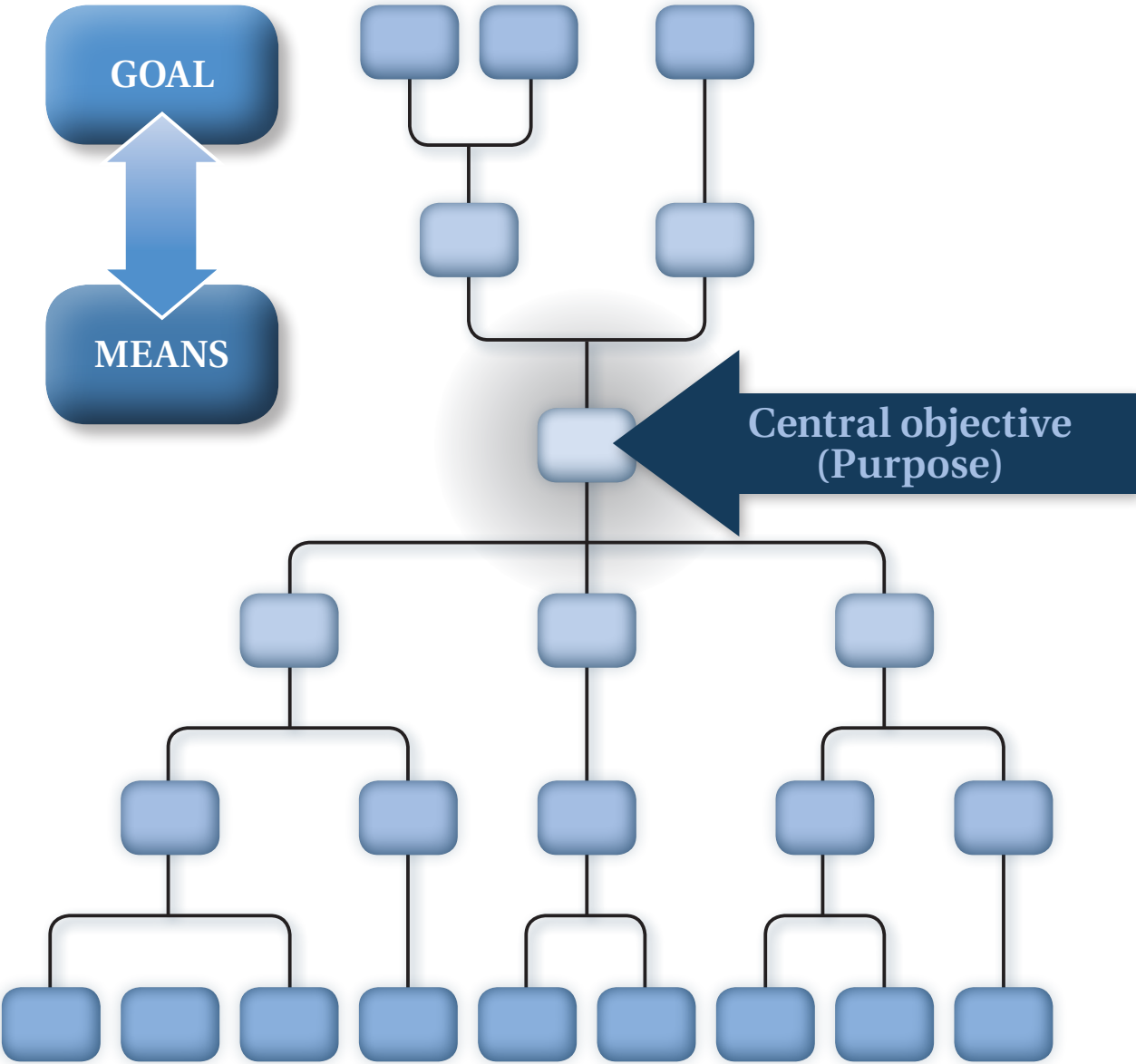


This chapter is divided into six sections, each of which offers a methodological guide to facilitate the development of each of the design steps. The first section consists of showing the methodological procedures for drafting the objectives, which reflect the desired situation sought through an intervention; this section is based on the Logical Framework Method (LFM) for the construction of objectives trees. The second section shows the methodological steps for analyzing the various alternatives that exist for meeting the objectives and presents the elements that provide a basis for the selection of those that are most viable. The third section analyzes the methodological aspects for developing the performance indicators that make it possible to evaluate both results and implementation of the program or project. The fourth section offers criteria for identifying the means of verification or sources of information for obtaining the data used to measure the progress of the indicators and whether or not the objectives of the program or project are being achieved. The fifth section covers the methodology for identifying the risks that could affect the implementation of the program or project, which are expressed as assumptions that must be considered since they condition the development of Activities and Outputs, as well as the achievement of the Purpose and Goal of the program or project. The sixth section contains the set of tools for conducting a baseline study for a program or project which would provide counterfactual data for future monitoring and evaluation of a program or project.

1.1 Objectives analysis

The analysis of objectives makes it possible to portray the future situation to be reached once the problems have been solved through an intervention. For that purpose, the development of objectives consists of converting the negative states identified in the problem analysis into desired situations according to feasibility principles; in other words, that the objectives can be achieved using the resources and time available for the development of the program or project. The results of this analysis are summarized in an objectives tree as presented in Figure 2.

FIGURE 2. OBJECTIVES TREE



How the objectives tree is prepared

In the context of a program or project there are four types of objectives, which are classified according to their hierarchical order:

1. Goal

The sector's development objective to which the project is intended to contribute. The Goal's full completion is beyond the scope of the project or program, but the combination of the latter with other programs or projects will lead to its achievement.

2. Purpose

It is the specific objective of the program or project and it is fulfilled when the implementation of the intervention is completed.

3. Outputs

They are the result of the Activities of the program or project, and they take the form of goods and services that are provided to achieve the Purpose of the program or project.

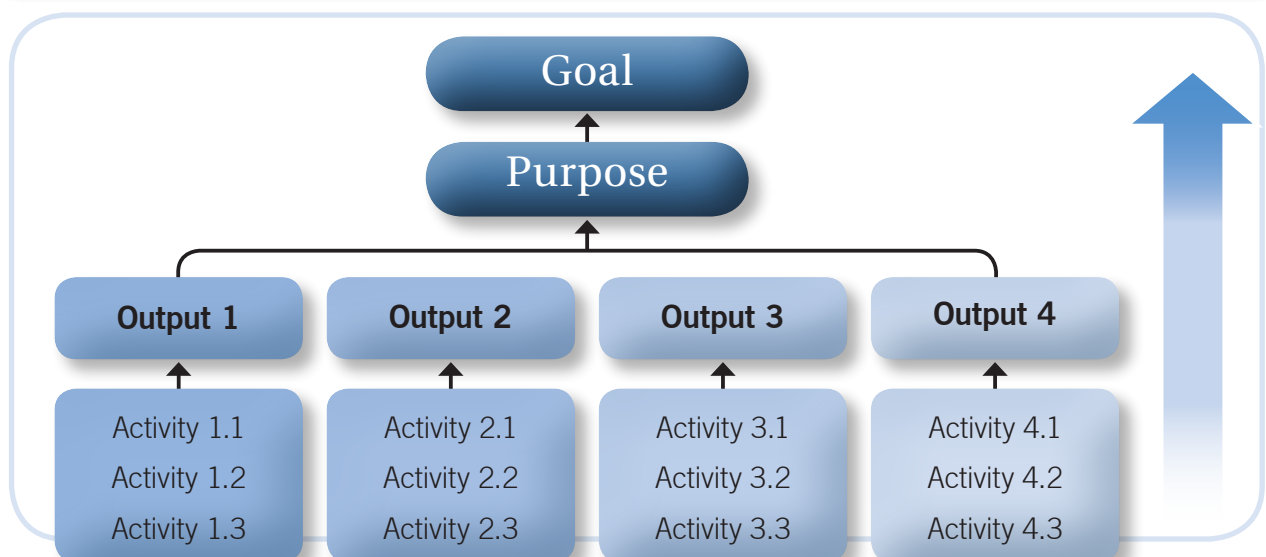
4. Activities

They are the tasks or actions that the implementer must carry out in order to produce each of the Outputs of a program or project. The Activities can be disaggregated in turn into sub-activities or inputs.

There must be a causal link between the different levels of objectives, which is known as the vertical logic. In this regard, if the program or project is well designed the following should hold:

- a) The Activities specified for each Output are those necessary and sufficient to produce the Output,
- b) The Outputs are those necessary and sufficient to achieve the Purpose of the project or program, and
- c) The achievement of the Purpose must contribute significantly to the Goal.

FIGURE 3. VERTICAL LOGIC OF A PROGRAM OR PROJECT



In order to determine each of these objectives, an objectives analysis is conducted, which consists of substituting the current situations (negative) for the desired situations. For example:



RECOMMENDATIONS FOR THE DEVELOPMENT OF THE OBJECTIVES TREE

1. Objectives should be drafted expressing an achieved situation. For example: “Fishers trained in environmentally friendly fishing techniques”.
2. Do not include in the same statement the means and the end. For example: “Farmers use new cultivation techniques to increase their productivity.” In this case the end is “to increase productivity”, and the means is the “use of new cultivation techniques”.
3. Avoid establishing desired situations that are unlikely to be achieved considering that there are limits in resources and time.
4. The vertical relationship between “means and end” should be verified. The guiding question is “how?”.

FOR MORE INFORMATION:

BID (2004). *El marco lógico para el diseño de proyectos*. Washington, DC.

Comisión Europea (2001). *Manual gestión del ciclo de proyecto*. Ede, The Netherlands.

Heemskerk, Nick et al. (1995). *Manual for Project planning*. Amsterdam, The Netherlands.

ILPES-CEPAL (2004). *Metodología del marco lógico*. Boletín 15. Santiago de Chile.

ILPES-CEPAL (2005). *Metodología del marco lógico para la planificación y la evaluación de proyectos y programas*. Santiago de Chile.

Schmeer, K. (1999). *Guidelines for conducting a stakeholder analysis*. Bethesda, MD.

1.2 Alternatives analysis

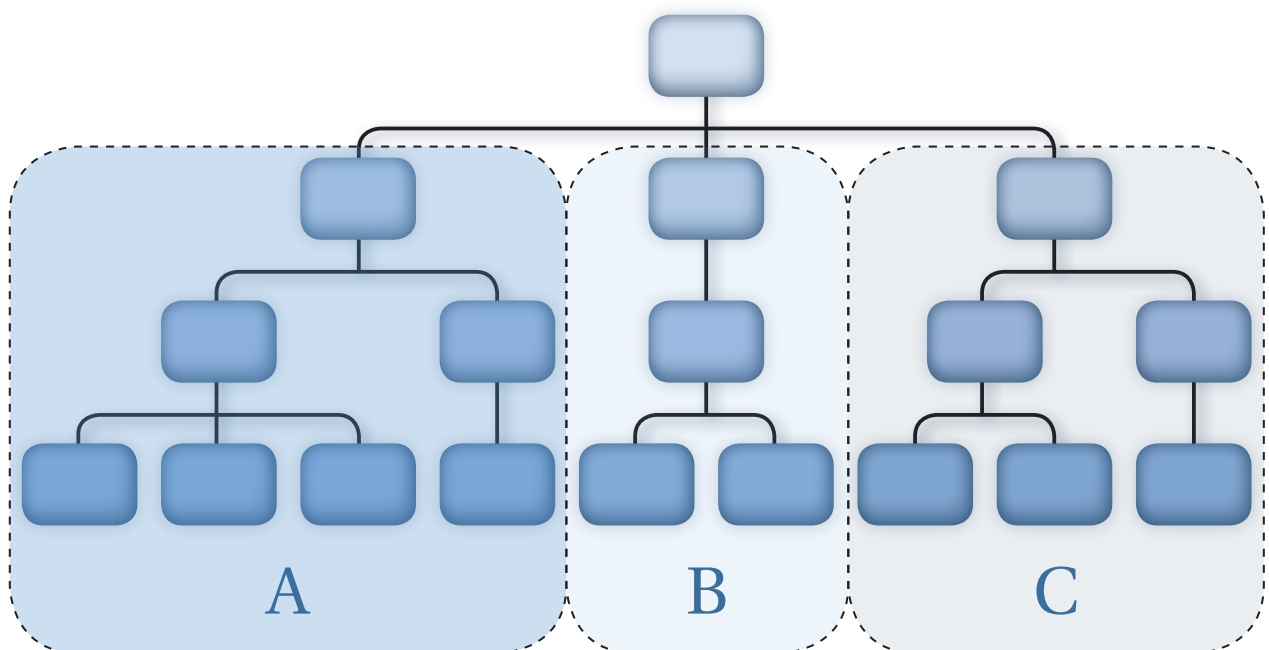
From the objectives analysis a vision is obtained of all the necessary and sufficient means to solve the identified problem. The objectives tree makes it possible to determine the necessary Outputs that must be integrated into the intervention in order to contribute to solving the problem at hand. However, the alternatives to achieve it can be many and the team responsible for designing the program or project must choose the best among all the possible alternatives.

The alternatives analysis provides a systematic method for selecting the strategy on which each Output of the program or project will be based. Some of the criteria that may be considered are: Relevance, effectiveness, efficiency, economic viability, technical viability, institutional viability and environmental impact.

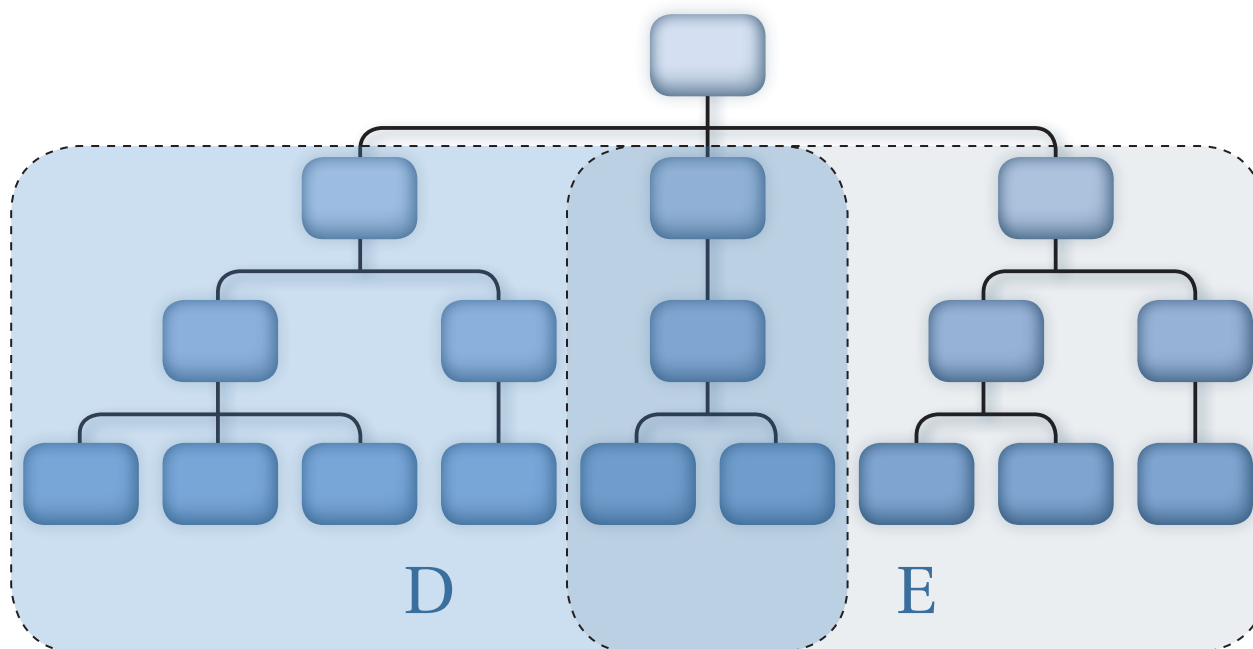
How the alternatives analysis is done

The first step is to identify the different options or group of actions that can lead to an Output. These Activities constitute the “alternatives”.

FIGURE 4. IDENTIFICATION OF ALTERNATIVES (1)



In addition, through this analysis the groups of alternatives that are complementary among themselves for achieving an Output can be identified. Such complementary groups can themselves be grouped into a new option. There are other groups of alternatives that are exclusionary, and cannot be considered in the same strategy. In this example groups A and C are exclusionary, but groups A and B are complementary, as are B and C. Therefore, a new group called “D” can be created which is equal to set A+B, and a group “E” which is equal to set B+C.

FIGURE 5. IDENTIFICATION OF ALTERNATIVES (2)

After identifying the various alternatives, the next step is to analyze them. The criteria for analyzing them vary according to the type of project and the context in which it is being carried out. Some of these criteria are:

a. Relevance

This refers to the coherence that the alternative has with the policies of the implementing institution and with the priorities of the target population. The stakeholder analysis helps to clarify which alternative better meets the priorities of the potential population.

b. Efficacy

Measures the degree to which the alternative solves or best contributes to solving the problem that was identified. This criterion has a great deal of weight, since it has to do with moving from the problem situation to the desired situation.

c. Efficiency

Analyzes the balance between the benefit and the cost of each alternative from the economic point of view; in other words, what alternative generates the greatest benefit at the least cost. The cost-benefit and cost-effectiveness analyses are useful for evaluating this criterion.

d. Financial viability

Examines the financial viability of each alternative. It centers on evaluating the availability of financial resources for funding the alternatives, as well as on the opportunity cost of the alternatives.

e. Technical viability

This is the technical capability (specialized human resources and adequate equipment) to implement the program or project.

f. Institutional viability

This refers to the institutional capacity which depends on various factors, such as the institutional setting in which the program or project will be implemented.

g. Environmental impact

Analyzes the environmental impact and cost compared to the benefit of each alternative.

If the information is insufficient to make a comparison of the various alternatives, collecting data through feasibility studies for each alternative should be considered. The results of the feasibility studies contain quantitative information that facilitates the comparison of alternatives.

The last step is the selection of the alternative. One form of doing so is to rate each alternative on a scale from 1 to 5 and, based on the results, choose the most suitable one. The results of the alternatives analysis are entered into a comparative matrix where the global evaluation of each alternative can be seen and from which the most suitable one is selected (Table 1).

TABLE 1. EVALUATION OF ALTERNATIVES MATRIX

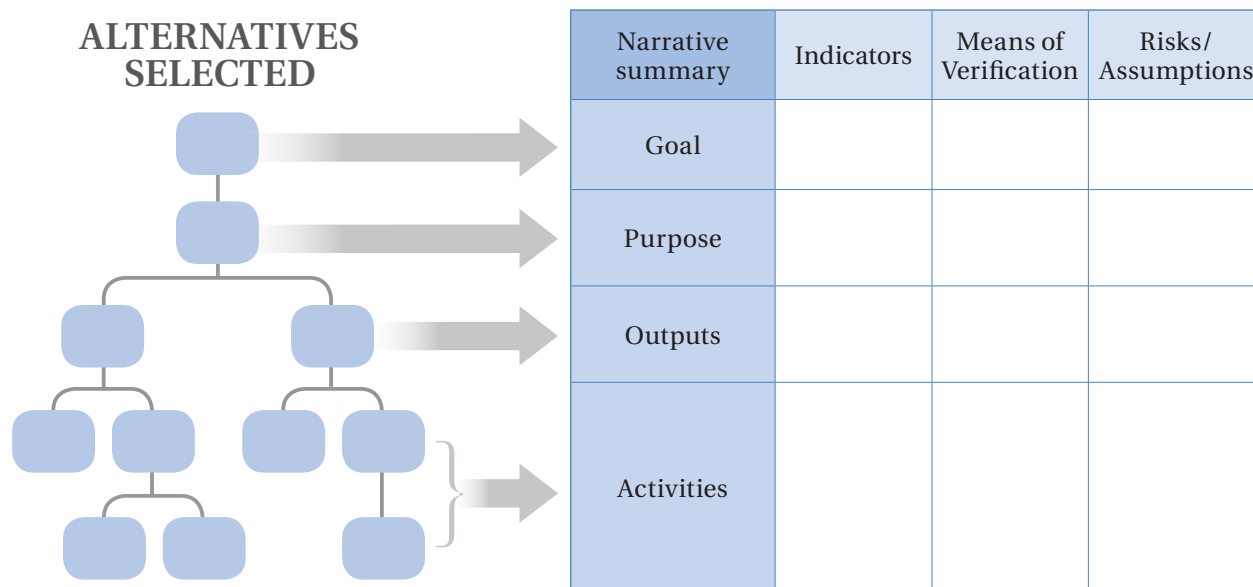
| Alternative | Evaluation criteria | | | | | | | Global |
|-------------|---------------------|----------|------------|---------------------|---------------------|-------------------------|----------------------|-----------|
| | Relevance | Efficacy | Efficiency | Financial viability | Technical viability | Institutional viability | Environmental impact | |
| A | 4 | 4 | 5 | 4 | 4 | 4 | 3 | 28 |
| B | 4 | 3 | 4 | 4 | 3 | 3 | 4 | 25 |
| C | 2 | 3 | 3 | 3 | 3 | 3 | 4 | 21 |
| D | 5 | 4 | 5 | 4 | 4 | 4 | 5 | 31 |
| E | 5 | 4 | 2 | 1 | 2 | 2 | 3 | 19 |

RECOMMENDATIONS FOR PREPARING THE ALTERNATIVES ANALYSIS

1. Verify the interdependence among the proposed actions and group those that are complementary. Each of these groups may become an alternative itself.
2. Separate the actions that are exclusionary in different alternatives.
3. Formulate the alternatives considering their level of impact on the solution of the problem.

As a result of the alternatives analysis it is possible to determine the Goal, the Purpose, the Outputs, and the Activities of the project. The highest level becomes the Goal, the central objective becomes the Purpose, the direct means of which become the Outputs, and the underlying levels become the Activities that are necessary and sufficient to achieve each Output. This alignment makes up the first column (narrative summary) of the Logical Framework (Figure 6).

FIGURE 6. FROM THE ANALYSIS OF ALTERNATIVES TO THE LOGICAL FRAMEWORK



These first two stages of analysis (objectives analysis and alternatives analysis) provide the elements for preparing the narrative summary of the Logical Framework. The next columns which correspond to the indicators, means of verification, and risks and assumptions are explained in detail in the following sections. The Logical Framework provides a visual structure that synthesizes, in a single table, the most important information of a program or project; furthermore, it provides a clear and simple expression of the internal logic of a particular program or project and of the results expected with its implementation.

FOR MORE INFORMATION:

BID (2004). *El marco lógico para el diseño de proyectos.* Washington, DC.

Comisión Europea (2001). *Manual gestión del ciclo de proyecto.* Ede, The Netherlands.

Heemskerk, Nick et al. (1995). *Manual for Project planning.* Amsterdam, The Netherlands.

ILPES-CEPAL (2004). *Metodología del marco lógico. Boletín 15.* Santiago de Chile.

ILPES-CEPAL (2005). *Metodología del marco lógico para la planificación y la evaluación de proyectos y programas.* Santiago de Chile.

The World Bank. *The logframe handbook: A logical framework approach to Project management.*

1.3 Performance indicators

Through the objectives and alternatives analysis the Goal, the Purpose, the Outputs, and the Activities of a program or project are defined. The next step is to set performance indicators, with their respective targets, to make it possible to establish measurement parameters of what it is expected to achieve with a project or program in terms of coverage, results, and impact. The indicators establish relationships among variables and provide the basis for making comparisons between the actual situation and the counterfactual one, in addition to a continuous monitoring of the main elements of the intervention.

Performance indicators describe the targets of the project on each expected objectives level: Goal, Purpose or Output. In this way, the indicators make it possible to quantify the achievements, and they become the point of reference and the “navigation chart” for guiding the implementation, monitoring, and evaluation of the project. Well formulated indicators ensure good management of the project and allow the implementers of the project or program to decide if additional Outputs or course corrections will be necessary in order to achieve the Purpose laid out. In addition, upon finalizing the intervention it will be known if the expected impact and effects on the beneficiaries was achieved.

How the performance indicators are developed

The first step is to list all the indicators available and classify them according to achievement in the various objective levels of the Logical Framework. According to the objective level that the indicators measure, they can be classified as:

- a) **Results indicators.** Measure the degree of fulfillment of the objectives (Goal and Purpose) of a program or project, and
- b) **Process indicators.** Measure the progress in the processes of the program or project: The products and services delivered (Outputs) and the actions to do so (Activities).

An indicator should have certain attributes such as quantity, quality, time, and area benefited:

- a) **Quantity:** It should establish in numerical terms the level of progress with respect to what was planned.
- b) **Quality:** Offers information about the attributes of the outputs.
- c) **Time:** Measures the achievements in a specific period of time.
- d) **Area:** Offers information on the coverage of the achievements.

The next step is to select the optimum indicators in order to reduce the number of indicators to a minimum. For that purpose, the criteria that the indicators should meet should be defined in order to facilitate their selection. Some of these criteria may be:

- a) **Clarity:** The indicator should be understandable.
- b) **Relevance:** The indicator should provide information on the essence of the objective to be measured; that is to say, it should be defined based on what is important.
- c) **Objectivity:** The indicator should be tangible and observable.
- d) **Cost effectiveness:** The indicator should be available at a reasonable cost.
- e) **Timeliness:** The indicator should be available in a timely manner.
- f) **Independence:** It should be possible to develop the indicator independently.

One useful tool is the weighting of the criteria defined for the selection of indicators as shown in Table 2. Each criterion is rated on a scale from 1 to 5 for each indicator proposed and, based on the results, the most suitable is chosen.

TABLE 2. WEIGHTING FOR THE SELECTION OF INDICATORS

| Objetives | Indicator | Rating of criteria | | | | | | Total points | Selected | |
|-----------|-----------|--------------------|---|---|---|---|---|--------------|----------|----|
| | | A | B | C | D | E | F | | Yes | No |
| | | | | | | | | | | |

Source: Handbook of monitoring and evaluating for results. United Nations Development Programme, Evaluation Office.

RECOMMENDATIONS FOR THE DEVELOPMENT OF INDICATORS

1. Establish indicators according to the hierarchy of the objectives. The indicators for the highest level (Goal) measure the long-term effects linked to lasting changes. Therefore, these indicators can go beyond the scope of the program or project. For example: Rate of growth of agricultural GDP. For their part, the Purpose indicators measure the immediate changes generated by a program or project. For example: capitalization of farmers benefited by the program for the acquisition of capital goods. The indicators of Outputs measure the delivery of specific goods or services within the structure of a project. For example: Farmers benefited by the acquisition of farm machinery.
2. Each objective should have at least one indicator. There should not be a Goal, a Purpose, Outputs or Activities that do not have their respective indicators, since each indicator measures the achievement of objectives in a particular time period, and that makes it possible to monitor and evaluate the performance of a program or project.
3. Do not include too many indicators for the same objective. Having an exaggerated number of indicators involves a high cost for the generation and monitoring of data, and therefore those for which monitoring does not imply a high cost should be prioritized and selected.
4. Do not include indicators that cannot be verified. Even if they are well designed, sometimes the indicators cannot be verified due to the fact that the means of verification does not exist or it is outdated.
5. The same indicator should not be repeated for different objective levels of the narrative summary.
6. Prepare performance indicator reference sheets that contain elements for their proper measurement such as: Method of calculation, frequency of measurement, unit of measurement, baseline, and target. In Table 5 some examples are presented.

The indicators for each objective are placed in the second column of the logical framework as seen in Figure 7.

FIGURE 7. LOGICAL FRAMEWORK: INDICATORS

| Narrative summary | Indicators | Means of Verification | Risks/Assumptions |
|-------------------|------------|-----------------------|-------------------|
| Goal | | | |
| Purpose | | | |
| Outputs | | | |
| Activities | | | |

In conclusion, the indicators are variables that make it possible to measure the level of achievement reached by the program or project in fulfillment of all its objective levels. In this regard, objectives and indicators are inseparable concepts, since the indicators exist in order to measure the fulfillment of the objectives. In the following section the methodology for identifying or establishing the means of verification is discussed.

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1.4 Means of verification

The means of verification are the sources of information that are used to obtain the data needed to measure the progress of the indicators and, by that, corroborate whether or not the objectives of the project or program are being achieved.

What the means of verification should contain

As the basis, together with the indicators, for the evaluation of the program or project, the means of verification not only should contain the source of data, but also specify the method that will be used to collect them, the method of analysis, the periodicity or frequency of data collection and the agency or entity responsible for collecting them. In this regard, the means of verification should be very precise so that it is clear where, now and in the future, the data required for the calculation and monitoring of the performance indicators of the program or project can be found.

In the Logical Framework only the data source is indicated. Therefore, it is necessary to prepare an independent table for each indicator that contains the following elements:

- a) **Source.** The data to verify the indicators may require a review of secondary sources (records in public offices) or primary sources (collection in the field and data analysis).
- b) **Method of collection.** There is a wide variety of methods for collecting data, from interviews with key informants to surveys and direct observation in the field, focus groups, etc.
- c) **Method of analysis.** The analysis of data can be done through a comparison of data, for example cost efficiency analysis, cause and effect analysis, etc.
- d) **Frequency of collection.** The frequency of data collection varies according to the hierarchical level of the objectives and the requirements of the stakeholders. For example, the Activities are monitored with a frequency that may be weekly, monthly, quarterly or semi-annual in order to give timely follow up on the progress of the program or project. In contrast, the Purpose is monitored at specific times, such as an intermediate or final evaluation.
- e) **Agency or entity responsible for collecting the information.** It should be clearly established what agency or entity is responsible for the collection and analysis of data.

The following table is a useful tool for defining the means of verification in an organized manner.

TABLE 3. MEANS OF VERIFICATION BY INDICATOR

| Level | Narrative Summary | Indicator | Means of verification | | | | |
|------------|-------------------|-----------|-----------------------|----------------------|--------------------|-------------------------|--------------------|
| | | | Source of information | Method of collection | Method of analysis | Frequency of collection | Responsible entity |
| Goal | | | | | | | |
| Purpose | | | | | | | |
| Outputs | | | | | | | |
| Activities | | | | | | | |

Source: Handbook of monitoring and evaluating for results. United Nations Development Programme, Evaluation Office.


RECOMMENDATIONS FOR ESTABLISHING THE MEANS OF VERIFICATION

1. A good indicator should be verifiable. This means that there should be a means of verification to measure it. In addition, it should be ensured that the means of verification produces data with the frequency required.
2. The means of verification should be up to date sources with the required disaggregation.
3. Data sources should be described precisely. It is not sufficient to mention, for example: “Data of the Ministry of Agriculture”. All the relevant information for identifying the data source should be included: name of the database, date of last update, period measured, unit responsible for the information, etc.
4. Sometimes the information required does not have a source of data. In these cases, the generation of data should be added as an activity of the program or project and budgeted for, as for example: Baseline data to be collected by the program or project.

The relationship between objectives, indicators and means of verification leads to what is known as **horizontal logic**, which is met when:

- a) The means of verification are those necessary and sufficient to obtain the data required for the calculation of indicators.
- b) The indicators are adequately structured and make it possible to follow up on the project or program and evaluate the achievement of objectives.

FIGURE 8. HORIZONTAL LOGIC OF THE PROGRAM OR PROJECT

| Narrative Summary | Indicators | Means of Verification | Risks/Assumptions |
|-------------------|--|-----------------------|-------------------|
| Goal | | | |
| Purpose |  | | |
| Outputs | | | |
| Activities | | | |

Source: ILPES-CEPAL, 2005. *Metodología del marco lógico para la planificación y la evaluación de proyectos y programas.*

The means of verification are shown in the third column of the Logical Framework (Figure 9).

FIGURE 9. LOGICAL FRAMEWORK: MEANS OF VERIFICATION

| Narrative summary | Indicators | Means of verification | Risks/Assumptions |
|-------------------|------------|-----------------------|-------------------|
| Goal | | | |
| Purpose | | | |
| Outputs | | | |
| Activities | | | |

The means of verification should indicate where the data is to be obtained from in order to measure both process indicators (for Outputs and Activities) and results indicators (for Goal and Purpose) for the monitoring or evaluation of a project or program. Just as the objectives and the indicators are inseparable, the indicators and the means of verification form another relationship that cannot be separated. If an indicator does not have a means of verification, it is necessary to look for one.

 FOR MORE INFORMATION:

BID (2004). *El marco lógico para el diseño de proyectos.* Washington, DC.

Comisión Europea (2001). *Manual gestión del ciclo de proyecto.* Ede, The Netherlands.

Heemskerck, Nick et al. (1995). *Manual for Project planning.* Amsterdam, The Netherlands.

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1.5 Risks and assumptions

The risks and assumptions are important events, conditions or decisions that are beyond the control of the implementer and which, nevertheless, are important in order for the project or program to advance at each objective level and achieve its Goal. In other words, they are risks expressed in assumptions that must be met in order to advance to the next level in the hierarchy of objectives of the project.

In the Logical Framework a diagonal logic is expressed; that is, if the Activities are carried out and certain assumptions are met then the Outputs are produced; if the Outputs are produced and certain assumptions are met then the Purpose of the project is achieved; if the Purpose is produced and the further assumptions are met, then it contributes to the achievement of the Goal (Figure 10).

FIGURE 10. RELATIONSHIP BETWEEN RISKS/ASSUMPTIONS AND OBJECTIVES

| Narrative summary | Indicators | Means of Verification | Risks/Assumptions |
|-------------------|------------|-----------------------|-------------------|
| Goal | | | |
| Purpose | | | |
| Outputs | | | |
| Activities | | | |

Source: ILPES-CEPAL, 2005. *Metodología del marco lógico para la planificación y la evaluación de proyectos y programas.*

The risks confronted by a program or project are of diverse origins, which may be cultural or ethnic, political, economic, social, or natural. In some cases it may be possible to neutralize such risks, in which case the neutralization measures should be incorporated into the program or project strategy. In other cases they cannot be neutralized, and therefore they must always be kept in mind since they could eventually impede the achievement of objectives.

How to identify the risks and assumptions

There are some sources that make it possible to identify assumptions or risks. For example, through the analysis of stakeholders, information is obtained on the expectations and interests of the principal groups involved in a possible program or project. This analysis can produce information on cultural or ethnic assumptions.

Another source of information can be through the use of analysis tools such as SWOT (Strengths, Weaknesses, Opportunities and Threats). Through the SWOT analysis, political, economic, and social assumptions of the context in which the program or project will take place can be identified.

Finally, the assumptions related to nature refer mainly to climate conditions that affect the projects related to activities such as agriculture, fishing, etc. In these cases, it is useful to study the climate history of the area in which the program or project is located in order to calculate the probability of occurrence. The following table may be helpful for this task.

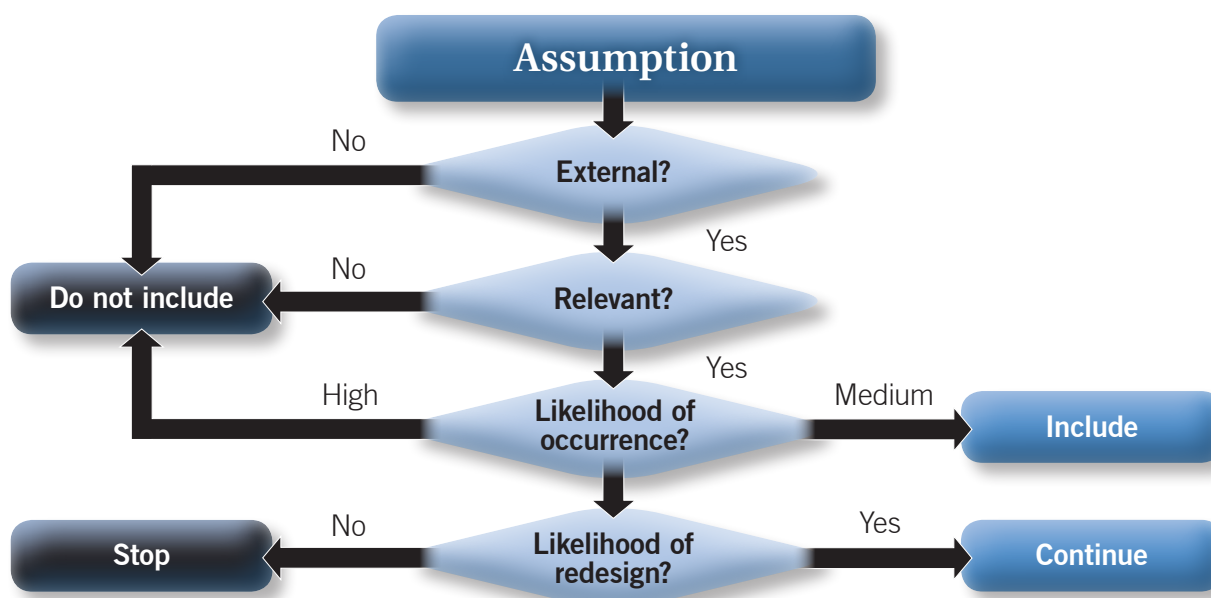
TABLE 4. IDENTIFICATION OF RISKS AND ASSUMPTIONS

| Level | Narrative Summary | Risks/Assumptions | | | | |
|------------|-------------------|-------------------|-----------|----------|--------|---------------|
| | | Cultural | Political | Economic | Social | Environmental |
| Goal | | | | | | |
| Purpose | | | | | | |
| Outputs | | | | | | |
| Activities | | | | | | |

Source: ILPES-CEPAL, 2005. Metodología del marco lógico para la planificación y la evaluación de proyectos y programas.

Some examples of assumptions could be “agricultural prices remain stable”, “farmers do not oppose the introduction of technological changes”, “the economy maintains its rate of growth”, etc. However, for an assumption to be considered as such, it should have a reasonable likelihood of occurrence. An assumption with a high likelihood of occurrence and of high relevance is a factor that can stop the implementation of a program or project and in such a case the nature of Activities, Outputs, and Purpose should be analyzed at each level of the narrative summary of the program. To support this analysis the following flow chart can be used for the verification of risks and assumptions.

FIGURE 11. FLOW CHART FOR THE VERIFICATION OF RISKS AND ASSUMPTIONS



Source: ILPES-CEPAL, 2005. Metodología del marco lógico para la planificación y la evaluación de proyectos y programas.

RECOMMENDATIONS FOR IDENTIFYING IMPORTANT RISKS AND ASSUMPTIONS

1. The elements that should be considered in the determination of a risk or assumption are: a) it is beyond the control of the project, b) it is relevant, and c) it is likely to occur.
2. The assumptions should be drafted as a realized situation or one that is maintained. For example: “Support to farmers is maintained as a priority of the new government”.
3. It should be possible to monitor the assumptions during the execution of the project. Monitoring the assumptions increases the probability of success of the program or project, and it also makes it possible to incorporate or remove new assumptions as the exogenous situation influencing the project changes.

Even if all the Activities planned are executed according to the program, it is possible that the expected results will not be achieved due to external factors (risks and assumptions). These factors are beyond the control of the program or project, but they are essential for carrying it out. Therefore, they should be determined beforehand and monitored. In the Logical Framework the risks and assumptions are outlined in the fourth column (Figure 12).

FIGURE 12. LOGICAL FRAMEWORK: RISKS/ASSUMPTIONS

| Narrative summary | Indicators | Means of Verification | Risks/Assumptions |
|-------------------|------------|-----------------------|-------------------|
| Goal | | | |
| Purpose | | | |
| Outputs | | | |
| Activities | | | |

So far the methodology has been shown for the preparation of the Logical Framework composed of four columns: Narrative Summary, Indicators, Means of Verification, and relevant Risks and Assumptions. The information contained in the framework as a whole constitutes a managerial tool considered to be a “compass” of the project or program, which can be used in the phases of implementation, monitoring, and evaluation.

Another product of the design phase is the baseline or base measurement of the performance indicators. Through this process counterfactual data is obtained that makes it possible to monitor the progress of the program or project and evaluate its impact. The following section is dedicated to showing the methodology for carrying this out.



FOR MORE INFORMATION:

BID (2004). *El marco lógico para el diseño de proyectos*. Washington, DC.

Comisión Europea (2001). *Manual gestión del ciclo de proyecto*. Ede, The Netherlands.

Heemskerk, Nick et al. (1995). *Manual for Project planning*. Amsterdam, The Netherlands.

ILPES-CEPAL (2004). *Metodología del marco lógico. Boletín 15*. Santiago de Chile.

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United Nations Development Programme, Evaluation Office (2002). *Handbook of monitoring and evaluating for results*. New York, NY.

1.6 Counterfactual data

The baseline study is the first measurement of all the indicators contemplated in the design of a program or project before its implementation. In this manner a point of departure is established for the intervention consisting of the value of the indicators at the time of initiating the planned actions, which is crucial since it is through the actions or Activities of the program or project that the impacts of the intervention are to be achieved.

The following are among the principal characteristics of a baseline study:

- a) Generates quantitative data.** Quantitative measurements are comparable in time and nature, although the possibility of using qualitative data as a point of departure is not discarded.
- b) Uses primary sources (*ad-hoc*).** It is preferable that the baseline use principally primary sources, although the use of sources such as censuses, national surveys, regional diagnostics and prior studies, among other sources of information, should not be ruled out, provided they back up the required data given the fact that often development projects concern a specific scenario not contemplated by other researchers.
- c) Measures specific indicators.** Specific indicators allow for the measurement of the results and impacts of the program as an effect of the interventions. This is of great importance in order to have elements on which to judge the effectiveness of the analyzed program or project.

How to conduct a baseline study

The methodology for preparing a baseline varies depending on the magnitude of the program or project being implemented, as well as the data available to measure the indicators that have been designed. On this basis, the team in charge of the formulation of the project must design the field work to collect the data.

Part 2.7.3 synthesizes the experience of the Food and Agriculture Organization (FAO) in Mexico in the preparation of the baseline of the Programs of the Ministry of Agriculture, Livestock, Rural Development, Fishing and Food (SAGARPA) regarding two primary tools: a) sample design and b) survey questionnaire.

II Case Study



Chapter 2

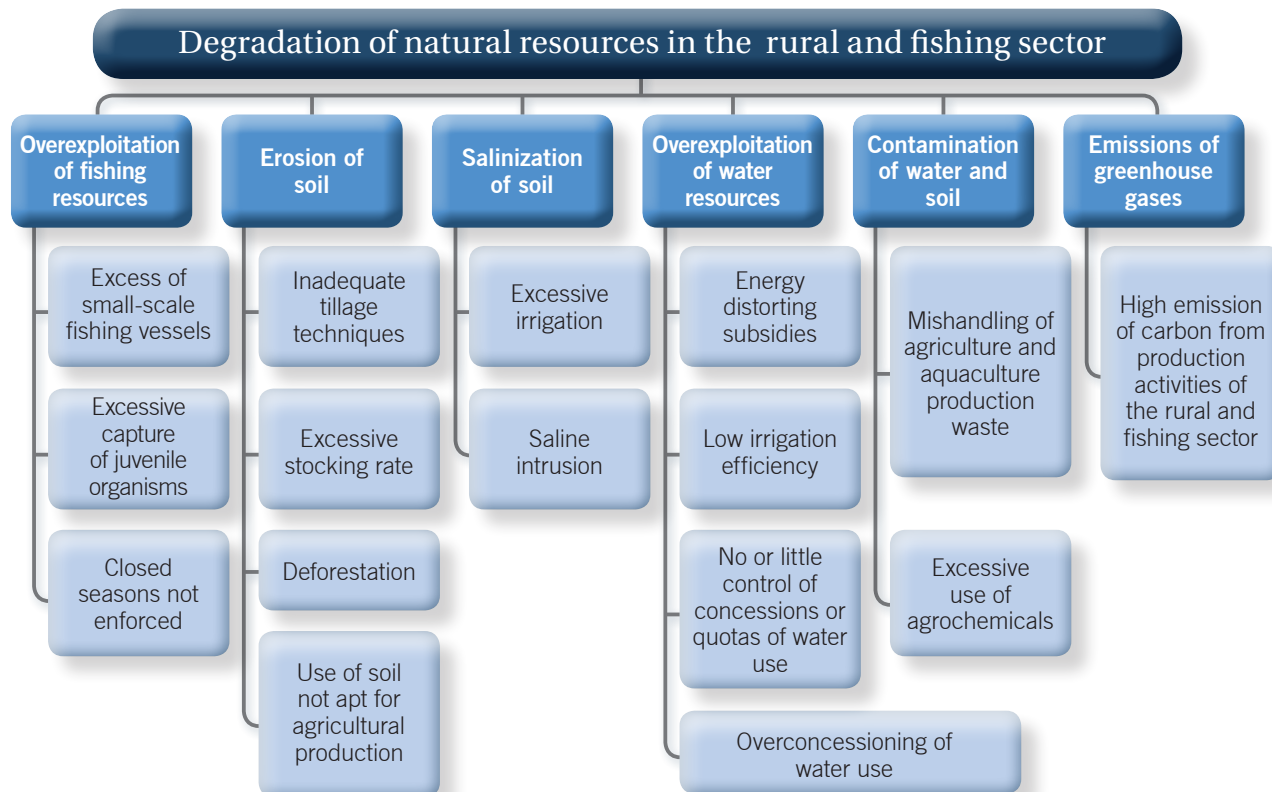
Example of program design

This chapter draws from the experience and tools developed by the FAO Project on Policy Analysis and Evaluation in the framework of the technical assistance cooperation agreement with the Ministry of Agriculture, Livestock, Rural Development, Fishing and Food (SAGARPA).

2.1 Analysis of objectives for the design of a program for sustainable use of natural resources in the rural and fishing sector

The analysis of objectives for the design of a program for sustainable use of natural resources for primary production started from the *Diagnosis of the Rural and Fishing Sector of Mexico*². The Diagnosis posits as the central problem the unsustainable development of such sector and states that one of the main causes of this problem is the degradation of natural resources and, in turn, indicates as secondary causes the over exploitation of fishing resources, the erosion of soil, the salinization of soil, the over exploitation of water resources, the contamination of water and soil, and the emission of greenhouse gases (Figure 13).

FIGURE 13. PROBLEM TREE OF THE DEGRADATION OF NATURAL RESOURCES IN THE RURAL AND FISHING SECTOR

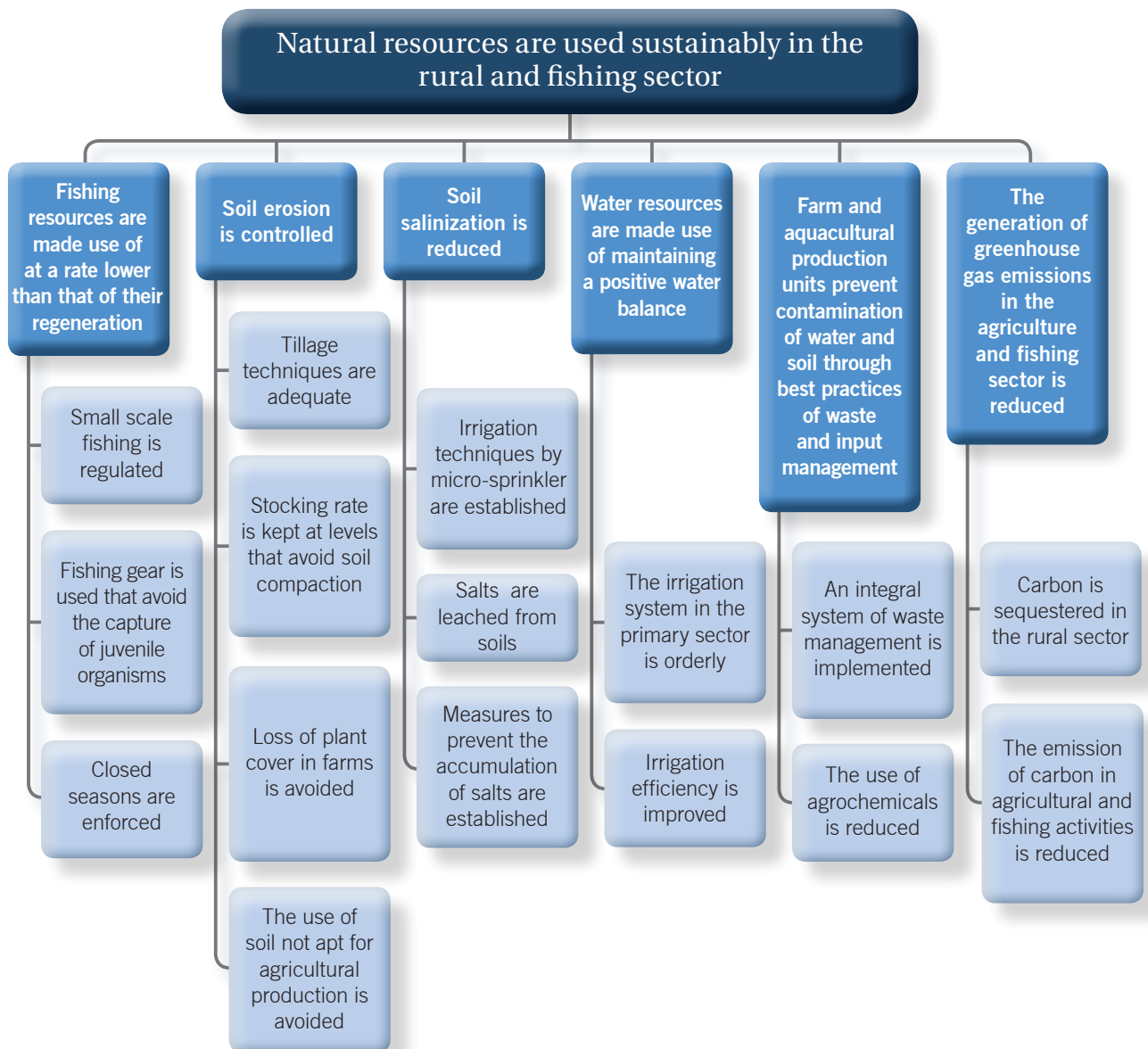


Source: *Diagnóstico del sector rural y pesquero de México*. FAO-SAGARPA.

In turn, each one of these causes is explained by more specific causes. For example, causes of the overexploitation of fishing resources include the excess of small-scale fishing vessels, the excessive capture of juvenile organisms, and failure to enforce closed seasons.

Based on this problem tree, experts in the area proposed the following objectives tree, in which the desired situations are expressed (Figure 14).

FIGURE 14. OBJECTIVES TREE FOR THE DESIGN OF A PROGRAM ON SUSTAINABLE USE OF NATURAL RESOURCES IN THE RURAL AND FISHING SECTOR OF MEXICO



As can be seen, the main task in the construction of the objectives tree consists of substituting all the negative situations of the problem tree with positive situations. Through this process it is possible to delineate the objectives of a program or project. However, to concretely define its Outputs and Activities, it is necessary to do an alternatives analysis. Regarding the central problem, this becomes the Purpose upon expressing the desired situation that reverses the negative situation expressed in the problem (Figure 15). The Outputs should be those in number and nature that are sufficient and necessary to achieve the Purpose.

FIGURE 15. PURPOSE AND OUTPUTS IN THE RURAL AND FISHING SECTOR

Purpose. Natural resources are used sustainably in the rural and fishing sector

Output 1

Fishing resources are made use of at a rate lower than that of their regeneration

Output 2

Soil erosion is controlled

Output 3

Soil salinization is reduced

Output 4

Water resources are made use of maintaining a positive water balance

Output 5

Farm and aquacultural production units prevent contamination of water and soil through best practices of waste and input management

Output 6

The generation of greenhouse gases in the agriculture and fishing sector is reduced

For their part, in order to achieve each Output, the necessary and sufficient Activities to contribute to carrying out such Output should be specified (Figure 16).

FIGURE 16. GENERAL ACTIVITIES FOR EACH OUTPUT

| | |
|--|---|
| <p>Output 1 Fishing resources are made use of at a rate lower than that of their regeneration</p> | <ul style="list-style-type: none"> 1.1 Regulate small scale fishing 1.2 Use of fishing gear that prevents the capture of juvenile organisms 1.3 Enforce closed seasons |
| <p>Output 2 Soil erosion is controlled</p> | <ul style="list-style-type: none"> 2.1 Adopt adequate tillage techniques 2.2 Apply measures to ensure the stocking rate is maintained at levels that prevent soil compaction 2.3 Implement actions to prevent the loss of plant cover in farm production units 2.4 Implement actions to prevent the use of land not apt for farm production |
| <p>Output 3 Soil salinization is reduced</p> | <ul style="list-style-type: none"> 3.1 Establish micro-sprinkler irrigation systems 3.2 Leach salts from soil 3.3 Establish measures that prevent salt accumulation |
| <p>Output 4 Water resources are made use of maintaining a positive water balance</p> | <ul style="list-style-type: none"> 4.1 Regulate the irrigation system in the primary sector 4.2 Promote the efficient use of water |
| <p>Output 5 Farm and aquacultural production units prevent contamination of water and soil through best practices of waste and input management</p> | <ul style="list-style-type: none"> 5.1 Implement an integral waste management system 5.2 Implement measures to reduce the use of agrochemicals |
| <p>Output 6 The generation of greenhouse gases in the agriculture sector is reduced</p> | <ul style="list-style-type: none"> 6.1 Implement actions for carbon sequestration in the rural sector 6.2 Implement measures for the reduction of carbon emissions in agriculture and fishing activities |

Once the Activities relevant for each of the Outputs are defined, the alternatives pertinent for carrying out the Activities should be analyzed and selected.

Output 1: Fishing resources are made use of at a rate lower than that of their regeneration

ACTIVITIES :

1.1 Regulate small scale fishing

1.2 Use of fishing gear that prevents the capture of juvenile organisms

1.3 Enforce closed seasons

Activity 1.1 Regulate small scale fishing

For Activity 1.1 “Regulate small scale fishing”, three alternatives were identified. The first one proposes the regulation of small scale fishing through the implementation of a system of transferrable fishing quotas according to the biomass limit. The second alternative suggests adjusting the number of grantable permits according to the capacity of each region, such that when the number of grantable permits is exceeded cancellation is applied, and when the number of grantable permits is below the limit the legalization of illegal fishermen is allowed. The third alternative proposes the buyback of fishing permits. The three alternatives are based on the need to know the biomass limit per fishery to establish a number of grantable permits and to strengthen oversight.

Alternative A. Implement a system of transferrable fishing quotas based on biomass limits

- a. Evaluate the biomass limit in each fishery
 - i. Establish the number of grantable permits
- b. Implement a system of transferrable fishing quotas according to the biomass limit
- c. Identify and remove illegal fishermen
 - i. Establish a temporary employment program for illegal fishermen
- d. Strengthen the oversight capacities in the fishing sector

Alternative B. Adjust the number of grantable permits based on the capacity of each region

- a. Evaluate the biomass limit in each fishery
 - i. Establish the number of grantable permits
- b. Identify and remove illegal fishermen
 - i. Establish a temporary employment program for illegal fishermen
- c. Adjust the number of grantable permits
 - i. Cancellation of fishing permits according to the number of grantable permits (when the limit of permissible biomass is exceeded)
 - ii. Legalize illegal fishermen according to the number of grantable permits (when the permissible biomass is not exceeded)
- d. Strengthen the oversight capacities in the fishing sector

Alternative C. Buyback fishing permits

- a. Evaluate the biomass limit in each fishery
 - i. Establish the number of grantable permits
- b. Identify and remove illegal fishermen
 - ii. Establish a Program of Temporary Employment for illegal fishermen
- c. Buy back fishing permits
- d. Strengthen the oversight capacities in the fishing sector

Activity 1.2 Use of fishing gear that prevents the capture of juvenile organisms

For Activity 1.2 “Use of fishing gear that prevents the capture of juvenile organisms” two alternatives were identified, which are complementary:

Alternative A. Substitute fishing equipment and gear

- a. Substitute and acquire fishing equipment and gear
 - i. Provide subsidies for the purchase of fishing equipment and gear that prevent the capture of juvenile organisms

Alternative B. Train fishermen

- a. Train fishermen
 - i. Prepare a catalog of fishing gear
 - ii. Carry out demonstration projects in which the capture of juvenile organisms is prevented

Activity 1.3 Enforce closed seasons

Only one alternative was identified for Activity 1.3 “Enforce closed seasons”, which consists of:

Alternative A. Strengthen the activities of inspection and oversight

- a. Strengthen the activities of inspection and oversight
 - i. Increase the inspection and oversight corps
 - ii. Train the inspection and oversight corps
 - iii. Purchase of equipment for inspectors and oversight personnel
- b. Implement a penalties system
- c. Develop campaigns to raise awareness of enforcement of closed seasons

Output 2: Soil erosion is controlled

A C T I V I T I E S :

- 2.1 Adopt adequate tillage techniques
- 2.2 Apply measures to ensure the stocking rate is maintained at levels that prevent soil compaction
- 2.3 Implement actions to prevent the loss of plant cover in farm production units
- 2.4 Implement actions to prevent the use of land not apt for farm production

Activity 2.1 Adopt adequate tillage techniques

Four alternatives for Activity 2.1 “Adopt adequate tillage techniques” are proposed:

Alternative A. Implement conservation tillage

- a. Grant compensation for soil conservation
- b. Subsidize soil conservation tillage activities
- c. Provide training and technical assistance through “farm schools”

Alternative B. Promote crop rotation and crops interspersed with fruit trees (CIFT)

- a. Subsidize the purchase of plant material for the promotion of CIFT
- b. Provide training and technical assistance on CIFT systems through “farm schools”

Alternative C. Implement agro-forestry

- a. Subsidize the purchase of plant material for agro-forestry
- b. Provide training and technical assistance in agro-forestry through “farm schools”

Alternative D. Conversion to crops that fix soil nutrients

- a. Develop and disseminate technology packages
- b. Subsidize the planting of crops that fix soil nutrients
- c. Provide training and technical assistance through “farm schools”

Activity 2.2 Apply measures to ensure the stocking rate is maintained at levels that prevent soil compaction

Two alternatives are identified for Activity 2.2 “Apply measures to ensure the stocking rate is maintained at levels that prevent soil compaction”:

Alternative A. Implement best practices systems in grassland management

- a. Train livestock producers in the best use of grassland
- b. Subsidize the implementation of best practices in grassland management

Alternative B. Promote the stabling of livestock

- a. Provide training to producers for the production and conservation of low cost forage
- b. Subsidize the purchase of farm assets for the stabling of livestock
- c. Provide training and technical assistance for handling stabled livestock

Activity 2.3 Implement actions to prevent the loss of plant cover in farm production units

Two alternatives are proposed for Activity 2.3 “Implement actions to prevent the loss of plant cover in farm production units”:

Alternative A. Control the expansion of farm land

- a. Implement penalties for changing land use

Alternative B. Recover abandoned farm land

- a. Develop and disseminate technology packages
- b. Subsidize the application of technology packages through which farm land can be recovered

Activity 2.4 Implement actions to prevent the use of land not apt for farm production

As an alternative for Activity 2.4 “Implement actions to prevent the use of land not apt for farm production” the following is proposed:

Alternative A. Control the expansion of farm land

- b. Implement penalties for changing land use

Output 3: Soil salinization is reduced

ACTIVITIES :

- 3.1 Establish micro-sprinkler irrigation systems
- 3.2 Leach salts from soil
- 3.3 Establish measures that prevent salt accumulation

Activity 3.1 Establish micro-sprinkler irrigation systems

The following are considered alternatives of Activity 3.1 “Establish micro-sprinkler irrigation systems”:

Alternative A. Subsidize the purchase of micro-sprinkler irrigation systems

- a. Provide subsidies for the purchase of sprinkler irrigation equipment

Alternative B. Provide training and technical assistance for the use of technified irrigation

- a. Training and technical assistance on the use and implementation of technified irrigation systems

Activity 3.2 Leach salts from soil

The following alternatives are established for Activity 3.2 “Leach salts from soil”:

Alternative A. Grant subsidies for soil washing activities

- a. Provide subsidies for soil washing activities

Alternative B. Provide training and technical assistance for soil washing activities

- a. Training and technical assistance on soil washing activities

Activity 3.3 Establish measures that prevent salt accumulation

The following alternatives are considered for Activity 3.3 “Establish measures that prevent salt accumulation”:

Alternative A. Promote among producers adequate water drainage

- a. Provide subsidies for the purchase of sprinkler irrigation equipment

Alternative B. Cancel water use permits in aquifers with salinization problems

- a. Carry out an analysis to determine the level of salt concentration in aquifers
- b. Cancel water use permits in aquifers with serious salinization problems
- c. Determine and implement alternative systems to capture irrigation water

Alternative C. Implement alternative systems for the capture and use of irrigation water

- a. Subsidize infrastructure and equipment for the capture of rain water
- b. Give training on management and maintenance of rain water capture systems

Alternative D. Treatment of salty waters

- a. Provide support for carrying out salty water treatment works
- b. Subsidize works for the distribution of treated water

Output 4. Water resources are made use of maintaining a positive water balance

ACTIVITIES :

4.1 Regulate the irrigation system in the primary sector

4.2 Promote the efficient use of water

Activity 4.1 Regulate the irrigation system in the primary sector

The following are alternatives of Activity 4.1 “Regulate the irrigation system in the primary sector”:

Alternative A. Implement a system of optimal irrigation quotas

- a. Evaluate the optimum levels of water extraction
- b. Establish the permissible water extraction quotas
- c. Establish a penalties system
- d. Control water levels within the optimum levels
 - i. Establish a penalties system

Alternative B. Regulate the concessioning of water wells

- a. Evaluate the optimum levels of water extraction
- b. Establish the permissible water extraction quotas
- c. Cancellation of illegal wells

Alternative C. Strengthen the oversight system of assigned quotas

- a. Cancellation of illegal wells
- b. Control water levels within the currently established quotas
 - i. Establish a penalties system
- c. Allow the transfer of water quotas

Activity 4.2 Promote the efficient use of water

Two alternatives were formulated for Activity 4.2 “Promote the efficient use of water”:

Alternative A. Conditioned use of subsidies for the purchase of equipment and infrastructure

- a. Establish an incentives system for the efficient use of water through a differentiated subsidy according to water savings

Alternative B. Substitute traditional irrigation systems with technified systems

- a. Subsidize the purchase of technified irrigation equipment
- b. Provide training and technical assistance for the operation of technified irrigation equipment

Output 5. Farm and aquaculture production units prevent contamination of water and soil through best practices of waste and input management

ACTIVITIES :

- 5.1 Implement an integral waste management system
- 5.2 Implement measures to reduce the use of agrochemicals

Activity 5.1 Implement an integral waste management system

There are two alternatives for Activity 5.1 “Implement an integral waste management system”:

Alternative A. Promote waste management practices according to the characteristics of producers

- a. Implement organic waste management programs. For example, production of compost, use of manure as organic fertilizer, installation of biodigestors, etc.
- b. Implement a program of integral inorganic waste management that includes the establishment of chemical waste disposal sites in rural areas

Alternative B. Implement industrial ecology practices in the agriculture and fishing sector

- a. Identify the main wastes generated in the primary sector
- b. Identify possibilities of use of such wastes
- c. Provide training and technical assistance to Rural Economic Units (REU) for the identification of wastes generated at production farm units and the possibilities for use and exchange of such wastes with other REUs
- d. Implement an incentives system for producers that participate in the closing the material loop program in agriculture and fishing systems

Activity 5.2 Implement measures to reduce the use of agrochemicals

Two alternatives were identified for Activity 5.2 “Implement measures to reduce the use of agrochemicals”:

Alternative A. Promote the use of organic fertilizer and pesticides

- a. Provide training and technical assistance for the use of organic fertilizers and pesticides

Alternative B. Promote the development of organic agriculture

- a. Provide training and technical assistance for the development of organic crops
- b. Implement compensatory schemes to encourage the transition from traditional to organic crops
- c. Grant support for the marketing of organic agricultural products

Output 6: The generation of greenhouse gas emissions in the agriculture and fishing sector is reduced

ACTIVITIES :

6.1 Implement actions for carbon sequestration in the rural sector

6.2 Implement measures for the reduction of carbon emissions in agriculture and fishing activities

Activity 6.1 Implement actions for carbon sequestration in the rural sector

The following alternative is identified for Activity 6.1 “Implement actions for carbon sequestration in the rural sector”:

Alternative A. Incentivize actions to capture carbon in the rural sector

- a. Identification of the actions that permit carbon sequestration in the primary sector of the rural sector
- b. Establishment of incentives for the implementation of agro-forestry practices
- c. Provide training and technical assistance on agro-forestry and adequate pasture management
- d. Promotion of practices to increase the content of organic matter in farm soil
- e. Reforestation of areas with forestry potential

Activity 6.2 Implement measures for the reduction of carbon emissions in agriculture and fishing activities

Two alternatives were identified for Activity 6.2 “Implement measures for the reduction of carbon emissions in agriculture and fishing activities”:

Alternative A. Promote activities for the reduction of greenhouse gas emissions

- a. Identify low greenhouse gas emissions activities in the primary sector
- b. Promote the use of bioenergy and renewable energy in farm and fishing units
- c. Implement training programs for the preparation and use of fertilizers and pesticides low in carbon
- d. Provide training regarding the application of nitrogen fertilizer for its more efficient use and on application techniques to diminish emissions due to volatilization
- e. Promote low carbon animal manure management systems
- f. Implement programs to prevent open burning in farm fields

Alternative B. Promote energy savings and efficiency in the agriculture and fishing sector

- a. Identify the main sources of energy consumption in the primary sector
- b. Substitution of high fossil fuel consumption equipment with more efficient equipment
- c. Implement cogeneration processes in farm units
- d. Eliminate government subsidies that incentivize the consumption of fossil fuels
- e. Promote the use of animal manure for the generation of energy in the primary sector

FIGURE 17. ALTERNATIVES TREE (PART 1)

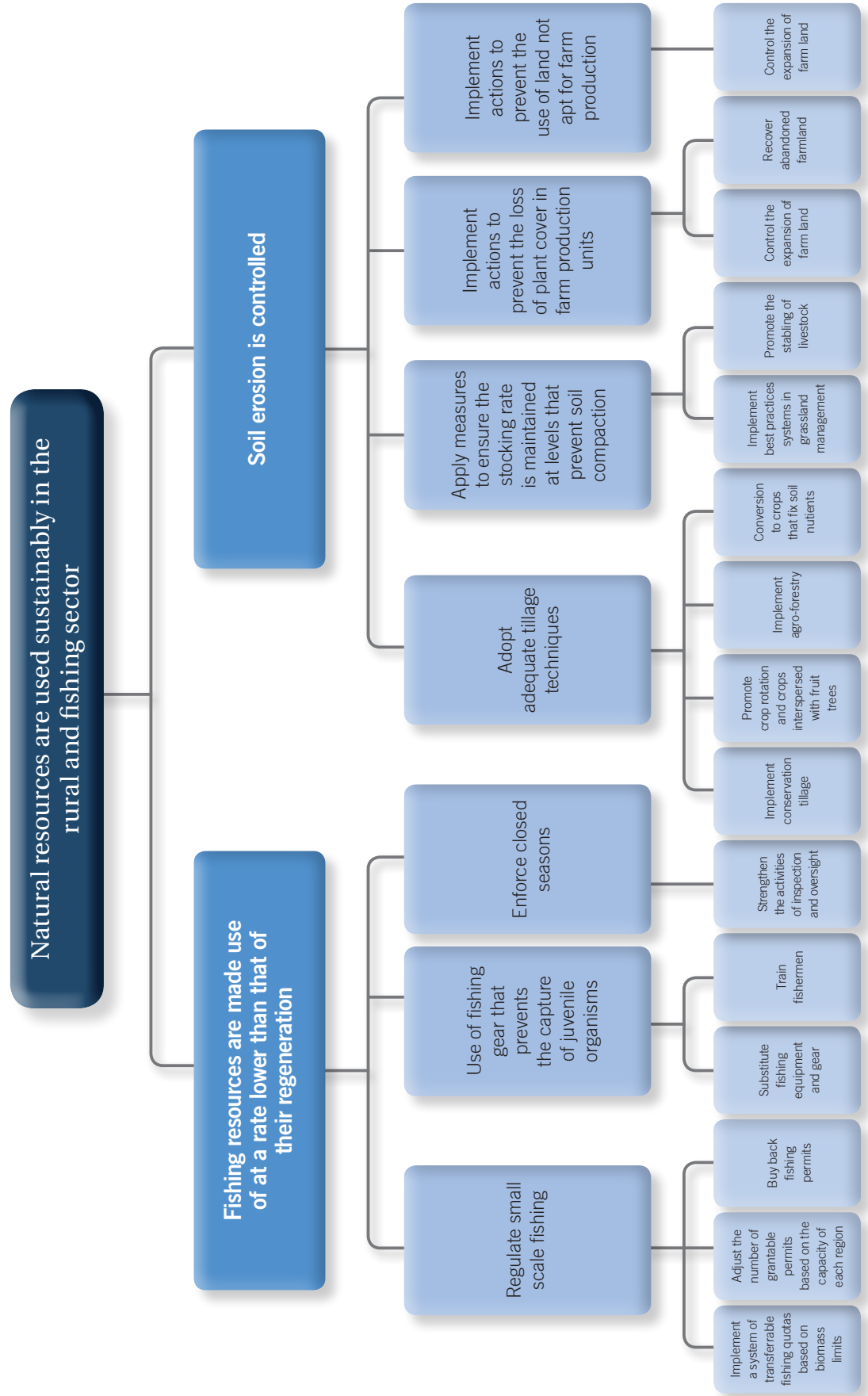


FIGURE 17. ALTERNATIVES TREE (PART 2)

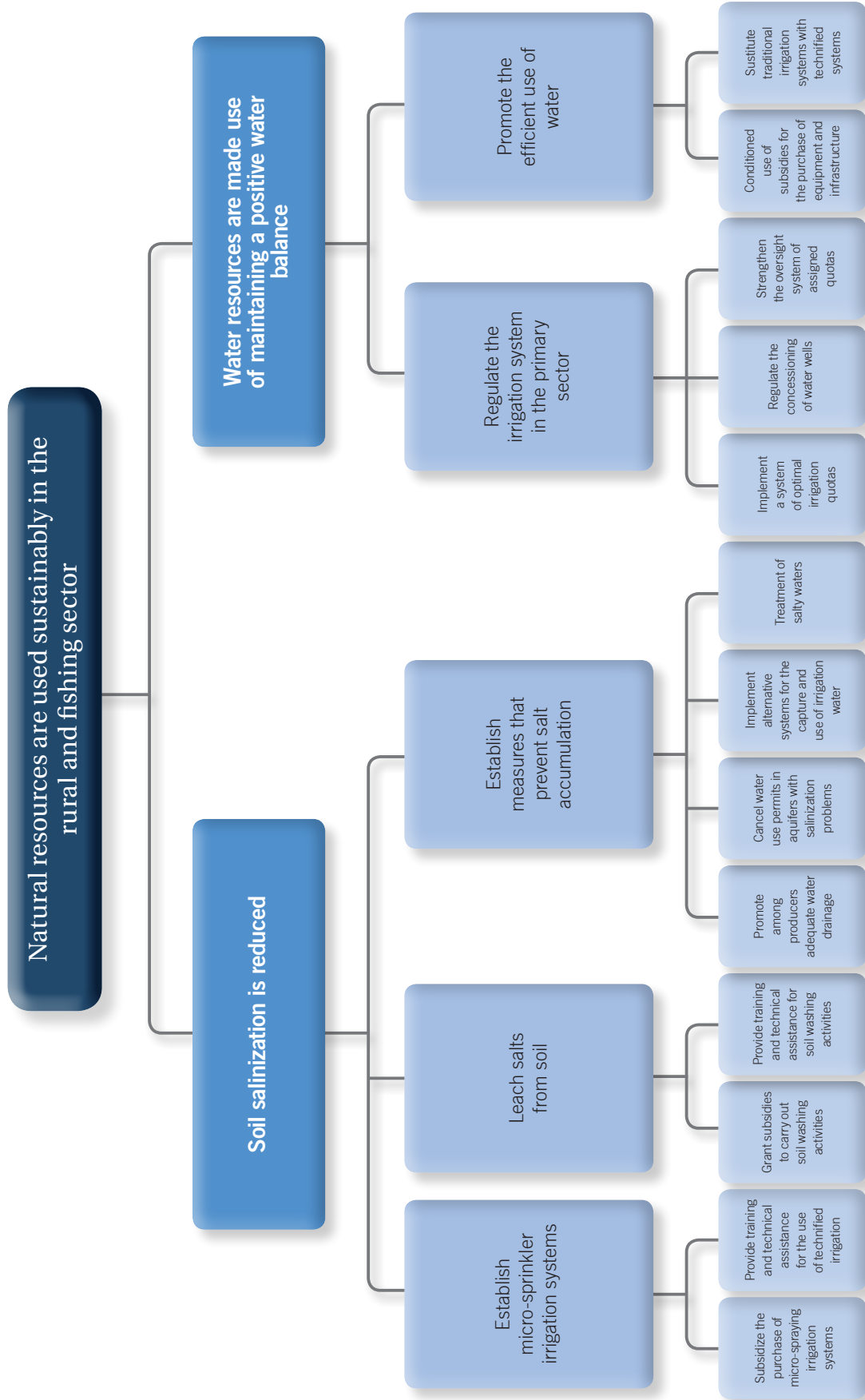
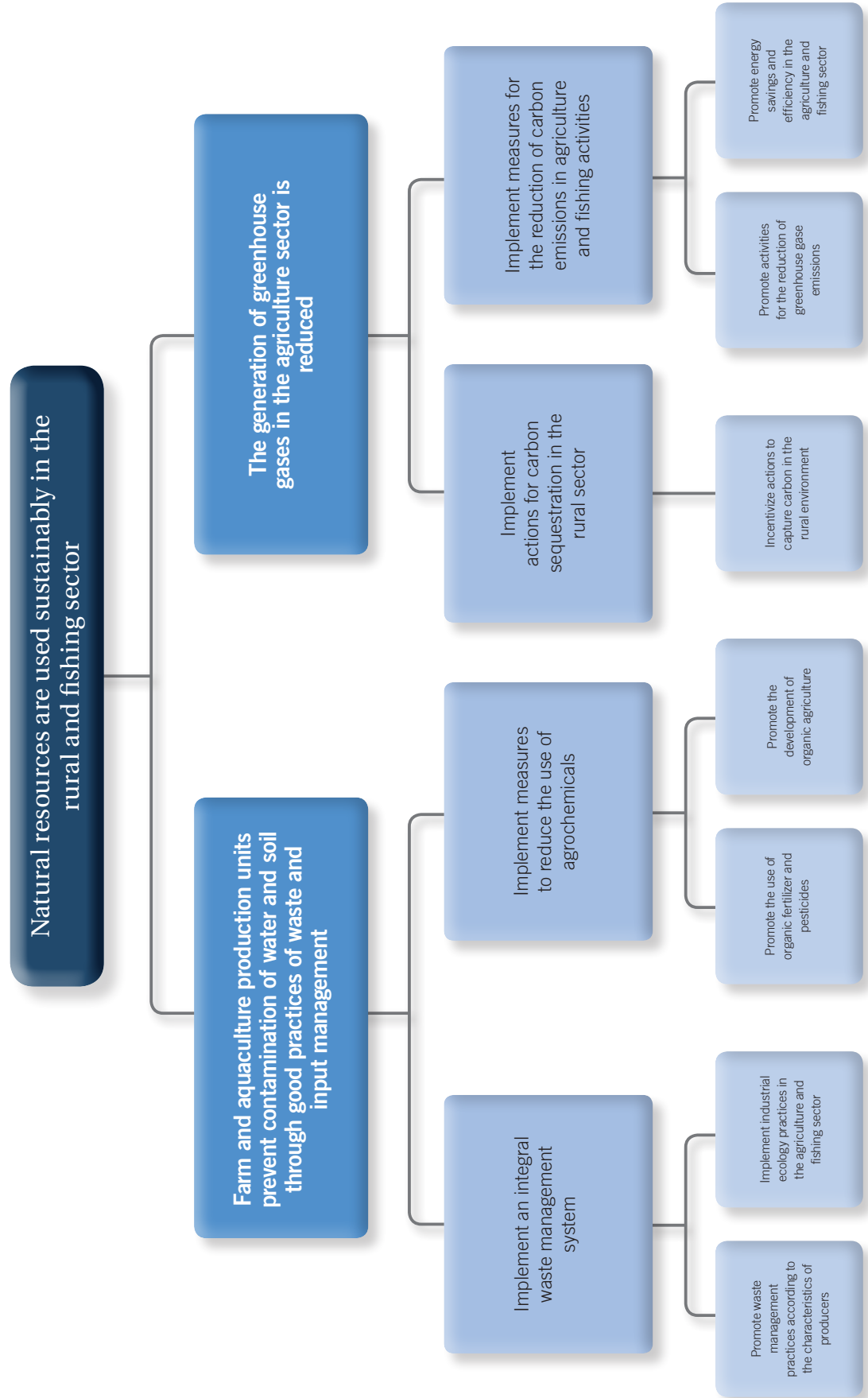


FIGURE 17. ALTERNATIVES TREE (PART 3)



2.2 Development of indicators of the budgetary programs in Mexico

In addition to objectives and alternatives, indicators are central to the design of a program or project. They measure the achievement of the objectives, the product of the Outputs and the carrying out of the Activities. In the case of Mexico, the budgetary programs use the Logical Framework, also called Indicators Matrix for Results (IMR)³.

As with the Logical Framework, the IMR includes the objectives of a program (narrative summary), the indicators, the means of verification and the assumptions or risks that could influence its success or failure.

With regard to the indicators of the IMR, a performance indicator reference sheet is prepared which contains, among other things, the following elements⁴ for adequate monitoring and evaluation:

- a. **Name of the indicator.** This is the expression that identifies the indicator and which indicates what is to be measured with it.
- b. **Method of calculation.** This refers to the algebraic expression of the indicator; that is, the simple explanation of the way in which the variables are related in order to calculate the indicator.
- c. **Direction of the indicator.** This refers to the direction the behavior of the indicator should have in order to identify when its performance is positive or negative. It can have a rising or descending direction. When the direction is rising, the target will always be greater than the baseline value; thus, if the result is higher than planned this is indicative of good performance, and when it is lower it means a negative performance. When the direction is descending, the target will always be less than the baseline value, and therefore if the result is less than the planned target this is indicative of good performance, and when it is greater it indicates a negative performance.
- d. **Frequency of measurement.** This refers to the time frequency with which the measurement of the indicator is made (period between measurements).
- e. **Unit of measure.** This refers to the specific determination of the form in which the results of the measurement upon applying the indicator is to be expressed.
- f. **Baseline.** This is the initial value of the indicator that is taken as a reference to compare with the objective's progress.
- g. **Target.** A target allows for the establishment of limits or levels of achievement by indicating an expected level of performance. The target that is determined should be oriented toward significantly improving the results and impacts; that is, it should be ambitious but at the same time feasible to achieve; therefore, the target should be realistic with respect to the time period, and the human and financial resources involved.
- h. **Warning parameters.** These identify whether or not the behavior of the indicator is adequate or according to expectations:
 - Acceptable (green)
 - At risk (yellow)
 - Critical (red)
- i. **Means of verification.** They identify sources of information in order to measure the indicators and verify that the objectives were met.

Below there is an example of the identification of the basic elements of the indicators of SAGARPA's Program to Support Investment in Equipment and Infrastructure (Table 5).

3 The IMR is a tool that makes it possible to link the different instruments for the design, organization, execution, monitoring, evaluation, and improvement of the program, which is the result of a planning process done based on the LFM.

4 This information was taken from the Annexes of the official circular 307-A-1142 issued by the Ministry of Finance and Public Credit (Secretaría de Hacienda y Crédito Público) (SHCP) of Mexico in relation to the construction of the IMR of the budgetary programs.

TABLE 5. PERFORMANCE INDICATOR REFERENCE SHEET OF THE IMR OF SAGARPA'S PROGRAM TO SUPPORT INVESTMENT IN EQUIPMENT AND INFRASTRUCTURE

| Objective level | Narrative summary | Name | Method of calculation | Direction | Frequency of measurement | Unit of measurement | Baseline | | Targets | | Traffic Signals | | Means of verification |
|-----------------|--|---|---|-----------|--------------------------|---------------------|--|------|----------------|---------------------|-----------------|------------|---|
| | | | | | | | Value | Year | Cycle target | Target to year 2012 | Green-Yellow | Yellow-Red | |
| Goal | Contribute to increasing the level of income of rural producers and fishermen through the capitalization of their economic units | Rate of variation of real net income of rural producers and fishermen | $\left[\frac{\text{Real net income of rural producers and fishermen in year } t_0 + i}{\text{Real net income of rural producers and fishermen in year } t_0} - 1 \right] * 100$ | Rising | Triennial | Percentage | Average annual income of producers in 2008: 65,188 pesos | 2008 | Not applicable | 5% | ±15% | ±30% | Database of beneficiaries survey |
| Purpose | Rural producers and fishermen increase the levels of capitalization of their economic units | Percentage of increase of the real value of assets in rural and fishing economic units | $\left[\frac{\text{Real value of assets in rural and fishing economic units in year } t_0 + i}{\text{Value of assets in rural and fishing economic units in year } t_0} - 1 \right] * 100$ | Rising | Triennial | Percentage | Average value of producers' assets in 2008: 19,229 pesos | 2008 | Not applicable | 5% | ±15% | ±30% | Database of beneficiaries survey |
| Output 1 | Production infrastructure available for production units' rural and fishing projects | Percentage of rural and fishing economic units with production infrastructure available | $\left(\frac{\text{Number of rural and fishing economic units endowed with production infrastructure}}{\text{Total number of rural and fishing economic units}} \right) * 100$ | Rising | Annual | Percentage | 36.8% | 2008 | 44.36% | 44.4% | ±10% | ±20% | Certificates of closing and settlements stored in the administrative information system |

Continued on next page >

| Objective level | Narrative summary | Name | Method of calculation | Direction | Frequency of measurement | Unit of measurement | Baseline | | Targets | | Traffic Signals | | Means of verification |
|-----------------|--|---|--|-----------|--------------------------|---------------------|----------|------|--------------|---------------------|-----------------|------------|---|
| | | | | | | | Value | Year | Cycle target | Target to year 2012 | Green-Yellow | Yellow-Red | |
| Output 2 | Machinery and equipment available for production units' rural and fishing projects | Percentage of rural and fishing economic units with machinery and equipment | (Number of rural and fishing economic units endowed with machinery and equipment / Total number of rural and fishing economic units) * 100 | Rising | Annual | Percentage | 36.6% | 2008 | 26.33% | 26.4% | ±10% | ±20% | Certificates of closing and settlements stored in the administrative information system |
| Output 3 | Improved genetic material available for greater efficiency of production units | Percentage of rural and fishing economic units with improved genetic material | (Number of rural and fishing economic units with improved genetic material / Total number of rural and fishing economic units) * 100 | Rising | Annual | Percentage | 26.61% | 2008 | 29.31% | 29.4% | ±10% | ±20% | Certificates of closing and settlements stored in the administrative information system |

Source: Data obtained from the IMR of the Program to Support Investment in Equipment and Infrastructure 2011 by the Mexican Ministry of Agriculture (SAGARPA). The original IMR contained indicators that were not included in this matrix due to the fact that certain data were missing, such as the source of verification, the baseline value or it involved indicators that cannot be monitored.

2.3 Baseline study of SAGARPA Programs

The baseline study of the SAGARPA Programs was conducted in order to have baseline data that would make it possible to evaluate the effects of the Programs on the target population to which they are addressed. According to the Rules of Operation of SAGARPA Programs, the target population is composed of *“the individuals or entities that, individually or collectively, engage in agricultural, livestock, fishing, aquaculture, agroindustrial, and any other rural activities”*⁵.

TABLE 6. POTENTIAL POPULATION AND TARGET POPULATION

The **potential population** corresponds to the total population that presents the need and/or problem and that justifies the design of a program or project. However, due to financial or time restrictions that do not permit benefiting all of such population, it becomes necessary to make a distinction between the potential population and the target population.

The **target population** is a subgroup of the potential population on which attention is focused.

For example, for the Program for the Sustainability of Natural Resources, which provides support and services to develop projects promoting an appropriate use of natural resources, the target population entitled to receive such support is defined as *“the individuals or entities that engage in agriculture and livestock production activities that are located in the municipalities classified as the greatest priority based on the degree of deterioration, scarcity or overexploitation of productive resources”*.

The baseline study was conducted, independently, in 31 of the 32 states of the Mexican Republic in order to be representative at that level, and subsequently each of the state databases was integrated into a national database.

For the collection of data in the field, the same sampling design and survey methodology was applied in the 31 states to obtain the data necessary for the calculation of the baseline indicators.

A) SAMPLE DESIGN

Step 1: Construction of the sampling frame

The sampling design began with the construction of the sampling frame, which was developed in each state by using beneficiary lists of federal and state programs, producer registries, and administrative registries such as the national fishing registry, as well as any other list related to rural and fishing activities.

5 SAGARPA. Rules of Operation for the SAGARPA 2008, 2009, and 2010 Programs.

Based on the analysis of compiled data, three subpopulations of Rural Economic Units⁶ (REU) were identified. These were:

- i. N_e : Rural Economic Units that had the information to be classified in strata⁷.
- ii. N_{ne} : Rural Economic Units that did not have sufficient information to be stratified.
- iii. N_{nl} : Rural Economic Units about which there was no information at all but there was knowledge about their existence based on previous information provided by the National Survey on Occupation and Employment (ENOE).

Hence, the universe of the programs' target population was formed from the sum of the three subpopulations:

$$N = N_e + N_{ne} + N_{nl}$$

In total, 5,424,430 Rural Economic Units were counted, of which 3,919,639 (72.2%) were stratified, 649,333 (12.0%) were not possible to stratify, and 855,458 (15.8%) were not possible to list. More details are available in Annex 1.

Once the sampling frame was constructed, the next step was to determine the sampling design for each type of subpopulation.

i) SAMPLING DESIGN FOR THE SUBPOPULATION OF STRATIFIABLE REUs (N_e)

For the subpopulation of stratifiable REUs a Random Stratified Sampling (RSS) was used. Subsequently, a Simple Random Sampling (SRS) was applied to each stratus independently. To obtain the sampling frame for each stratus (N_i), the REUs were considered according to the degree of territorial marginalization where they are located (high/very high, medium, and low/very low) and the level of farm assets (low, medium and high), thereby forming nine strata (Table 7).

TABLE 7. STRATA IN WHICH THE TARGET POPULATION WAS CLASSIFIED

| Strata | | Level of assets | | |
|---------------------------------------|-----------------|-----------------|-----------------|-----------------|
| | | Low | Medium | High |
| Degree of marginality of the locality | High/ very high | E ₁₁ | E ₁₂ | E ₁₃ |
| | Medium | E ₂₁ | E ₂₂ | E ₂₃ |
| | Low/ very low | E ₃₁ | E ₃₂ | E ₃₃ |

Source: FAO. Guía metodológica para el levantamiento de la línea de base de los Programas de la SAGARPA.

6 A REU is defined, according to the Rules of Operation of SAGARAPA Programs, as the individual or entity, whether or not tied to land, that engages in agricultural, fishing or other production, industrial or services activities in the rural sector.

7 The strata were classified according to the farm assets they had and the degree of marginalization.

Once the strata were defined, the sample size of each stratus on which the baseline was conducted was determined using the following formula:

$$n_e = \frac{\left(\sum_{i,j=1}^k N_{ij} s_{ij} \right)^2}{(N_e)^2 V + \sum_{i,j=1}^k N_{ij} s_{ij}^2}$$

Where:

n_e = Size of the sample for the group n_e

N_e = Number of units of the subpopulation composed of stratifiable REUs

N_{ij} = Number of units of the target population of stratus ij (population size of each stratus).

s_{ij}^2 = Variance of stratus ij (estimated based on income data taking as a source the Evaluation of Alianza para el Campo 2006)

$V = d^2 / Z^2 \alpha/2$

d = Margin of error (each state could apply a margin of error between 0.03 and 0.11)

$Z^2 \alpha/2$ = Value of tables for a certain confidence level (each state determined its own level of confidence, oscillating between 0.90 and 0.97)

k = Number of strata: 9

Once the sample size (n_e) was obtained for this subpopulation in each state, the assignment of sample size by stratus (n_{ij}) was done using the *Optimum Assignment* procedure; that is, more units were selected in the groups of greater variability; the formula used was the following:

$$n_{ij} = \frac{N_{ij} s_{ij}}{\sum_{i,j=1}^k N_{ij} s_{ij}} n_e$$

Where N_{ij} and s_{ij} were already previously defined.

For stratifiable REUs, Annex 2 presents the sample size for each stratus for all states. Nationally there was a total of 20,753 sampling REUs for this subpopulation.

ii) SAMPLING DESIGN FOR THE SUBPOPULATION OF NON-STRATIFIABLE REUs (N_{ne})

For the subpopulation of non-stratifiable REUs (N_{ne}) the Simple Random Sampling (SRS) was applied. In this way it was guaranteed that 12.0% of the REU that were in this situation at the national level had the same probability of being selected. The state sample size for this group of REUs (N_{ne}) was determined by using the following formula:

$$n_{ne} = \frac{n_e}{N_e} N_{ne}$$

Where n_{ne} represents the state sample size for non-stratifiable REUs; and N_e and n_e correspond to the variables as defined previously.

Annex 3 presents the sample size results by state for the non-stratifiable subpopulation. Nationally, there was a total sample of 3,360 REUs for this listed subpopulation, but with not enough data to be classified as stratifiable.

iii) SAMPLING DESIGN FOR THE SUBPOPULATION OF NON-LISTED REUs (N_{nl})

For the subpopulation of non-listed REUs (N_{nl}) the systematic sampling method was applied. This subpopulation represented 15.7% of the target population. The sample size for this subpopulation was obtained by using the following formula:

$$n_{nl} = \frac{n_e}{N_e} N_{nl}$$

Where n_{nl} represents the sample size for the non-listed units (N_{nl}).

Annex 4 presents the sample size results by state for the non-listed subpopulation. Nationally, the sample for this subpopulation reached 2,214 REUs. Finally, the sample size (n) for each state resulted from the summation of three subsamples:

$$\begin{aligned} n &= n_e + n_{ne} + n_{nl} \\ n &= 20,753 + 3,360 + 2,214 \\ n &= 26,327 \end{aligned}$$

Step 2: Sample selection

The third and last step consisted of selecting the sample units of each subpopulation. As for the listed subpopulations (stratifiable and non-stratifiable) the procedure was the same, while for the non-listed subpopulation a different method was used.

i) PROCEDURE FOR SELECTING THE SAMPLING UNITS OF LISTED SUBPOPULATIONS

Once the sample sizes n_e and n_{ne} were determined for each state, the sample units to be surveyed were selected systematically. For example, in the case of the subpopulation of stratifiable REUs the following was done:

1. The list of heads of REU was put in alphabetical order by last name and numbered progressively.
2. A coefficient k was then calculated, which resulted from dividing the total number of the target population of each stratus by the sample size calculated for such stratus. The coefficient k is a partition that is required in the systematic selection of a sample:

$$k = \frac{N_{ij}}{n_{ij}}$$

The value of k is not rounded off, such that if it is multiplied by the sample size the size of the population is obtained. With this procedure, as many partitions as are required are generated in the population according to the sample size. From each of these partitions one element was selected.

3. A number s was randomly selected from the closed interval between 1 and k^8 .
4. From the number s , a direct and systematic selection was initiated, within the sampling framework, of the target population to be surveyed, such that the selected units were those resulting from rounding off each one of the following numbers separately: $s, s+k, s+2k, s+3k, s+4k, \dots$ until completing the n_{ij} sample units⁹.

The inclusion of the random number s in the pattern $s, s+k, s+2k, s+3k, s+4k, \dots$ guarantees equal probability of selection for the entire population. In this way it is possible to obtain a sample with behavior similar to that of a simple random sample, with the advantage that the systematic sampling makes it possible to verify the sample selection¹⁰.

ii) PROCEDURE FOR SELECTING THE SAMPLE UNITS OF THE NON-LISTED SUBPOPULATION

The procedure for obtaining the members of the sample n_{nl} could be carried out with two different methodologies: systematic sampling or snowball sampling.

Systematic sampling

1. In each state all the rural localities that had never had access to the SAGARPA Programs were listed (crossing the list of localities obtained from the registry of beneficiaries against the list of localities by state according to the 2007 Agriculture, Livestock and Forestry Census).
2. The ejidal commissary, representative of the locality, or any other source of authorized information was contacted to obtain an alphabetical list of the existing REUs.
3. $k = (N_{nl}) / (n_{nl})$ was calculated.
4. A number s was selected randomly from the closed interval between 1 and k .
5. Parting from the number s , a direct and systematic selection was initiated, within the list of REUs obtained through step 2, such that the units being selected were those resulting from separately rounding off each one of the following numbers: $s, s+k, s+2k, s+3k, s+4k, \dots$ until the n_{nl} sampling units were completed.

Snowball sampling

The snowball sampling method is appropriate in situations in which the elements that make up the sampling framework are not known, but their existence is known although they are not listed in any registry.

The application of this sampling method consists of:

1. Identifying and preparing a list of all rural localities that have not been reached by the governmental programs;
2. Making a random selection of these localities in order to determine where the survey would be applied.

8 This operation can be carried out with the help of a spreadsheet like Excel.

9 Numbers with decimals greater than or equal to 0.5 are rounded to the whole number immediately above. Numbers with decimals less than 0.5 are rounded to the whole number immediately below.

10 In the event that the support of the Programs had been granted to groups, the members of the groups became part of the sampling framework on which the design was applied.

In each locality selected, the first REUs are located and interviewed (with the help of the local authorities). These initial interviewees are asked to name other elements of the target population (generally other REUs of the same locality) to be interviewed, who in turn name other REUs for interview. The process continues until the required sample size for this subpopulation is met.

B) QUESTIONNAIRE DESIGN

The instrument that was designed for gathering field data consisted of a questionnaire, which was structured to collect data that allows for the calculation of indicators. The questionnaire structure is shown in Table 8. The questionnaire itself is presented as Tool 1 in this document.

TABLE 8. QUESTIONNAIRE STRUCTURE FOR CONDUCTING THE BASELINE STUDY OF THE SAGARPA PROGRAMS

| MODULE | | PRINCIPAL TOPIC |
|--------|-----------------------------------|---|
| I | Identification of the interviewee | Age, gender, level of schooling, size of family, principal activity. |
| II | Rural economic unit | Land tenure and source of moisture, agricultural activities, livestock activities, aquaculture activities, fishing activities, transformed or processed products. |
| III | Other income | Remittances, etc. |
| IV | Governmental aid | Aid received from development programs. |
| V | Financial services | Loan institutions, loan amounts and use of the loans. |
| VI | Agro-food and fishing information | Access to and use of information for production decision making. |
| VII | Satisfaction of the beneficiary | Satisfaction of the beneficiaries with the program and the aid received. |
| VIII | Complementary questions | Other questions of interest. |

Source: Instrumentos y guía metodológica para el levantamiento de la línea de base de los Programas 2008 de SAGARPA.

To ensure the quality of data collected, care was taken that the questionnaire had the following attributes: pertinence of the questions (correct technical formulation), language used (simplicity, precision, fluidity), consistency (coherence among topics and questions), and extension (length of the interview).

Conducting a baseline study is extremely important because it makes it possible to measure the results and impacts of a program or project. Through the baseline, information is revealed for measuring the effectiveness and determining the continuation, modification or conclusion of the policy instruments that are being implemented. Hence, the process carried out to collect field information for the baseline was indispensable for calculating the indicators established in each of the SAGARPA Programs.

S u m m a r y

The Design is the second stage of a program or project cycle. It begins with the analysis of objectives and ends with the construction of the Logical Framework. The first step consists of preparing an objectives tree based on the analysis of the problem tree (prepared in the Diagnostic stage). The objectives tree is a logical representation of the desired situation to be reached through an intervention, and the means that are required to achieve it. These means are analyzed to identify the most convenient strategy in terms of relevance, efficiency, efficacy, financial viability, institutional viability, and environmental impact in the analysis of alternatives.

From the selection of the best alternatives the Activities that would make it possible to produce the Outputs are determined. The Outputs, in turn, lead to the achievement of the Purpose which in itself contributes to the Goal. The coherent relationship among these four levels of objectives is known as vertical logic.

Subsequently, the indicators and means of verification are defined. These elements are inseparable from the objectives, since it is based on these that performance of a project can be measured and its effectiveness determined. The coherent concurrence of these three elements constitutes the horizontal logic or coherence among objective, indicator and means of verification.

The final step is to determine the important assumptions or premises on which the implementation of a program or project rests, and the realization of which constitutes a condition for advancing towards the achievement of the next objective level. This is known as diagonal logic.

This series of analytical steps utilizing logical methods is synthesized in the Logical Framework, which is an instrument that contains the most important elements that make up a program or project.

The use of the Logical Framework Method in the development of this stage is very important. Among other advantages, this method impedes the existence of multiple objectives in a project or program, or the inclusion of Activities that do not lead to achieving the objective. In addition, it leads to clearly defined mechanisms for the adequate implementation and monitoring of the program or project.

Finally, it is in this stage that the baseline or base measurement of the project or program indicators is conducted. This stage is carried out before the start of the program's implementation, since it constitutes the point of reference upon which the progress of a program or project towards the achievement of the objectives is determined.

III Tools



TOOL 1

Questionnaire for the baseline of the rural and fishing sector programs

Interview date

| | | | | | | | | | | |
|-----|--|--|--|--|--|--|-------|--|------|--|
| | | | | | | | | | | |
| Day | | | | | | | Month | | Year | |

QUESTIONNAIRE NUMBER

| | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|
| | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|

QUESTIONNAIRE CODE

| | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|
| | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|

Name Code

State¹

Municipality²

Locality³

- 1/** See table of states.
- 2/** See table of municipalities.
- 3/** See table of localities.

Name of interviewer: Name(s) First last name Second last name

BEGINNING OF THE INTERVIEW

Good morning-afternoon-evening, I belong to a team of interviewers who are gathering data to evaluate the rural and fishing sector programs. With this questionnaire it is intended to collect data on production activities carried out by producers and the operation of aid programs, in order to revise and improve their performance. For these purposes, I kindly ask you to give me a few minutes of your time to answer the following questions. The information you provide me will be kept confidential and will be used exclusively for program evaluation.

I. Identification of the interviewee

a) What is your name?

(Refers to the person to be interviewed and can be primary producers, processors, marketers or others).
 Name(s) First last name Second last name

b) Name of informant:

(If the person selected for the application of the questionnaire is not available, record the name of the informant).
 Name(s) First last name Second last name

c) What is your address?

Street or another reference Exterior number Interior number
 Locality Municipality State
 Colonia, development, unit or barrio Code Code
 See localities table See municipalities table See states table

d) Where is your unit of production located?

e) Interviewer: the interviewee¹ is: **Man** **Woman**

^{1/} Refers to the person selected for the application of the questionnaire, not the informant. Ask only when the person selected is not available.

f) How old are you? years old.

g) What was the last year or grade of school you completed?

- None
- of primary
- of secondary
- of high school
- of technical school studies
- of university studies
- of graduate studies

Interviewer: h) Does the interviewee speak Spanish?

Yes: (1)

No: (0)

i) Does the interviewee speak an indigenous language?

Yes: (1)

No: (0)

j) How many persons depend on you economically?

Of these persons:

How many are under 14 years old?

How many are 14 years old or older?

Number of persons

k) In what production activity(ies) do you engage mainly?¹

(Interviewer: Whatever the activity(ies) the producer engages in, also ask the question in the following subsection I).

| | | | |
|---|-------|--|-------|
| Agriculture | ----- | Forestry and/or gathering ⁵ | ----- |
| Livestock | ----- | Non-agricultural rural activities ⁶ : | |
| Aquaculture ² | ----- | Groceries | ----- |
| Fishing ³ | ----- | Bakery | ----- |
| Processing of primary products ⁴ | ----- | Tortilla maker | ----- |
| | | Other | ----- |

- 1/ Mark with an X the three main activities according to their importance for income generation in the agricultural year 2010. The **agricultural year** 2010 is the period from April 2010 to March 2011.
- 2/ If the interviewee ONLY engages in aquaculture, apply question 1, 1,2 and skip to question 45.
- 3/ If the interviewee ONLY engages in fishing, skip to question 1 and then to question 53.
- 4/ If the interviewee ONLY engages in the processing of products, skip to question 1 and then to question 61.
- 5/ If the interviewee ONLY engages in forestry and/or gathering, ask question 1, 1,2 and skip to question 71.
- 6/ If the interviewee ONLY engages in non-agricultural rural activities, skip to question 74.

l) Do you belong to any economic organization of producers?

No (individual producer): (0)

Yes, but carries out his/her production activities individually:

Yes, and carries out his/her production activities collectively with the other partners (as if a single REU):

No. of members

| |
|--|
| |
| |

1/ REU: Rural Economic Unit.

Interviewer: If the interviewee belongs to an economic organization of producers, correctly identify the REU and ask the following questions of the questionnaire regarding that REU.

II. Rural economic unit

2.1 Land tenure and source of moisture

1. Of the total land area that you use in your production unit

| | how much land area... | Unit of measurement ¹ |
|--|-----------------------|----------------------------------|
| 1. is yours? | ----- | ----- |
| 2. is rented, sharecropped, loaned or owned in another form? | ----- | ----- |

^{1/} Record the code according to the units of measurement table.

2. Of the total land...

| | that you own, how much land area is... | Unit of measurement ¹ | that is rented, sharecropped or owned in another form, how much land area is... | Unit of measurement ¹ |
|------------------------------|--|----------------------------------|---|----------------------------------|
| 1. irrigated? | _____ | _____ | _____ | _____ |
| 2. rain-fed? | _____ | _____ | _____ | _____ |
| 3. of residual moisture? | _____ | _____ | _____ | _____ |
| 4. hill or mountain pasture? | _____ | _____ | _____ | _____ |
| 5. greenhouse ² ? | _____ | _____ | _____ | _____ |
| 6. forest? | _____ | _____ | _____ | _____ |
| 7. another type? | _____ | _____ | _____ | _____ |

^{1/} Record the code according to the units of measurement table.
^{2/} This category should include greenhouses, nurseries, shade cover (shading lattice), macro-tunnels, and other agricultural systems under weather control. If ONLY this option was selected, skip to question 3 and then to question 11.

Interviewer: If the interviewee engages in agricultural production, skip to question 3; if he/she engages in livestock production skip to question 18.

2.2 Agricultural activities

3. In the 2010 agricultural year, as a result of your agricultural activities, you produced...

Only primary products (without transforming or processing)? Primary products and transformed or processed products?¹

^{1/} In this case apply the question of this section (2.2) and section 2.6 Transformed or processed products.

2.2.1 Annual crops

4. In the 2010 agricultural year, did you grow any crop that lasts less than one year?

Yes: (1)

No: (0)

If no, skip to question 7.

5. In the 2010 agricultural year, in your agricultural activity...

| what crops did you grow, beginning with the main one? ¹ | the crops were of the cycle... SS? FW? | were they in companion planting? ³ | how much land area did you plant? | | how much land area was mechanized? | | How much was the total production? | | Of your total production ⁵ ... | | | at what price did you sell your harvest... (local currency/unit of measurement ⁷) | | Of your subproducts, byproducts and/or stubble... | | | |
|--|---|---|-----------------------------------|----------------------------------|------------------------------------|----------------------------------|------------------------------------|----------------------------------|---|---------|-------------------------------------|--|-----------------|---|------------------------|----------------------------------|---|
| | | | Amount | Unit of measurement ⁴ | Amount | Unit of measurement ⁴ | Amount | Unit of measurement ⁴ | How much did you sell... in the country? | abroad? | for the family (food)? ⁶ | for production (inputs)? | in the country? | abroad? | how much did you sell? | Unit of measurement ⁴ | at what price? (local currency/unit of measurement) |
| 1. | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ |
| 2. | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ |
| 3. | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ |
| 4. | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ |
| 5. | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ |

1/ If the interviewee grows crops in companion planting (on the same land) record on separate lines the information for each crop.
 The **principal crop** refers to the one that generates the greatest income for him/her in his/her unit of production.
 2/ See crops table.
 3/ Mark with an X in the case of crops grown in companion planting.
 4/ Record the code according to the units of measurement table.
 5/ In these columns the information should be recorded using the same unit of measurement as used for the total production (previous column); if applicable, the corresponding conversion should be made.
 6/ If he/she has not sold his/her production and it has been used for family consumption, ask the price in the locality or region of the product placing it in the space corresponding to *price in the country*.
 7/ Use the same unit of measurement recorded in total production.

Question 6 continued... (Interviewer: Keep the same order of crops)

| Crop | Code ³ | If you did weed control... | | | | | If you did pest and/or disease control... | | | | | | |
|------|-------------------|--|---|----------------------------------|--|---|---|---------------------------------------|--|--|----------------------------------|---|--|
| | | Chemical control: | | | | | Manual control: | | on how many hectares did you apply pesticides and/or fungicides? | what amount of pesticides and/or fungicides did you use per hectare? | Unit of measurement ⁵ | how much did the products applied cost per unit of measurement? | how much did the application of the products cost per hectare? |
| | | on how many hectares did you apply herbicides? | what amount of herbicide did you use per hectare? | Unit of measurement ⁵ | how much did the herbicide cost you per unit of measurement? | how much did the application of the product cost you per hectare? | on how many hectares did you do manual control? | how much did it cost you per hectare? | | | | | |

1. _____
2. _____
3. _____
4. _____
5. _____

Question 6 continued... (Interviewer: Keep the same order of crops)

| Crop | Code ³ | If you applied irrigation... | | | | | On how many hectares did you apply some of the following types of irrigation? | | | | | |
|------|-------------------|--------------------------------------|---|--|--|----------------|---|---------|------------------|------------------------|-------------|-------|
| | | how much land area did you irrigate? | If you hold ⁷ the rights for the use of water ... | | If you are not the holder of the water use rights, how much did it cost you to irrigate? | Earthen canals | Lined canals | Cannons | Sprinkler system | Micro-sprinkler system | Drip system | Other |
| | | | how much did you pay for the use of electricity for irrigation? | how much did it cost you to irrigate your crops (use rights, labor or others)? | | | | | | | | |

1. _____
2. _____
3. _____
4. _____
5. _____

Question 6 concluded... (Interviewer: Keep the same order of crops)

| Crop | Code ³ | In the harvest ... | | How much was the cost of ... | | Other costs | |
|------|-------------------|------------------------------------|---|---|--|---|---|
| | | how many hectares did you harvest? | what was the cost of harvest per hectare? | rent of infrastructure and/or facilities? | depreciation of infrastructure and/or facilities; ⁸ | How much did you pay in total for shipping? | How much did you pay for expenses other than those mentioned? |
| 1. | | | | | | | |
| 2. | | | | | | | |
| 3. | | | | | | | |
| 4. | | | | | | | |
| 5. | | | | | | | |

- 1/** State the costs in local currency.
- 2/** If the interviewee grows crops in companion planting, record the common costs only on the line corresponding to the main crop; and in the case of differentiated costs (such as seed, pest and/or disease control, harvest or others) these must be recorded in the corresponding crop.
 - 3/** See crops table.
 - 4/** Refers to plant material used to initiate a crop.
 - 5/** Record the code according to the units of measurement table.
 - 6/** Includes, if applicable, the cost of rowing and padding.
 - 7/** Refers to holding a water concession right issued by the government.
 - 8/** The depreciation value will be obtained from the data that is recorded in question 77.

2.2.2 Perennial crops

7. In the 2010 agricultural year, in your production unit did you have pastures, plantations, fruit trees or other types of crops with a cycle greater than one year?

Yes: (1) No: (0)

If no, skip to question 11.

Question 10 concluded... (Interviewer: Keep the same order of crops)

| Crop | Code ² | In the harvest... | | How much was the cost for the concept of... | | | Other costs | |
|------|-------------------|------------------------------------|---|---|--|---|---|--|
| | | how many hectares did you harvest? | what was the cost of harvest per hectare? | rent of infrastructure and/or facilities? | depreciation of infrastructure and/or facilities? ⁶ | How much did you pay in total for shipping? | How much did you pay for expenses other than those mentioned? | |

1. _____
2. _____
3. _____

1/ Express the costs in local currency.
2/ See crops table.
3/ Record the code according to the units of measurement table.
4/ Indicate the cost of the pruning for the whole land area on which it was done.
5/ Refers to holding a concession title for water issued by the government.
6/ The depreciation value will be obtained from the data that is recorded in question 77.

2.2.3 Crops grown in greenhouses¹

1/ Include under this category greenhouses, nurseries, shade cover (shading lattice), macro-tunnels and other agriculture systems under weather control.

11. From April 2010 to March 2011, in your unit of production did you plant crops in a greenhouse?

Yes: (1) No: (0)

If no, go to question 14.

Question 13 continued... (Interviewer: Keep the same order of crops)

| Crop | Code ² | In the application of fertilizers ... | | | | In crop practices (pruning, plant supporting, clearing, light pruning, cleaning or others) ... | | | | If pest and/or disease control was done ... | | | |
|------|-------------------|---------------------------------------|----------------------------------|---|--|--|------------------------------------|----------------------------------|---|---|---|-------------------------------------|--|
| | | how much fertilizer did you use? | Unit of measurement ⁵ | how much did the fertilizer cost per unit of measurement? | how much did it cost to apply the fertilizers? | how much did it cost? | how many crop practices were done? | how many applications were done? | how much pesticide and/or fungicide was used per application? | Unit of measurement ⁵ | how much did the product used cost per unit of measurement? | how much did each application cost? | |
| 1. | | | | | | | | | | | | | |
| 2. | | | | | | | | | | | | | |
| 3. | | | | | | | | | | | | | |

Question 13 concluded... (Interviewer: Keep the same order of crops)

| Crop | Code ² | In irrigation ... | | | | In harvest ... | | | How much did it cost for ... | | | Other costs ... | |
|------|-------------------|---|--|----------------------------------|--|-------------------------------------|----------------------------------|--|--|--|---|---|--|
| | | how much did you pay for the consumption of electricity for irrigation? | how much did you spend on materials used for irrigation? | how much did you spend on water? | The irrigation system utilized was... ⁶ manual? technified? | how much land area did you harvest? | Unit of measurement ⁵ | what was the total cost of harvesting? | rent of infrastructure and/or facilities? ⁸ | depreciation of infrastructure and/or facilities? ⁸ | How much did you pay in total for shipping? | How much did you pay for expenses other than those mentioned? | |
| 1. | | | | | | | | | | | | | |
| 2. | | | | | | | | | | | | | |
| 3. | | | | | | | | | | | | | |

1/ State the costs in local currency.
 2/ See crops table.
 3/ All inputs and activities necessary to have the land in adequate condition for planting should be included.
 4/ Record the total amount used in greenhouses.
 5/ Record the code according to the units of measurement table.
 6/ Mark with an X. In case both systems are used indicate only the one with which the greatest land area is irrigated.
 7/ Includes materials, equipment, labor or others.
 8/ The depreciation value will be obtained from the data that are recorded in question 77.

2.2.4 Complementary questions on agricultural activities

14. In the 2010 agricultural year, did your production have any certification¹...

1. for organic crops? _____
2. for health? _____
3. for safety? _____
4. for environmental services? _____
5. for some other type? _____

^{1/} Mark with an X the type of certification it had, if applicable.

15. In the 2010 agricultural year, what percentage of your production was certified?

| Crop | Code ¹ | Percentage of product certified |
|------|-------------------|---------------------------------|
| 1. | _____ | _____ |
| 2. | _____ | _____ |
| 3. | _____ | _____ |

^{1/} See crops table.

16. In the 2010 agricultural year, in your agricultural activity...

| how many family members helped you? ¹ | how many hours per day on average did they help you? | during how many days on average did they help you? | Number of family days work used ² | How much does a day's work cost in the locality or region? |
|--|--|--|--|--|
| _____ | _____ | _____ | _____ | _____ |

^{2/} Interviewer: In this column the result of multiplying the three previous columns and dividing by 8 should be recorded.
 A day's work is equivalent to a working day which normally is 8 hours.
 Family day's work refers to labor provided by family members that helped on the farm without receiving compensation.

^{1/} Includes the producer, if applicable.

17. In the 2010 agricultural year...

| | | |
|--|--|--|
| did you receive a subsidy for diesel? ¹ | for how many liters did you receive the subsidy? | what was the total amount of liters used for your agricultural activities? |
|--|--|--|

1/ Mark with an X if affirmative.

Interviewer: Record the price per liter of diesel on the date of filling out the questionnaire: _____ local currency.

2.3 Livestock activities

18. From April 2010 to March 2011, as a result of your livestock activity, you produced...

only primary products (without transformation or processing)? primary products and products transformed or processed?¹

1/ Apply the questions of this section (2.3) and section 2.6 *Products transformed or processed*.

19. In your unit of production, do you have¹ ...

1. cattle?² _____
2. pigs?³ _____
3. hens and chickens?⁴ _____
4. sheep?⁵ _____
5. goats?⁶ _____
6. bees?⁷ _____
7. other animal species?⁸ _____

- 1/ Mark with an X only the three species that generate most of the income for the interviewee and apply the questionnaire only for those species.
 2/ Skip to question 20.
 3/ Skip to question 23.
 4/ Skip to question 26.
 5/ Skip to question 29.
 6/ Skip to question 32.
 7/ Skip to question 35.
 8/ Skip to question 38.

2.3.1 Cattle

20. Of the cattle you have...

| | how many are ... ¹ | what is the estimated total value? ² |
|------------------------------|-------------------------------|---|
| 1. for beef production? | _____ | _____ |
| 2. cows for milk production? | _____ | _____ |
| 3. double purpose cows? | _____ | _____ |
| 4. cows for seed stock? | _____ | _____ |
| 5. calves? | _____ | _____ |
| 6. breeding males? | _____ | _____ |

1/ Indicate the number of animals.
2/ State the value in local currency.

21. From April 2010 to March 2011, of your production...

| | how much was sold in the country? | Unit of measurement ¹ | how much was sold abroad? | Unit of measurement ¹ | how much was used for self-consumption | | Unit of measurement ¹ | at what price did you sell... (local currency/unit of measurement) | |
|-------------------------------|-----------------------------------|----------------------------------|---------------------------|----------------------------------|--|--------------------------|----------------------------------|---|---------|
| | | | | | for the family (food)? ² | for production (inputs)? | | in the country? | abroad? |
| 1. of animals for meat? | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ |
| 2. of calves? | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ |
| 3. of finalized animals? | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ |
| 4. of culled animals? | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ |
| 5. of milk? | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ |
| 6. of breeding stock animals? | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ |

1/ Record the code according to the units of measurement table.
2/ If the production was not sold and was used for family consumption, ask the price in the locality or region of the product and place it in the space corresponding to *price in the country*.

22. From April 2010 to March 2011, what were the costs in the production of cattle for¹...

| feed? ² | health? ³ | artificial insemination and/or mating? | consumption of electricity? | other inputs? | labor? | rent of equipment and facilities? | depreciation of equipment and facilities? ⁴ | other concepts? ⁵ |
|--------------------|----------------------|--|-----------------------------|---------------|--------|-----------------------------------|--|------------------------------|
| _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ |

- 1/** State the costs in local currency.
- 2/** Includes grazing, cut fodder, balanced feed, and feed supplements, among others, that have been purchased. Subsequently, if applicable, the interviewer should add to this item the cost of production of the feed produced by the producer him/herself (production self-consumption).
- 3/** Includes the cost of medicines, vaccines and payment of veterinary services, among others.
- 4/** The depreciation value will be obtained from the data that are recorded in question 77.
- 5/** Other expenses such as shipping, parts, etc.

2.3.2 Pigs

23. Of the pigs you have...

| | how many are ... ¹ | what do you estimate is their total value? ² |
|------------------------|-------------------------------|---|
| 1. female reproducers? | _____ | _____ |
| 2. fattening pigs? | _____ | _____ |
| 3. breeding stock? | _____ | _____ |
| 4. hogs? | _____ | _____ |

- 1/** Indicate the number of animals.
- 2/** State the value in local currency.

24. From April 2010 to March 2011, of your production...

| | how much was sold in the country | Unit of measurement ¹ | how much was sold abroad | Unit of measurement ¹ | what amount was used for self-consumption | | Unit of measurement ¹ | at what price did you sell... (local currency/unit of measurement) | |
|-----------------------|----------------------------------|----------------------------------|--------------------------|----------------------------------|---|--------------------------|----------------------------------|--|---------|
| | | | | | for the family (food)? ² | for production (inputs)? | | in the country? | abroad? |
| 1. of meat animals? | | | | | | | | | |
| 2. of finalized pigs? | | | | | | | | | |
| 3. of culled animals? | | | | | | | | | |
| 4. of weaning pigs? | | | | | | | | | |
| 5. of breeding stock? | | | | | | | | | |

^{1/} Record the code according to the units of measurement table.
^{2/} If the production was not sold and it was used for family self-consumption, ask the price in the locality or region of the product and place it in the space corresponding to *price in the country*.

25. From April 2010 to March 2011, what were the costs in the production of pigs for...

| feed ² | health ³ | artificial insemination or coupling? | consumption of water? | consumption of electricity? | other inputs? | labor? | rent of equipment and facilities? | depreciation of equipment and facilities? ⁴ | other concepts? ⁵ |
|-------------------|---------------------|--------------------------------------|-----------------------|-----------------------------|---------------|--------|-----------------------------------|--|------------------------------|
| | | | | | | | | | |

^{1/} State the costs in local currency.
^{2/} Includes balanced feed, feed supplements, among others, that had been bought. Subsequently, if applicable, the interviewer should add to this item the cost of production of the feed produced by the producer him/herself (production self-consumption).
^{3/} Includes the cost of medicines, vaccines, and payment of veterinarian services, among others.
^{4/} The depreciation value will be obtained from the data that is recorded in question 77.
^{5/} Expenses such as shipping, parts, etc.

2.3.3 Hens and chickens

26. Of the hens and chickens you have...

| how many are ... ¹ | what is the estimated total value? ² |
|-------------------------------|---|
| 1. laying hens? | _____ |
| 2. breeding hens? | _____ |
| 3. meat chickens? | _____ |
| 4. chicks? | _____ |

1/ Indicate the number of animals.
2/ State the value in local currency.

27. From April 2010 to March 2011, from your production...

| | how much did you sell on average monthly in the country | Unit of measurement ¹ | how much did you sell on average monthly abroad | Unit of measurement ¹ | how much was used during the year for self-consumption | | Unit of measurement ¹ | at what price did you sell... (local currency/unit of measurement) | |
|-----------------------|---|----------------------------------|---|----------------------------------|--|--------------------------|----------------------------------|---|---------|
| | | | | | for the family (food)? ² | for production (inputs)? | | in the country? | abroad? |
| 1. of meat chickens? | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ |
| 2. of eggs? | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ |
| 3. of other products? | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ |

1/ Record the code according to the units of measurement table.
2/ If the production was not sold and it was used for family consumption, ask the price in the locality or region of the product and place it in the space for *price in the country*.

28. From April 2010 to March 2011, what were the costs in the production of hens and chickens for¹...

| | | | | | | | | | |
|--------------------|----------------------|---------------|--------------------|--------------------------|---------------|--------|-----------------------------------|--|------------------------------|
| feed? ² | health? ³ | reproduction? | water consumption? | electricity consumption? | other inputs? | labor? | rent of equipment and facilities? | depreciation of equipment and facilities? ⁴ | other concepts? ⁵ |
|--------------------|----------------------|---------------|--------------------|--------------------------|---------------|--------|-----------------------------------|--|------------------------------|

- 1/** State the costs in local currency.
- 2/** Includes balanced feed, feed supplements, among others, that have been bought. Subsequently, if applicable, the interviewer should add to this item the cost of production of the feed produced by the producer him/herself (production self-consumption).
- 3/** Includes the cost of medicines, vaccines, and payment of veterinary services, among others.
- 4/** The depreciation value will be obtained from the data that is recorded in question 77.
- 5/** Expenses such as shipping, parts, etc.

2.3.4 Sheep

29. Of the sheep you have...

| | | |
|------------------------|---------------------------|---|
| | how many are ¹ | what is the estimated total value? ² |
| 1. female reproducers? | _____ | _____ |
| 2. fattening sheep? | _____ | _____ |
| 3. breeding stock? | _____ | _____ |

- 1/** Indicate the number of animals.
- 2/** State the value in local currency.

30. From April 2010 to March 2011, of your production...

| | how much did you sell in the country | Unit of measurement ¹ | how much did you sell abroad | Unit of measurement ¹ | how much was used for self-consumption | | Unit of measurement ¹ | at what price did you sell... (local currency/unit of measurement) | |
|--------------------------|--------------------------------------|----------------------------------|------------------------------|----------------------------------|--|--------------------------|----------------------------------|---|---------|
| | | | | | for the family (food)? ² | for production (inputs)? | | in the country? | abroad? |
| 1. of animals for meat? | | | | | | | | | |
| 2. of finalized animals? | | | | | | | | | |
| 3. of culled animals? | | | | | | | | | |
| 4. of wool? | | | | | | | | | |
| 5. of breeding stock? | | | | | | | | | |

1/ Record the code according to the units of measurement table.
2/ If the production was not sold and it was used for family consumption, ask the price in the locality or region of the product and place it in the space for *price in the country*.

31. From April 2010 to March 2011, what were the costs in the production of sheep for¹ ...

| feed? ² | health? ³ | artificial insemination or mating? | other inputs? | labor? | rent of equipment and facilities? | depreciation of equipment and facilities? ⁴ | other concepts? ⁵ |
|--------------------|----------------------|------------------------------------|---------------|--------|-----------------------------------|--|------------------------------|
| | | | | | | | |

1/ State the costs in local currency.
2/ Includes grazing, cut fodder, balanced feed, and feed supplements, among others, that have been purchased. Subsequently, if applicable, the interviewer should add to this item the cost of production of feed produced by the producer him/herself (production self-consumption).
3/ Includes the cost of medicines, vaccines, and payment of veterinary services, among others.
4/ The depreciation value will be obtained from the data that are recorded in question 77.
5/ E.g.: Expenses for shipping, parts, etc.

2.3.5 Goats

32. Of the goats you have...

| | how many are ... ¹ | what do you estimate is their total value? ² |
|--------------------------|-------------------------------|---|
| 1. for meat production? | _____ | _____ |
| 2. milk goats? | _____ | _____ |
| 3. double purpose goats? | _____ | _____ |
| 4. kids? | _____ | _____ |
| 5. breeding males? | _____ | _____ |

1/ Indicate the number of animals.
2/ State the value in local currency.

33. From April 2010 to March 2011, of your production...

| | how much did you sell in the country | Unit of measurement ¹ | how much did you sell abroad | Unit of measurement ¹ | how much did you use for self-consumption | | Unit of measurement ¹ | at what price did you sell... (local currency/unit of measurement) | |
|------------------------|--------------------------------------|----------------------------------|------------------------------|----------------------------------|---|--------------------------|----------------------------------|---|---------|
| | | | | | for the family (food)? ² | for production (inputs)? | | in the country? | abroad? |
| 1. of meat animals? | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ |
| 2. of finalized goats? | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ |
| 3. of kids? | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ |
| 4. of culled animals? | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ |
| 5. of milk? | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ |
| 6. of breeding stock? | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ |

1/ Record the code according to the units of measurement table.
2/ If the production was not sold and it was used for family consumption, ask the price in the locality or region of the product and place it in the space for price in the country.

34. From April 2010 to March 2011, what were the costs in the production of goats for¹...

| | | | | | | | |
|--------------------|----------------------|---------------|---------------|--------|---------------------------------------|--|---|
| feed? ² | health? ³ | reproduction? | other inputs? | labor? | rent of the equipment and facilities? | depreciation of equipment and facilities? ⁴ | how much did you spend for other concepts? ⁵ |
|--------------------|----------------------|---------------|---------------|--------|---------------------------------------|--|---|

- 1/ State the costs in local currency.
- 2/ Includes grazing, cut fodder, balanced feed, and feed supplements, among others, that have been purchased. Subsequently, if applicable, the interviewer should add to this item the cost of production of the feed produced by the producer him/herself (production self-consumption).
- 3/ Includes the cost of medicines, vaccines, and payment of veterinary services, among others.
- 4/ The depreciation value will be obtained from the data that are recorded in question 77.
- 5/ Expenses such as shipping, parts, etc.

2.3.6 Bees

35. In your beekeeping activity...

| | | |
|-------------------|--|---|
| | how many do you have of ... ¹ | what do you estimate as its total value? ² |
| 1. hives (boxes)? | _____ | _____ |
| 2. queen bees? | _____ | _____ |

- 1/ Indicate the amount.
- 2/ State the value in local currency.

36. From April 2010 to March 2011, of your production...

| | how much did you sell in the country | Unit of measurement ¹ | how much did you sell abroad | Unit of measurement ¹ | how much did you use for self-consumption | | Unit of measurement ¹ | at what price did you sell... (local currency/unit of measurement) | |
|-----------------------|--------------------------------------|----------------------------------|------------------------------|----------------------------------|---|--------------------------|----------------------------------|---|---------|
| | | | | | for the family (food)? ² | for production (inputs)? | | in the country? | abroad? |
| 1. of honey? | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ |
| 2. of royal jelly? | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ |
| 3. of pollen? | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ |
| 4. of wax? | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ |
| 5. of other products? | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ |

1/ Record the code according to the units of measurement table.
2/ If the production was not sold and it was used for family consumption, ask the price in the locality or region of the product and place it in the space for *price in the country*.

37. From April 2010 to March 2011, what were your costs of production for ...

| feed? ² | health? ³ | reproduction? | other inputs? | labor? | rent of equipment and facilities? | depreciation of equipment and facilities? ⁴ | other concepts? ⁵ |
|--------------------|----------------------|---------------|---------------|--------|-----------------------------------|--|------------------------------|
| _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ |

1/ State the costs in local currency.
2/ Includes feed supplements, among others.
3/ Includes the cost of medicines, vaccines, and payment of professional services, among others.
4/ The depreciation value will be obtained from the data that are recorded in question 77.
5/ Expenses such as shipping, parts, etc.

2.3.7 Other animal species¹

^{1/} Apply to species of production interest.

38. Of the animals you have...

| | how many are ...? ² | what do you estimate their total value is? ³ |
|---|--------------------------------|---|
| 1. horses? | _____ | _____ |
| 2. mules? | _____ | _____ |
| 3. burros? | _____ | _____ |
| 4. rabbits? | _____ | _____ |
| 5. fowl, except hens and chickens? ¹ | _____ | _____ |
| 6. other animals? | _____ | _____ |

^{1/} Such as ducks, geese, turkeys, ostriches, quails, and others.

^{2/} Indicate the number of animals.

^{3/} State the value in local currency.

39. From April 2010 to March 2011, of your production...

| Species | how much did you sell in the country? | Unit of measurement ¹ | how much did you sell abroad? | Unit of measurement ¹ | how much did you use for self-consumption? ² | Unit of measurement ¹ | at what price did you sell... (local currency/unit of measurement) | |
|----------|---------------------------------------|----------------------------------|-------------------------------|----------------------------------|---|----------------------------------|---|---------|
| | | | | | | | in the country? | abroad? |
| 1. _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ |
| 2. _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ |

1. _____

2. _____

^{1/} Record the code according to the units of measurement table.

^{2/} If the production was not sold and it was used for family consumption, ask the price in the locality or region of the product and place it in the space for price in the country.

40. From April 2010 to March 2011, what were the costs of production for¹...
(Interviewer: Keep the same order of species as question 39)

| Species | feed? ² | health? ³ | reproduction? | other inputs? | labor? | rent of equipment or facilities? | depreciation of equipment and facilities? ⁴ | other concepts? ⁵ |
|----------|--------------------|----------------------|---------------|---------------|--------|----------------------------------|--|------------------------------|
| 1. _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ |
| 2. _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ |

1/ State the costs in local currency.
2/ Includes grazing, cut fodder, balanced feed, and feed supplements, among others, that have been purchased. Subsequently, if applicable, the interviewer should add to this item the cost of production of the feed produced by the producer him/herself (production self-consumption).
3/ Includes the cost of medicines, vaccines and payment of veterinary services, among others.
4/ The depreciation value will be obtained from the data that are recorded in question 77.
5/ Expenses such as shipping, parts, etc.

2.3.8 Complementary questions on livestock activities

41. In the period from April 2010 to March 2011, did your production have any certification¹...

1. for health conditions? _____
2. for organic production? _____
3. for food safety? _____
4. for any other type? _____

1/ Mark with an X the type of certification you had, if applicable.

42. From April 2010 to March 2011, what percentage of your production was certified?

| Product | Percentage of the product certified |
|---------------|-------------------------------------|
| 1. Pork | _____ |
| 2. Lamb | _____ |
| 3. Cow's milk | _____ |
| 4. Eggs | _____ |
| 5. Honey | _____ |
| 6. Other | _____ |

43. From April 2010 to March 2011...

| Did you receive a subsidy for diesel? ¹ | For how many liters did you receive the subsidy? | How many liters in total did you use for your livestock activities? |
|--|--|---|
| _____ | _____ | _____ |

¹/ Mark with an X if yes.

Interviewer: Record the price per liter of diesel on the date of applying the survey: _____ local currency.

44. From April 2010 to March 2011, in your livestock activity...

| how many family members helped you? ¹ | how many hours a day on average did they help you? | for how many days on average did they help you? | Number of family day's work used ² | How much does a day's work cost in the locality or region? |
|--|--|---|---|--|
| _____ | _____ | _____ | _____ | _____ |

1/ Interviewer: In this column the result of multiplying the three previous columns and dividing by 8 should be recorded. A day's work is equivalent to a working day which usually lasts for 8 hours. *Family day's work* refers to those family members who helped him/her without receiving compensation.

2/ Interviewer: In this column the result of multiplying the three previous columns and dividing by 8 should be recorded. A day's work is equivalent to a working day which usually lasts for 8 hours. *Family day's work* refers to those family members who helped him/her without receiving compensation.

2.4 Aquaculture activities

45. From April 2010 to March 2011, as a result of your aquaculture activity, you produced...

only primary products (without transformation or processing)? primary products and transformed or processed products?¹

^{1/} Apply the questions of this section (2.4) and section 2.6 *Transformed or processed products*.

46. From April 2010 to March 2011, in your aquaculture activity...

| Aquaculture species | Code ¹ | how many M3 of capacity do your ponds or cages have? | how many animals do you produce per M3 of water? | how many juveniles did you produce in each period? | Unit of measurement ² | what quantity did you sell on average monthly... | | | | At what average price did you sell... (local currency/unit of measurement) | | | | | | | | | |
|---------------------|-------------------|--|--|--|----------------------------------|--|--|--|--|--|--|----------------------------------|--|--|--|--|--|--|--|
| | | | | | | of adult animals... in the country? | Unit of measurement ² abroad? | Unit of measurement ² in the country? | Unit of measurement ² abroad? | Juveniles... in the country? | Unit of measurement ² abroad? | adult animals... in the country? | Unit of measurement ² abroad? | | | | | | |
| 1. | | | | | | | | | | | | | | | | | | | |
| 2. | | | | | | | | | | | | | | | | | | | |
| 3. | | | | | | | | | | | | | | | | | | | |

^{1/} See the aquaculture and fishing species and products table.
^{2/} Record the code according to the units of measurement table.

47. From April 2010 to March 2011, in your aquaculture activity...

| Aquaculture species | Code ¹ | how much did you sell as sport fishing? | Unit of measurement ² | at what price did you sell your sport fishing product? (local currency/Unit of measurement) |
|---------------------|-------------------|---|----------------------------------|---|
| 1. | | | | |
| 2. | | | | |
| 3. | | | | |

^{1/} See aquaculture and fishing species and products table.
^{2/} Record the code according to the units of measurement table.

48. From April 2010 to March 2011, have you incorporated genetically improved animals into your aquaculture unit of production?

Yes: (1)

No: (0)

49. From April 2010 to March 2011, what were your average monthly costs for¹...

| | Aquaculture species | Code ² | feed? | health? ³ | extraction (harvest) of species? ⁴ | use of water? | consumption of electricity? | use of fuel? | labor? | rent of machinery, equipment and facilities? ⁵ | depreciation of machinery, equipment and facilities? ⁵ | other activities and inputs? ⁶ |
|----|---------------------|-------------------|-------|----------------------|---|---------------|-----------------------------|--------------|--------|---|---|---|
| 1. | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ |
| 2. | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ |
| 3. | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ |

¹ State the costs in local currency.

² See aquaculture and fishing species and products table.

³ Includes the cost of medicines, water analysis, species analysis, and payment of professional services, among others.

⁴ Excluding labor.

⁵ The depreciation value will be obtained from the data that is recorded in question 77.

⁶ Expenses such as shipping, parts, etc.

50. In the period from April 2010 to March 2011, did your aquaculture production have any certification¹ ...

2. for health? _____

3. for food safety? _____

4. for another type? _____

¹ Mark with an X the type of certification it had, if any.

51. From April 2010 to March 2011, what percentage of your aquaculture production was certified?

| Aquaculture species | Code ¹ | Percentage of the product certified |
|---------------------|-------------------|-------------------------------------|
| 1. _____ | _____ | _____ |
| 2. _____ | _____ | _____ |
| 3. _____ | _____ | _____ |

^{1/} See aquaculture and fishing species table.

52. From April 2010 to March 2011, in your aquaculture activity...

| how many family members helped you? ¹ | how many hours a day on average did they help you? | during how many days on average did they help you? ² | Number of family day's work used | How much does a day's work cost in the locality or region? |
|--|--|---|----------------------------------|--|
| _____ | _____ | _____ | _____ | _____ |

^{2/} *Interviewer:* In this column the result of multiplying the three previous columns and dividing by 8 should be recorded.
A day's work is equivalent to a working day which usually lasts for 8 hours.
Family day's work refers to those family members who helped him/her without receiving remuneration.

2.5 Fishing activities

53. From April 2010 to March 2011, as a result of your fishing activity, did you produce...

only primary products (without transformation or processing)? primary products and transformed or processed products?¹

^{1/} Apply the questions of this section (2.5) and section 2.6 *Transformed or processed products*.

54. From April 2010 to March 2011, what type of fishing did you do?

Coastal High Sea

55. From April 2010 to March 2011, in your fishing activity...

| what were the principal species you extracted? | Code ¹ | how much was extracted? | Unit of measurement ² | of the amount extracted, how much did you sell... | | at what price did you sell your product... | | | |
|--|-------------------|-------------------------|----------------------------------|---|----------------------------------|--|----------------------------------|-----------------|---------|
| | | | | in the country? | Unit of measurement ² | abroad? | Unit of measurement ² | in the country? | abroad? |
| 1. | | | | | | | | | |
| 2. | | | | | | | | | |
| 3. | | | | | | | | | |
| 4. | | | | | | | | | |
| 5. | | | | | | | | | |

1/ See aquaculture and fish species and products table.
2/ Record the code according to the units of measurement table.

56. From April 2010 to March 2011, what were your costs for¹...

| Fish species | Code ² | fuel? | labor? | rent of equipment and facilities? | depreciation of equipment and facilities? ³ | payment of marine services ³ | repairs of machinery and equipment? | other activities and inputs? ⁴ |
|--------------|-------------------|-------|--------|-----------------------------------|--|---|-------------------------------------|---|
| 1. | | | | | | | | |
| 2. | | | | | | | | |
| 3. | | | | | | | | |
| 4. | | | | | | | | |
| 5. | | | | | | | | |

1/ State the costs in local currency.
2/ See aquaculture and fish species and products table.
3/ The depreciation value will be obtained from the data that is recorded in question 77.
4/ Expenses such as shipping, parts, etc.

57. In the period from April 2010 to March 2011, did your fish products have any certification...

- 1. for environmental services? _____
- 2. for food safety? _____
- 3. for any other type? _____

1/ Mark with an X the type of certification it had, if any.

58. From April 2010 to March 2011, what percentage of your fish products were certified?

| Fish species | Code ¹ | Percentage of the product certified |
|--------------|-------------------|-------------------------------------|
| 1. _____ | _____ | _____ |
| 2. _____ | _____ | _____ |
| 3. _____ | _____ | _____ |

1/ See aquaculture and fish species table.

59. From April 2010 to March 2011...

| | | |
|--|--|---|
| Did you receive subsidies for diesel to fuel your boat? ¹ | For how many liters did you receive the subsidy? | What was the total amount of subsidized diesel that you used for your fishing activities? |
| _____ | _____ | _____ |

1/ Mark with an X if affirmative.

Interviewer: Record the price per liter of subsidized diesel as of the date of taking the survey: _____ local currency.

| | | |
|--|--|---|
| Did you receive subsidies for gasoline to fuel your boat? ¹ | For how many liters did you receive the subsidy? | What was the total amount of subsidized gasoline that you used for your fishing activities? |
| _____ | _____ | _____ |

1/ Mark with an X if affirmative.

Interviewer: Record the price per liter of subsidized gasoline as of the date of taking the survey: _____ local currency.

60. From April 2010 to March 2011, in your fishing activity...

| | | | | |
|--|--|---|---|--|
| how many family members helped you? ¹ | how many hours per day on average did they help you? | for how many days on average did they help you? | Number of family day's work used ² | How much does a day's work cost in the locality or region? |
|--|--|---|---|--|

1/ Interviewer: In this column the result of multiplying the three previous columns and dividing by 8 should be recorded. A day's work is equivalent to a working day which usually lasts for 8 hours.
2/ Interviewer: In this column the result of multiplying the three previous columns and dividing by 8 should be recorded. A day's work is equivalent to a working day which usually lasts for 8 hours.
Family day's work refers to those family members who helped him/her without receiving compensation.

2.6 Transformed or processed products

61. From April 2010 to March 2011, did you transform or process primary products...

from agriculture?¹ from livestock?² from aquaculture and/or fishing?³

1/ Go to question 62.
2/ Go to question 64.
3/ Go to question 66.

2.6.1 Transformed or processed agricultural products

62. From 2010 to March 2011...

| what type of processed products did you obtain? | Code ¹ | how much processed product did you obtain? | Unit of measurement ² | From the processed production obtained, what amount did you sell ... | | At what price did you sell your products... (local currency/unit of measurement) | |
|---|-------------------|--|----------------------------------|--|----------------------------------|--|----------------------------------|
| | | | | in the country? | Unit of measurement ² | abroad? | Unit of measurement ² |

1. _____
2. _____
3. _____
4. _____

1/ See transformed or processed products table.
2/ Record the code according to the units of measurement table.

63. For the transformed or processed products you obtained from April 2010 to March 2011, what were your average monthly costs for¹...

| Processed product | Code ² | raw materials ³ | labor? | fuel? | electricity consumption? | water consumption? | other inputs? ⁴ | shipping? | rent of machinery, equipment and facilities? ⁵ | depreciation of machinery, equipment and facilities? ⁵ | How much did you spend on other items? |
|-------------------|-------------------|----------------------------|--------|-------|--------------------------|--------------------|----------------------------|-----------|---|---|--|
| 1. | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ |
| 2. | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ |
| 3. | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ |
| 4. | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ |

1/ State costs in local currency.
2/ See transformed or processed products table.
3/ Such as grain, fruit, vegetables, among other agricultural products, purchased. Subsequently, if applicable, the interviewer should add to this item the cost of production of the raw materials produced by the producer him/herself (production self-consumption).
4/ Include the costs of materials such as boxes, plastics, wires, among others.
5/ The depreciation value will be obtained from the data that is recorded in question 77.

2.6.2 Transformed or processed agricultural products

64. From April 2010 to March 2011...

| What type of processed products did you obtain? | Code ¹ | how much processed product did you obtain? | Unit of measurement ² | of the processed production obtained, how much did you sell ... | | at what price did you sell your products... (local currency/unit of measurement) | |
|---|-------------------|--|----------------------------------|---|----------------------------------|--|---------|
| | | | | in the country? | Unit of measurement ² | in the country? | abroad? |
| 1. | _____ | _____ | _____ | _____ | _____ | _____ | _____ |
| 2. | _____ | _____ | _____ | _____ | _____ | _____ | _____ |
| 3. | _____ | _____ | _____ | _____ | _____ | _____ | _____ |
| 4. | _____ | _____ | _____ | _____ | _____ | _____ | _____ |

1/ See transformed or processed products table.
2/ Record the code according to the units of measurement table.

65. Of the transformed or processed products you obtained from April 2010 to March 2011, what were the average monthly costs you had for¹...

| Processed product | Code ² | raw materials? ³ | labor? | fuel? | electricity consumption? | water consumption? | other inputs? ⁴ | shipping? | rent of machinery, equipment and facilities? | depreciation of machinery, equipment and facilities? ⁵ | How much did you spend on other items? |
|-------------------|-------------------|-----------------------------|--------|-------|--------------------------|--------------------|----------------------------|-----------|--|---|--|
| 1. | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ |
| 2. | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ |
| 3. | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ |
| 4. | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ |

- 1/** State the costs in local currency.
2/ See transformed or processed products table.
3/ Such as milk, animals, skins, oils, honey, and wool, among others, purchased. Subsequently, if applicable, the interviewer should add to this item the cost of production of the raw materials produced by the producer him/herself (production self-consumption).
4/ Include the costs of materials such as boxes, plastics, wire, among others.
5/ The depreciation value will be obtained from the data that are recorded in question 77.

2.6.3 Transformed or processed aquaculture and/or fish products

66. From April 2010 to March 2011...

| What type of processed products did you obtain? | Code ¹ | how much processed product did you obtain? | Unit of measurement ² | Of the processed production obtained, how much did you sell... | | At what price did you sell your products... (local currency/unit of measurement) | |
|---|-------------------|--|----------------------------------|--|----------------------------------|--|---------|
| | | | | in the country? | Unit of measurement ² | in the country? | abroad? |
| 1. | _____ | _____ | _____ | _____ | _____ | _____ | _____ |
| 2. | _____ | _____ | _____ | _____ | _____ | _____ | _____ |
| 3. | _____ | _____ | _____ | _____ | _____ | _____ | _____ |
| 4. | _____ | _____ | _____ | _____ | _____ | _____ | _____ |

- 1/** See transformed or processed products table.
2/ Record the code according to the units of measurement table.

67. Of the transformed or processed products you obtained from April 2010 to March 2011, what were the average monthly costs you had for¹...

| Processed product | Code ² | raw materials ³ | labor? | fuel? | electricity consumption? | water consumption? | other inputs ⁴ | shipping? | rent of machinery, equipment and facilities? | depreciation of machinery, equipment and facilities? ⁵ | How much did you spend on other items? |
|-------------------|-------------------|----------------------------|--------|-------|--------------------------|--------------------|---------------------------|-----------|--|---|--|
| 1. _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ |
| 2. _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ |
| 3. _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ |
| 4. _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ |

1/ State the costs in local currency.
2/ See transformed products table.
3/ Refers to the aquaculture and/or fish species that are transformed.
4/ Include the costs of materials such as boxes, plastics, wire, among others.
5/ The depreciation value will be obtained from the data that are recorded in question 77.

2.6.4 Complementary questions

68. In the period from April 2010 to March 2011, did your production have any certification¹...

- 1. for food safety? _____
- 2. for environmental services? _____
- 3. for organic product? _____
- 4. for any other type? _____

1/ Mark with an X the type of certificate you had, if applicable.

69. From April 2010 to March 2011, what percentage of your production was certified?

| Product | Code ¹ | Percentage of product certified |
|----------|-------------------|---------------------------------|
| 1. _____ | _____ | _____ |
| 2. _____ | _____ | _____ |
| 3. _____ | _____ | _____ |

^{1/} See transformed or processed products table.

70. From April 2010 to March 2011, in the transformation or processing of your products...

| how many family members helped you ¹ ? | how many hours a day on average did they help you? | for how many days on average did they help you? | Number of family day's work used ² | How much does a day's work cost in the locality or region? |
|---|--|---|---|--|
| _____ | _____ | _____ | _____ | _____ |

^{1/} Interviewer: In this column you should record the results of multiplying the three previous columns and dividing by 8. A day's work is equivalent to one working day which normally is 8 hours.
^{2/} Interviewer: In this column you should record the results of multiplying the three previous columns and dividing by 8. A day's work is equivalent to one working day which normally is 8 hours.
Family day's work refers to those family members that helped him/her without receiving any compensation.

2.7 Forestry and gathering activities

71. From April 2010 to March 2011...

| what species or products did you make use of and/or gather? | Code ¹ | what land area did you make use of? (if applicable) | Unit of measurement ² | how much did you cut and/or gather? | Unit of measurement ² | Of the amount cut and/or gathered... | | | at what price did you sell your product? (local currency/unit of measurement) |
|---|-------------------|---|----------------------------------|-------------------------------------|----------------------------------|--------------------------------------|----------------------------------|---|---|
| | | | | | | how much did you sell? | Unit of measurement ² | how much did you use for self-consumption? ³ | |
| 1. _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ |
| 2. _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ |
| 3. _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ |

^{1/} See forestry and collection species and products table.
^{2/} Record the code according to the units of measurement table.
^{3/} If he/she did not sell his/her production write in this space the amount consumed and, in addition, ask the price in the locality or region of the product consumed writing it in the space corresponding to the sale price.

72. From April 2010 to March 2011, what were your costs for...
(Interviewer: Keep the same order of species or products as in question 71)¹

| Species or product | Code ² | establishment of your plantation? (if applicable) | maintenance of the plantation (pruning, health, weed control, among others)? | cutting and/or collection? | other costs |
|--------------------|-------------------|--|---|----------------------------|-------------|
| 1. _____ | _____ | _____ | _____ | _____ | _____ |
| 2. _____ | _____ | _____ | _____ | _____ | _____ |
| 3. _____ | _____ | _____ | _____ | _____ | _____ |

^{1/} State the costs in local currency.
^{2/} See forestry and gathering species and products table.

73. From April 2010 to March 2011, in the use and/or gathering of your products...

| how many family members helped you? ¹ | how many hours a day on average did they help you? | for how many days on average did they help you? | Number of family day's work used ² | How much does a day's work cost in your locality or region? |
|--|--|---|---|---|
| _____ | _____ | _____ | _____ | _____ |

^{2/} *Interviewer:* In this column you should record the results of multiplying the three previous columns and dividing by 8.
 A day's work is equivalent to one working day which normally is 8 hours.
Family day's work refers to those family members that helped him/her without receiving any compensation.

2.8 Non-agricultural rural activities

74. From 2010 to March 2011,...

| what type of non-agricultural activity did you do? | Code ¹ | how much were your sales... | |
|--|-------------------|---|-----------------------------------|
| | | in the country... to intermediaries? | abroad? to the final consumer? |
| 1. _____ | _____ | _____ | _____ |
| 2. _____ | _____ | _____ | _____ |
| 3. _____ | _____ | _____ | _____ |

^{1/} See non-agricultural activities table.

75. In your non-agricultural activities that you did from April 2010 to March 2011, what were your average monthly costs for¹...

| Non-agricultural activity | Code ² | raw materials ³ | labor? | electricity consumption? | water consumption? | shipping? | rent of machinery, equipment and facilities? | depreciation of machinery, equipment and facilities? ⁴ | How much did you spend on other activities and inputs? |
|---------------------------|-------------------|----------------------------|--------|--------------------------|--------------------|-----------|--|---|--|
| 1. | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ |
| 2. | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ |
| 3. | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ |

- 1/** State the costs in local currency.
- 2/** See non-agricultural rural activities table.
- 3/** Include the raw materials purchased. Subsequently, if applicable, the interviewer should add to this item the cost of production of the raw materials produced by the producer him/herself.
- 4/** The depreciation value will be obtained from the data that are recorded in question 77.

76. From April 2010 to March 2011, in carrying out your non-agricultural activity...

| how many family members helped you? ¹ | how many hours a day on average did they help you? | for how many days on average did they help you? | Number of family day's work used ² | How much does a day's work cost in the locality or region? |
|--|--|---|---|--|
| _____ | _____ | _____ | _____ | _____ |

- 1/** Interviewer: In this column you should record the results of multiplying the three previous columns and dividing by 8.
A day's work is equivalent to one working day which normally is 8 hours.
Family day's work refers to those family members that helped him/her without receiving any compensation.
- 2/** Include the producer him/herself, if such is the case.

2.9 Farm assets in the unit of production

77. Of the following farm assets...

| ASSET | Code ¹ | you are owner of... ² | how many units do you have? (if applicable) | in what year did you purchase, build or establish it? ³ | how much did it cost? (in local currency) ⁴ | how much do you estimate its value to be? ⁴ | If the asset purchased was used, how many years of use did it have? ³ |
|--|-------------------|----------------------------------|---|--|--|--|--|
| INFRASTRUCTURE AND FACILITIES | | | | | | | |
| 1. Warehouses and storage areas ⁴ ? | | | | | | | |
| 2. Offices? | | | | | | | |
| 3. Greenhouse installations? | | | | | | | |
| 1. _____ | | | | | | | |
| 2. _____ | | | | | | | |
| 3. _____ | | | | | | | |
| 4. Irrigation systems? | | | | | | | |
| 1. _____ | | | | | | | |
| 2. _____ | | | | | | | |
| 5. Corrals? ⁴ | | | | | | | |
| 6. Milking parlor? | | | | | | | |
| 7. Poultry houses? ⁴ | | | | | | | |
| 8. Pig installations? ⁴ | | | | | | | |
| 9. Ponds? ⁴ | | | | | | | |
| 10. Packing plant (facility)? | | | | | | | |
| 11. Cold room? | | | | | | | |
| 12. Work place (non-agricultural activity)? | | | | | | | |
| 13. Other (specify): _____ | | | | | | | |
| 14. Other (specify): _____ | | | | | | | |
| 15. Other (specify): _____ | | | | | | | |

| ASSET | Code ¹ | you are owner of... ² | how many units do you have? (if applicable) | in what year did you purchase, build or establish it? ³ | how much did it cost? (in local currency) ⁴ | how much do you estimate its value to be? ⁴ | If the asset purchased was used, how many years of use did it have? ³ |
|--|-------------------|----------------------------------|---|--|--|--|--|
| 16. Other (specify): MACHINERY AND EQUIPMENT | | | | | | | |
| 17. Tractors? | | | | | | | |
| 1_ | | | | | | | |
| 2_ | | | | | | | |
| 18. Agricultural implements? ⁴ | | | | | | | |
| 19. Thresher and harvester? | | | | | | | |
| 20. Milking machines? ⁴ | | | | | | | |
| 21. Cooling tanks? ⁴ | | | | | | | |
| 22. Feeding troughs? ⁴ | | | | | | | |
| 23. Scale? | | | | | | | |
| 24. Insemination equipment? | | | | | | | |
| 25. Food mixer? | | | | | | | |
| 26. Cages? ⁴ | | | | | | | |
| 27. Trailers? ⁴ | | | | | | | |
| 28. Pumps (water, oxygen, air)? ⁴ | | | | | | | |
| 29. Fishing gear? ⁴ | | | | | | | |
| 30. Fishing boats? | | | | | | | |
| 1_ | | | | | | | |
| 2_ | | | | | | | |
| 3_ | | | | | | | |
| 31. Machinery and equipment for packaging or processing? ⁴ | | | | | | | |
| 32. Machinery and equipment for non-agricultural activities ⁴ | | | | | | | |
| 33. Other (specify): | | | | | | | |

| ASSET | Code ¹ | you are owner of... ² | how many units do you have? (if applicable) | in what year did you purchase, build or establish it? ³ | how much did it cost? (in local currency) ⁴ | how much do you estimate its value to be? ⁴ | if the asset purchased was used, how many years of use did it have? ³ |
|--------------------------------|-------------------|----------------------------------|---|--|--|--|--|
| 34. Other (specify): | | | | | | | |
| 35. Other (specify): | | | | | | | |
| 36. Other (specify): | | | | | | | |
| MEANS OF TRANSPORTATION | | | | | | | |
| 37. Truck? | | | | | | | |
| 38. Light truck? | | | | | | | |
| 39. Trailer? | | | | | | | |
| 40. Other (specify): | | | | | | | |
| 41. Other (specify): | | | | | | | |

^{1/} See assets table.
^{2/} Indicate with an X if the interviewee possesses the asset indicated.
^{3/} If the interviewee has more than one unit of this type of asset, in this column record only the information about the principal asset (of greatest value) or write the average number when all the assets have been purchased or built in the same year and have the same years of use at the time of purchase.
^{4/} If the interviewee possesses more than one asset, record the total (sum) cost or value of the assets.

III. Other income

78. From April 2010 to March 2011...

| | did you have additional income to what you obtained in your unit of production for ... ¹ | How much money did you receive on average monthly? | For how many months did you receive the money? |
|---|---|--|--|
| 1. support from family members who live out of the country? | | | |
| 2. support from family members who live in the country? | | | |
| 3. employment outside of your production unit? | | | |
| 4. rent of land and/or other assets? | | | |
| 5. any other? | | | |

^{1/} Mark with an X if the interviewee receives the income indicated.

IV. Government assistance¹¹

79. From April 2010 to March 2011...

| Programs | were you a beneficiary of or did you receive aid from... ¹ | What was the amount of aid that you received? (in local currency) | How many times did you receive the aid in the indicated period? |
|--|---|---|---|
| PROGRAMS OF THE MINISTRY OF AGRICULTURE² | | | |
| 1. Program of support for purchase of inputs | _____ | _____ | _____ |
| 2. Program for rural development | _____ | _____ | _____ |
| 3. Hydro-agriculture program | _____ | _____ | _____ |
| 4. Program to support production projects | _____ | _____ | _____ |
| 5. Program to support women in agriculture | _____ | _____ | _____ |
| OTHER GOVERNMENTAL PROGRAMS | | | |
| 6. State programs | _____ | _____ | _____ |
| 7. Municipal programs | _____ | _____ | _____ |
| 8. Other | _____ | _____ | _____ |
| 9. Other | _____ | _____ | _____ |

^{1/} Indicate with an X if the interviewee is beneficiary of the indicated program.
^{2/} Interviewer: If the interviewee is beneficiary of a program of the Ministry of Agriculture, he/she should also answer section VII.

V. Financial services

80. From April 2010 to March 2011, did you receive any loans for carrying out agricultural, aquaculture, fishing and/or other production activities in the rural sector?

Yes: (1) No: (0)
 If no, go to question 83.

¹¹ Each country has its own programs, so here reference is made only to some examples.

81. In relation to the loan you received...

| how much was the amount received? | what institution gave you the loan? ¹ |
|-----------------------------------|---|
| _____ | 1. Public rural bank _____ |
| _____ | 2. Private bank _____ |
| _____ | 3. Credit Union, Savings Bank, Savings and Loan Cooperative or other financial broker _____ |

1/ Mark with an X.

82. The loan received was used for¹ ...

| 1. the purchase of inputs for your activity? | 2. the acquisition of machinery and/or equipment? | 3. the construction of infrastructure or facilities? | 4. the purchase of animals? | 5. the establishment or purchase of plantations? ² | 6. acquiring some other type of assets? |
|--|---|--|-----------------------------|---|---|
| _____ | _____ | _____ | _____ | _____ | _____ |

1/ Mark with an X the item or concept for which the loan has been used.

VI. Agro-food and fishing information, technological innovation, markets and training

83. From April 2010 to March 2011, did you receive, ask for or have access to any type of information on the agro-food and fishing sector provided by the Ministry of Agriculture related to your production activity?

Yes: (1) No: (0)

If no, go to question 85.

84. The information you used from the Ministry of Agriculture...

| was it easy to access? | was it useful? | was it available in a timely manner? ² |
|--------------------------|--------------------------|---|
| Yes:(1)_____ No:(0)_____ | Yes:(1)_____ No:(0)_____ | Yes:(1)_____ No:(0)_____ |

2/ This refers to whether the information was available at the time the producer requested or needed it.
1/ Mark with an X.

85. In the period indicated, have you consulted any study or analysis that provides you with information on the possibilities of development in the agro-food sector, use of new technologies, market opportunities, among other aspects?

Yes: (1) No: (0)

86. From April 2010 to March 2011, did you receive any type of training or technical assistance by a professional service provider?

Yes: (1) No: (0)

If no, go to question 88.

87. If you received training or technical assistance in the above indicated period, are you currently still applying the technical recommendations that the professional service provider gave you?

Yes: (1) No: (0)

88. From April 2010 to March 2011, did you apply or make changes in your practices or procedures in the production activity you engage in?

Yes: (1) No: (0)

89. From April 2010 to March 2011, to improve the marketing of your products did you use¹ ...

1. studies for the development of agro-food markets? _____
2. agro-food product promotion campaigns? _____
3. commercial missions, promotional fairs and/or market integration forums? _____
4. a directory of agro-food product exporters? _____
5. collective marks of agro-food products? _____
6. any other study? _____

¹/ Mark with an X the tool that has been used.

VII. Satisfaction of the beneficiary

90. How was the service¹ you received from the officers responsible for operating the program²...

- | | | | |
|--|---------------|------------------|---------------|
| 1. Program to support the purchase of inputs | Poor:(0)_____ | Average:(1)_____ | Good:(2)_____ |
| 2. Program of rural development | Poor:(0)_____ | Average:(1)_____ | Good:(2)_____ |
| 3. Hydro-agriculture program | Poor:(0)_____ | Average:(1)_____ | Good:(2)_____ |
| 4. Program to support production projects | Poor:(0)_____ | Average:(1)_____ | Good:(2)_____ |
| 5. Program to support women in agriculture | Poor:(0)_____ | Average:(1)_____ | Good:(2)_____ |

¹/ For example, treatment received at the counter, response to questions and complaints, timeliness of response to your request, and the timeliness of delivery of the program good or service, among other aspects.

²/ Mark with an X the corresponding response.

91. What do you consider was the quality¹ of the support you received through the program² ...

- | | | | |
|--|---------------|------------------|---------------|
| 1. Program to support the purchase of inputs | Poor:(0)_____ | Average:(1)_____ | Good:(2)_____ |
| 2. Program of rural development | Poor:(0)_____ | Average:(1)_____ | Good:(2)_____ |
| 3. Hydro-agriculture program | Poor:(0)_____ | Average:(1)_____ | Good:(2)_____ |
| 4. Program to support production projects | Poor:(0)_____ | Average:(1)_____ | Good:(2)_____ |
| 5. Program to support women in agriculture | Poor:(0)_____ | Average:(1)_____ | Good:(2)_____ |

¹/ Refers to whether the support had the appropriate technical characteristics and if it was adequate for the needs of the beneficiary.

²/ Mark with an X the corresponding response.

VIII. Complementary questions (topics of state interest)

92. From April 2010 to March 2011, in the development of your production activity(ies)...

| how many salaried day's work did you use? ¹ | for how many days on average did you hire them? ² | How much on average did you pay per hired day's work? |
|--|--|---|
|--|--|---|

A day's work is equivalent to one working day which normally lasts 8 hours.
¹/ A salaried day's work is a day's work that receives economic compensation for the work done.

²/ If a day's work was contracted for the whole year, 270 days of work should be recorded (annual equivalent day's work).

93. Of the total land area that you worked in the 2010 agricultural year in your production unit...

| | how much land area corresponds to land that is... | Unit of measurement ¹ |
|----|---|----------------------------------|
| 1. | yours? | _____ |
| 2. | rented? | _____ |
| 3. | sharecropped? | _____ |
| 4. | loaned? | _____ |
| 5. | owned in any other form? | _____ |

^{1/} Record the code according to the units of measurement table.

94. As a result of your production activities carried out between April 2010 and March 2011¹ ...

| | what product(s) did you sell? ² | Code ³ | how much did you sell? | Unit of measurement ⁴ | at what price did you sell? (local currency/ unit of measurement) | on what date did you make the sale? (month and year) | Buyer (name and/or economic line of business) | Place of sale (locality, municipality, state) | Sale conditions ⁵ |
|----|--|-------------------|------------------------|----------------------------------|---|--|---|---|------------------------------|
| 1. | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ |
| 2. | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ |
| 4. | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ |
| 5. | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ |
| 6. | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ |
| 7. | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ |
| 8. | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ |

^{1/} This question does not apply for non-agricultural rural activities.
^{2/} If the same product was sold in more than one operation, the information should be itemized and recorded for each operation separately. If it is a product sold daily or weekly, record the information adding the data for each of the different buyers of the product sold during the period of analysis. This question does not apply in those cases in which the sales are retail sales to the final consumer.
^{3/} See the sold products table.
^{4/} See the units of measurement table.
^{5/} Specify if the sale payment was in full, in instalments, in kind, by consignment or under some other form.

95. Of the farm assets you own in your unit of production, purchased between April 2010 and March 2011¹...

| | ASSET | Code ² | From whom did you buy it (name of supplier)? | Place where you bought the asset (locality, municipality, state) | Purchase conditions ³ |
|-----|-------|-------------------|--|--|----------------------------------|
| 1. | | | | | |
| 2. | | | | | |
| 3. | | | | | |
| 4. | | | | | |
| 5. | | | | | |
| 6. | | | | | |
| 7. | | | | | |
| 8. | | | | | |
| 9. | | | | | |
| 10. | | | | | |

1/ Excludes assets built by owner (infrastructure and facilities).
2/ See assets table.
3/ Specify if the payment for the purchase was in cash, on credit, or under some other form.

IV Annexes



Annex 1

Sampling framework for the baseline study of the 2008 SAGARPA Programs

| State | Stratified Population | | Non-stratified population | | Non-listed Population | | Total Population | |
|---------------------|-----------------------|-------------|---------------------------|-------------|-----------------------|-------------|------------------|--------------|
| | REU | % | REU | % | REU | % | REU | % |
| Aguascalientes | 21,266 | 100.0 | 0 | 0.0 | 0 | 0.0 | 21,266 | 100.0 |
| Baja California | 8,175 | 36.2 | 5,129 | 22.7 | 9,280 | 41.1 | 22,584 | 100.0 |
| Baja California Sur | 8,099 | 87.2 | 0 | 0.0 | 1,190 | 12.8 | 9,289 | 100.0 |
| Campeche | 25,580 | 47.3 | 9,621 | 17.8 | 18,933 | 35.0 | 54,134 | 100.0 |
| Chiapas | 225,132 | 45.0 | 0 | 0.0 | 275,595 | 55.0 | 500,727 | 100.0 |
| Chihuahua | 87,560 | 68.4 | 9,784 | 7.6 | 30,608 | 23.9 | 127,952 | 100.0 |
| Coahuila | 54,878 | 90.2 | 1,263 | 2.1 | 4,691 | 7.7 | 60,832 | 100.0 |
| Colima | 16,177 | 100.0 | 0 | 0.0 | 0 | 0.0 | 16,177 | 100.0 |
| Durango | 128,668 | 72.8 | 1,179 | 0.7 | 46,891 | 26.5 | 176,738 | 100.0 |
| Guanajuato | 149,510 | 100.0 | 0 | 0.0 | 0 | 0.0 | 149,510 | 100.0 |
| Guerrero | 474,599 | 92.2 | 39,982 | 7.8 | 0 | 0.0 | 514,581 | 100.0 |
| Hidalgo | 115,808 | 53.2 | 2,657 | 1.2 | 99,218 | 45.6 | 217,683 | 100.0 |
| Jalisco | 104,094 | 58.7 | 39,409 | 22.2 | 33,804 | 19.1 | 177,307 | 100.0 |
| México | 198,967 | 63.6 | 113,650 | 36.4 | 0 | 0.0 | 312,617 | 100.0 |
| Michoacán | 154,649 | 50.6 | 139,763 | 45.8 | 10,977 | 3.6 | 305,389 | 100.0 |
| Morelos | 75,576 | 96.6 | 0 | 0.0 | 2,628 | 3.4 | 78,204 | 100.0 |
| Nayarit | 27,323 | 31.5 | 4,500 | 5.2 | 54,812 | 63.3 | 86,635 | 100.0 |
| Nuevo León | 37319 | 88.8 | 0 | 0.0 | 4691 | 11.2 | 42010 | 100.0 |
| Oaxaca | 496,835 | 75.1 | 164,498 | 24.9 | 0 | 0.0 | 661,333 | 100.0 |
| Puebla | 287,051 | 93.0 | 0 | 0.0 | 21,505 | 7.0 | 308,556 | 100.0 |
| Querétaro | 42,333 | 82.9 | 7,206 | 14.1 | 1,530 | 3.0 | 51,069 | 100.0 |
| Quintana Roo | 27,302 | 51.8 | 0 | 0.0 | 25,440 | 48.2 | 52,742 | 100.0 |
| San Luis Potosí | 124,081 | 65.4 | 0 | 0.0 | 65,565 | 34.6 | 189,646 | 100.0 |
| Sinaloa | 198,041 | 100.0 | 0 | 0.0 | 0 | 0.0 | 198,041 | 100.0 |
| Sonora | 43,853 | 49.1 | 0 | 0.0 | 45,471 | 50.9 | 89,324 | 100.0 |
| Tabasco | 70,525 | 64.4 | 38,972 | 35.6 | 0 | 0.0 | 109,497 | 100.0 |
| Tamaulipas | 57,333 | 57.2 | 42,936 | 42.8 | 0 | 0.0 | 100,269 | 100.0 |
| Tlaxcala | 73,649 | 100.0 | 0 | 0.0 | 0 | 0.0 | 73,649 | 100.0 |
| Veracruz | 425,647 | 97.5 | 11,021 | 2.5 | 0 | 0.0 | 436,668 | 100.0 |
| Yucatán | 74,478 | 48.0 | 17,763 | 11.4 | 62,899 | 40.5 | 155,140 | 100.0 |
| Zacatecas | 85,131 | 68.2 | 0 | 0.0 | 39,730 | 31.8 | 124,861 | 100.0 |
| Total | 3,919,639 | 72.3 | 649,333 | 12.0 | 855,458 | 15.8 | 5,424,430 | 100.0 |

Source: Prepared by author with data provided by states.

Annex 2

Sample size by stratum by state

| States | Strata | | | | | | | | | Total |
|---------------------|--------------|--------------|--------------|--------------|------------|--------------|--------------|--------------|--------------|---------------|
| | E11 | E12 | E13 | E21 | E22 | E23 | E31 | E32 | E33 | |
| Aguascalientes | 14 | 6 | 0 | 133 | 15 | 0 | 647 | 175 | 0 | 990 |
| Baja California | 19 | 2 | 1 | 58 | 5 | 1 | 118 | 11 | 1 | 216 |
| Baja California Sur | 13 | 22 | 19 | 46 | 62 | 117 | 53 | 81 | 40 | 453 |
| Campeche | 381 | 23 | 3 | 36 | 10 | 1 | 41 | 3 | 0 | 498 |
| Chiapas | 469 | 84 | 40 | 30 | 10 | 7 | 5 | 2 | 1 | 647 |
| Chihuahua | 140 | 28 | 20 | 17 | 11 | 9 | 148 | 124 | 110 | 606 |
| Coahuila | 0 | 0 | 0 | 49 | 3 | 3 | 410 | 39 | 50 | 554 |
| Colima | 18 | 3 | 0 | 60 | 19 | 3 | 92 | 60 | 8 | 264 |
| Durango | 118 | 4 | 6 | 174 | 10 | 8 | 369 | 28 | 24 | 741 |
| Guanajuato | 79 | 59 | 68 | 47 | 54 | 71 | 42 | 35 | 60 | 514 |
| Guerrero | 704 | 26 | 28 | 96 | 17 | 17 | 35 | 16 | 16 | 955 |
| Hidalgo | 126 | 139 | 65 | 30 | 53 | 42 | 40 | 96 | 100 | 691 |
| Jalisco | 68 | 12 | 7 | 80 | 13 | 10 | 248 | 58 | 31 | 527 |
| México | 452 | 13 | 5 | 212 | 8 | 4 | 258 | 13 | 5 | 970 |
| Michoacán | 110 | 52 | 91 | 60 | 54 | 62 | 51 | 67 | 70 | 617 |
| Morelos | 250 | 44 | 31 | 218 | 43 | 36 | 317 | 73 | 61 | 1,074 |
| Nayarit | 142 | 3 | 0 | 84 | 3 | 0 | 222 | 25 | 7 | 486 |
| Nuevo León | 13 | 111 | 428 | 2 | 16 | 78 | 10 | 71 | 265 | 993 |
| Oaxaca | 1,057 | 111 | 36 | 131 | 30 | 11 | 51 | 11 | 4 | 1,442 |
| Puebla | 387 | 30 | 20 | 94 | 30 | 15 | 54 | 20 | 15 | 665 |
| Querétaro | 101 | 23 | 50 | 33 | 12 | 23 | 49 | 22 | 39 | 351 |
| Quintana Roo | 32 | 24 | 21 | 25 | 31 | 42 | 2 | 5 | 5 | 186 |
| San Luis Potosí | 197 | 37 | 19 | 47 | 22 | 33 | 45 | 47 | 114 | 563 |
| Sinaloa | 78 | 60 | 41 | 53 | 49 | 46 | 131 | 244 | 289 | 990 |
| Sonora | 2 | 3 | 34 | 1 | 5 | 67 | 9 | 27 | 443 | 591 |
| Tabasco | 11 | 180 | 369 | 5 | 70 | 74 | 6 | 102 | 103 | 919 |
| Tamaulipas | 14 | 21 | 9 | 15 | 15 | 12 | 121 | 140 | 83 | 430 |
| Tlaxcala | 318 | 37 | 14 | 75 | 7 | 3 | 67 | 6 | 1 | 527 |
| Veracruz | 136 | 232 | 480 | 46 | 115 | 218 | 22 | 68 | 112 | 1,428 |
| Yucatán | 253 | 17 | 23 | 62 | 4 | 7 | 9 | 0 | 1 | 375 |
| Zacatecas | 60 | 19 | 1 | 13 | 162 | 1 | 145 | 83 | 3 | 487 |
| Total | 5,761 | 1,423 | 1,928 | 2,032 | 957 | 1,023 | 3,815 | 1,752 | 2,063 | 20,753 |

Source: Prepared by author with data provided by states.

Annex 3

Sample size by state for non-stratified listed population

| State | REU | State | REU |
|---------------------|-----|-----------------|--------------|
| Aguascalientes | 0 | Nayarit | 80 |
| Baja California | 134 | Nuevo León | 0 |
| Baja California Sur | 0 | Oaxaca | 448 |
| Campeche | 187 | Puebla | 0 |
| Chiapas | 0 | Querétaro | 60 |
| Chihuahua | 68 | Quintana Roo | 0 |
| Coahuila | 13 | San Luis Potosí | 0 |
| Colima | 0 | Sinaloa | 0 |
| Durango | 7 | Sonora | 0 |
| Guanajuato | 0 | Tabasco | 508 |
| Guerrero | 80 | Tamaulipas | 322 |
| Hidalgo | 16 | Tlaxcala | 0 |
| Jalisco | 200 | Veracruz | 37 |
| México | 553 | Yucatán | 89 |
| Michoacán | 558 | Zacatecas | 0 |
| Morelos | 0 | Total | 3,360 |

Source: Prepared by author with data provided by states.

Annex 4

Sample size by state for non-listed population

| State | REU | State | REU |
|---------------------|------------|-----------------|--------------|
| Aguascalientes | 0 | Nayarit | 97 |
| Baja California | 43 | Nuevo León | 125 |
| Baja California Sur | 47 | Oaxaca | 284 |
| Campeche | 50 | Puebla | 100 |
| Chiapas | 129 | Querétaro | 13 |
| Chihuahua | 61 | Quintana Roo | 37 |
| Coahuila | 0 | San Luis Potosí | 84 |
| Colima | 0 | Sinaloa | 0 |
| Durango | 148 | Sonora | 118 |
| Guanajuato | 0 | Tabasco | 0 |
| Guerrero | 0 | Tamaulipas | 0 |
| Hidalgo | 138 | Tlaxcala | 0 |
| Jalisco | 105 | Veracruz | 0 |
| México | 0 | Yucatán | 75 |
| Michoacán | 123 | Zacatecas | 227 |
| Morelos | 208 | Total | 2,214 |

Source: Prepared by author with data provided by states.



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