



# TECHNOLOGY FOR Men and Women:

Recommendations to reinforce gender  
mainstreaming in agricultural technology  
innovation processes for food security

V. Polar, C. Babini and P. Flores



A member of the  
CGIAR Consortium



RESEARCH  
PROGRAM ON  
Roots, Tubers  
and Bananas





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ISBN: 978-92-9060-465-5

DOI: 10.4160/9789290604655

Hecho el Depósito Legal en la Biblioteca Nacional del Perú No. 2015-06728

This document has been produced at the conclusion of the project “Strengthening pro-poor agricultural innovation for food security in the Andean region” – IssAndes, implemented by the International Potato Center and funded by the Food Security Thematic Program of the European Commission through IFAD, with the support of the CGIAR Research Program on Roots, Tubers and Bananas.

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**Citation:**

Polar, V., Babini, C., Flores, P., (2015) Technology for men and women: Recommendations to reinforce gender mainstreaming in agricultural technology innovation processes for food security. AGRIDEL SRL, International Potato Center. La Paz - Bolivia. 44pp

**Cover image:** Representation of Chacha-Warmi

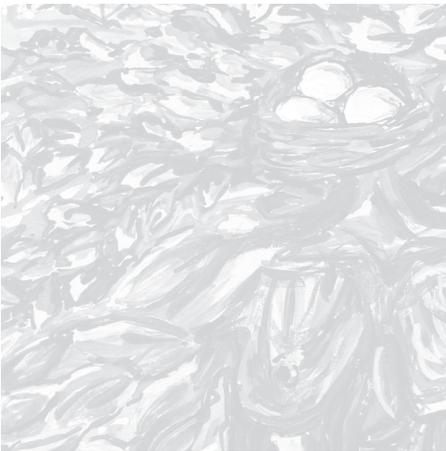
Artist: Mariana Nogales

**Design and Layout:** Communications Department

Press run: 250

April 2015

Impreso en Comercial Gráfica Sucre S.R.L. • Av. Bausate y Meza 223, Interior 1, La Victoria, Lima-Perú



## Acknowledgments:

To small farmers, technicians and institutions that have worked with the IssAndes project seeking to optimize agricultural technology innovation processes for food security. To researchers from the International Potato Center in Bolivia, Ecuador and Peru who coordinated the generation of information throughout the implementation of the IssAndes project, exploring mechanisms to incorporate gender issues in technology innovation processes for food security.





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# Part One:

## Introduction

### Presentation

Gender inequalities directly affect food security, and social and productive development in the Andean region. This paper is a contribution of the IssAndes project, the International Potato Center (CIP) and the CGIAR Program on Roots, Tubers and Bananas (RTB), that seeks to contribute to the reduction of gender inequalities in the processes of agricultural technology innovation for food security.

This document is based on the experience of the IssAndes project in its quest to build inclusive processes of agricultural innovation for food security. The analysis of the IssAndes experience allowed the formulation a number of general recommendations for mainstreaming gender in agricultural innovation related to food security interventions. These recommendations emerge from the observation and comparison of the processes developed by IssAndes in gender analysis, and other experiences developed worldwide for mainstreaming gender in research and development programs related to food security.

The document provides general recommendations to strengthen gender issues in agricultural technology innovation processes for food security, throughout the project life cycle, and contextualizes these general recommendations with specific recommendations that emerge from concrete experiences of the IssAndes project. In parallel, adaptations are proposed to the "Impact Pathways" approach as an alternative for gender mainstreaming throughout the project life cycle.

For CIP and RTB, gender mainstreaming in the research and development agenda is an important element for meeting the objectives of improving food security and poverty reduction in agricultural production systems. The recommendations made in this document contribute CIP's and RTB's gender objectives and seek to ensure a systematic and consistent mainstreaming of gender in agricultural innovation interventions for food security, so that both men and women benefit and achieve favorable development results.

### Executive Summary

The main objective of this study is to contribute to the mainstreaming of gender in the design, implementation and monitoring of interventions on agricultural innovation for food security. This work was developed from an analysis of the experience of the project "Strengthening pro-poor agricultural innovation for food security in the Andean region" IssAndes, implemented by the International Potato Center and funded by the European Commission's Thematic Program on Food and Nutrition Security and Sus-

tainable Agriculture, through the International Fund for Agricultural Development.

This study emerges from the analysis of IssAndes' baseline studies to generate recommendations for the incorporation of gender issues in baseline design and data collection, for interventions on innovation for food security. Subsequently, the IssAndes experience related to agricultural research on potato-based systems is analyzed, to propose recommendations to objectively include gender considerations during the design, implementation and monitoring of interventions on agricultural innovation for food security and nutrition.

The main recommendation that emerges from this document is the need to incorporate the gender perspective starting with the design of the intervention, building tools for planning, monitoring and evaluation that include gender-differentiated targets and indicators. When gender is not addressed from the outset and is not incorporated explicitly in the planning tools, gender analysis and mainstreaming at various stages of the project life cycle become more difficult.

The main recommendation for the design stage of the intervention and for baseline data collection is to adapt the planning tools (logical framework, impact pathways, theory of change, etc.) to include the gender dimension and thus guide the collection of baseline data disaggregated by gender. Additionally, it is also advisable to formulate questions or research hypotheses and expected changes, disaggregated by gender. This information not only aids data collection but also helps intervention design, implementation, and monitoring.

During the planning and design phase of the intervention, two types of planning must be distinguished: macro planning, which must include specific indicators to reflect the progressive changes experienced by men and women throughout the intervention (milestones and targets with gender focus); and micro planning that, on the other hand, should consider the conditions and limitations of men and women, in order to plan how to address specific issues that contribute to gender equality.

During implementation it is necessary to address the inclusion of the gender perspective in the details of operation, i.e. during activities in general such as workshops, capacity-building, technology design, research and dissemination, among others. Often this operation is constrained by the lack of ownership of the approach

and the limited knowledge of operators about tools and methods for practical field operation. This is why it is advisable to identify individuals responsible for gender goals and indicators, and to strengthen the capacity of the field operating team in the management of tools to promote gender equality.

An adequate management of gender issues in problem identification, expected changes, and overall design will also facilitate gender analysis in monitoring and evaluation of the intervention. This paper highlights the importance of gender-sensitive planning to support adequate monitoring. Additionally, gender variables and issues should not be considered merely as a part of the overall monitoring process. It is important to carry out specific analysis of progress on gender issues and establish incentive mechanisms that contribute to motivating progress. Another important element is to decentralize monitoring strategies to include the perceptions of men and women belonging to different groups of actors (researchers, farmers, facilitators, etc.).

The document provides general recommendations in Part II and contextualizes these recommendations in specific cases in Part III. Finally, Part IV of the document makes suggestions for the adaptation of the "Impact Pathways" approach for gender mainstreaming.

## **Gender and Food Security in Latin America and the Andean Region**

Although in recent decades Latin America has made significant progress in terms of poverty reduction and gender equality, there are still significant differences between countries and regions. In comparative terms, progress in reducing poverty in some countries of the Andean region, such as Bolivia, Ecuador and Peru, is minor compared with the global indicators of Chile and Brazil. However, in rural areas the incidence of poverty is considerably higher than in urban areas. According to CEPAL, in rural areas of Latin America poverty reaches 48.6% while extreme poverty reaches 28.2%; in urban areas these figures are 23.2% and 7.1% respectively (CEPAL, 2014). Poverty in rural areas is manifested by poor nutrition, poor health, limited employment opportunities, and low organizational capacity of the inhabitants. Furthermore, although there have been reductions in the levels of chronic child malnutrition in Latin America and the Caribbean, there are marked differences in this respect between urban and rural areas in different countries.

Interventions to promote gender equity in Latin America and the Caribbean have made considerable progress in terms of health indicators. The average maternal mortality rate in the region has dropped 19 percentage points between 2000 and 2010, reaching an average of 81 per 100,000 live births (CEPAL, 2014). However, mortality rates in countries of the Andean region such as Bolivia, Ecuador and Peru in 2010 are higher than the regional average, reaching 190, 110 and 67 per 100,000 live births respectively (CEPAL, 2014).

Despite progress in some health indicators, the femininity indices of poverty and indigence in the region have increased in the last decade, with the poverty rate increasing from 107 to 121 and the indigence rate from 110 to 129, in the period between 1999 and 2011 (CEPAL, 2014). This means that more women are part of poor households. High proportions of the female population have no income (CEPAL, 2004), and there are differences in income and wages earned between men and women. According to CEPAL (2014), statistics for 2011 showed that women in Peru received average wages amounting to 75% of the average wage of a man. In Bolivia the average wage of women was equivalent to 80% of the salary of a man, and in Ecuador it was equivalent to 96%.

Given the reproductive roles that women play, they are an important and determinant agent for the food security of households and particularly of children. For this reason, the focus on gender issues is not only meant to address the need for equality between men and women, but also to address the need for structural changes aimed at reducing poverty and food insecurity. This emphasis on gender is particularly important in the Andean region where cultural, economic, and social conditions create greater gaps for the equitable inclusion of women. In this context, the intervention of IssAndes sought to mainstream gender as an important tool to advance food and nutrition security in potato-based production systems.

## **Why address gender issues in processes of technological innovation for food security and nutrition?**

First of all, gender equality is a human right, with its own intrinsic value. Addressing gender issues is central to achieving development and poverty reduction.

Gender also plays an important role in achieving objectives related to poverty reduction, food security, disease control and environmental sustainability.

Furthermore, many of the development inequalities emerge from gender differences. These differences affect the distribution of resources between men and women, and are caused by ideological, economic, ethnic, social and religious factors. That is why gender is considered a determinant factor that influences development results, particularly in relation to poverty reduction and food security.

Hunger and malnutrition usually go together but there is no guarantee that the abundance of food will automatically eradicate malnutrition. Malnutrition is found in both poor households and households with sufficient supply of food, being partly a result of poor food choices. Malnutrition is one of the largest public health problems and is particularly prevalent among poor women and children.

Despite their high vulnerability to malnutrition, women are in a unique position to improve nutrition in their homes. Many women are responsible for producing, purchasing, processing and preparing most of the food consumed. However, women in vulnerable conditions often have limited access to nutrition information and to the necessary resources (income, land, technology, services, and others) to improve food security. It is in this context that the importance of mainstreaming gender is highlighted as a means to understand and address social and economic problems and biological differences that interfere with food security and nutrition.

Gender issues can be studied and analyzed through different variables linked to this condition. However, mainstreaming gender goes beyond a simple analysis and classification, and should be considered through direct actions on food security and nutrition interventions, throughout the project life cycle.

## **Background and context**

The International Potato Center recognizes that gender equality and women's empowerment are essential for economic and technological growth, and to reduce poverty and chronic malnutrition in children under two years old. For this reason, the strategic plan of CIP and one of its strategic objectives (SO5) include a gen-

der mainstreaming approach for all of its operations. This objective highlights the importance of improving rural development, food security and nutrition, as well as the importance of reducing gender inequalities in agriculture as a means to improve productivity and generate more economic and social benefits.

The CGIAR Research Program on Roots, Tubers and Bananas (RTB) has developed an intervention strategy that seeks to improve food security and reduce poverty while strengthening gender equality. To this end the RTB seeks to achieve two types of results: a) respond to gender needs so that both men and women benefit from the technologies generated, and are not adversely affected; b) transform gender relations through technologies and interventions that transform gender roles and promote more equitable gender relations.

The project “Strengthening pro-poor agricultural innovation for food security in the Andean region” IssAndes, implemented by the International Potato Center and funded by the European Commission’s Thematic Program on Food and Nutrition Security and Sustainable Agriculture, through the International Fund for Agricultural Development, seeks to improve the conditions of food security and nutrition of vulnerable populations and the poorest sectors in the Andean region. To achieve this objective, the project worked on issues of agriculture for food security at three territorial levels (local, national and regional) and in four Andean countries (Bolivia, Colombia, Ecuador, and Peru). IssAndes’ interventions were targeted to areas where the production system was based on potatoes, and technological innovation was promoted in response to the needs of the most vulnerable rural groups. One of these vulnerable groups is women, given the gender gaps in the region. For this reason the IssAndes project performed gender analysis seeking to respond to the needs of men and women, thus contributing to inclusive agricultural innovation for food security.

As part of the efforts of CIP, RTB and IssAndes to incorporate the gender perspective in agricultural technology innovation processes for food security, this document formulates recommendations to improve the inclusion of gender issues in the various stages of the project life cycle, from information gathering, through design, implementation, and monitoring of interventions.

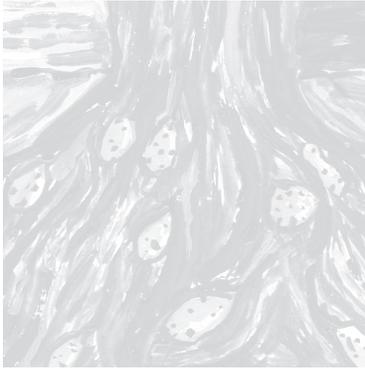
## Document structure

The document of recommendations to reinforce gender mainstreaming in agricultural technology innovation processes for food security has four parts. The first part is an introduction, and provides an overview of the context of food security and gender in Latin America and the Andean region, supporting the need to address gender issues in processes of technology innovation for food security. Additionally, this first part presents the general background of the IssAndes project and the institutional framework of the International Potato Center and the CGIAR Program on Roots, Tubers and Bananas.

The second part of the document presents a series of general recommendations for gender mainstreaming throughout the project life cycle, in interventions related to technology innovation for food security. This second part emerges from a comparative analysis of the processes developed by IssAndes in gender analysis, and other experiences of gender mainstreaming developed worldwide. The objective of this section is to provide the reader with a series of generic recommendations that can be used for gender mainstreaming in different contexts.

The third part of the document presents an analysis of gender mainstreaming in the IssAndes project. This section takes the form of a case study formulating specific recommendations that emerge from the experience of project implementation. The objective of this section is to contextualize the general recommendations formulated in the second part of the document, through specific experiences and cases. For this reason the third part of the document follows the same scheme and numbering of the second part, thus helping the reader who seeks to relate the general recommendations with specific examples.

Most of the recommendations presented in the document continuously emphasize the importance of mainstreaming gender throughout the whole project life cycle, and the need to do so by adapting and adjusting approaches and tools for planning, monitoring and evaluation. Therefore, the fourth part of this document presents a number of suggestions for gender mainstreaming in the “Impact Pathways” approach.



## Part Two:

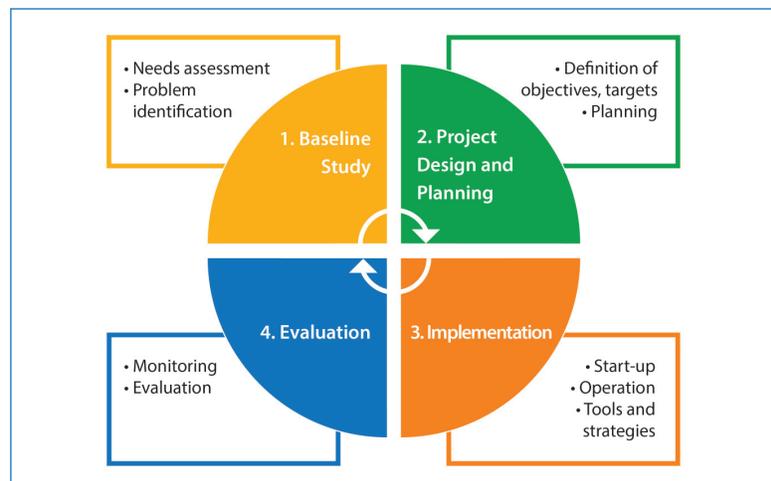
# Gender in the project life cycle of interventions on innovation for food security and nutrition

### 1. Mainstreaming gender in the project life cycle

A study on gender equality by the Nordic Development Fund revealed that the most common obstacles for women to participate and benefit from development activities are: (i) lack of participation of women in project design; (ii) poor analysis of their needs; (iii) lack of baseline information on key gender differences relevant for the specific project; (iv) lack of attention to gender issues in project objectives; and (v) limited monitoring efforts of gender targets and objectives (NDF, 2004). That is why the incorporation of gender issues throughout the project life cycle is sought, thus seeking to achieve a consistent and systematic gender mainstreaming.

The stages of the project life cycle can vary widely between organizations and institutions, but for purposes of gender mainstreaming this document will consider four core stages (CEDPA, 1994) (see Figure 1). The following recommendations are made for each of these stages.

**Figure 1.** Stages of Project Life Cycle



Source: Adapted from CEDPA (1994)

**1. Baseline Study:** The purpose of collecting baseline information is the evaluation of context and of the initial situation, needs assessment, problem identification and in-depth analysis. This information is the basis for the design or adjustment of research initiatives or interventions that promote innovation, and their future monitoring and evaluation. It is, therefore, highly relevant to incorporate gender aspects in baseline design, in the process of data collection and in the subsequent analysis.

**2. Project Design and Planning:** This stage takes data elements from the baseline to propose technology design processes or interventions that promote innovation, and adjust them to the characteristics of the target group, defining and sizing what can be achieved and the tools needed for this achievement. The inclusion of a gender perspective in the design and planning stage will allow timely addressing of gender-sensitive indicators and targets.

**3. Implementation:** In the implementation stage, specific tools and strategies for operatively addressing gender issues should be incorporated, taking into account the objectives and goals outlined for the research proposed or the intervention that seeks to promote innovation.

**4. Evaluation:** This stage includes monitoring and evaluation throughout the research process or the intervention that seeks to promote innovation. Once objectives and gender-sensitive indicators are defined, this step should accompany their evolution and propose adjustments towards their achievement.

## 2. Recommendations for the design and implementation of gender-sensitive baseline data collection

Baseline studies are a type of evaluation that seeks to measure and describe the initial situation of the target population and of context dynamics. To include gender considerations at this stage is important because it will allow future research, and technology generation and dissemination in response to gendered needs and conditions. This section will include recommendations for the overall design of the baseline study and recommendations for gender analysis as a fundamental pillar for planning, implementation and evaluation.

### 2.1. Overall design of the baseline study

The first step in a baseline study is the design, which usually develops from planning tools and approaches such as the logical framework, theory of change, impact pathways or others. The incorporation of gender in the design stage involves adjusting the selected planning approach to mainstream gender into its various components. Part IV of this document presents recommendations for gender mainstreaming in a planning approach (Impact Pathways).

Gender mainstreaming in different components of a program or project can be done in different ways. The following elements should be considered:

- Gender-disaggregated goals and objectives.
- Gender-disaggregated problem analysis.
- Identification of expected changes, outputs, outcomes, and impact in men and women.

Part III, Box 1 of this document illustrates the importance of adjusting planning tools and approaches based on the IssAndes experience.

### 2.2. Areas of research and analysis

As mentioned in the previous step, the information from the planning tools and approaches (Performance indicators, Logical framework, Theory of change, Impact pathways, etc.) is the foundation for the baseline study. In this section some general recommendations will be included to ensure the inclusion of gender in different areas of data collection for research initiatives and interventions that promote agricultural technology innovation for food security.

#### 2.2.1. Context, problems and risks analysis

The gender disaggregation is an important element for context, problems and risks analysis in relation to agricultural technology for food security. Men and women are affected differently by the same context and perceive problems differently (See Part III, Box 2). In order to generate technology and promote innovation with men and women, it is necessary to address these elements through a differentiated analysis; therefore the following considerations should be taken into account:

- Convene men and women involved in the intervention and work with separate groups on agricultural context and problem analysis. Alternatively, work can be done jointly with men and women using differentiation tools such as the use of paper of different colors to register ideas and relationships as

perceived by men and women.

- Inquire about the major issues that men and women differentially face and the perceived root causes for these problems.
- The context and problem analysis should place emphasis on the constraints faced by men and women in the production and marketing of agricultural products linked to food security.
- Identify opportunities and spaces where technological innovation could have a positive impact on the livelihoods of men and women.

### **2.2.2. Stakeholder mapping and identification of changes**

To foster agricultural technology innovation processes for food security with men and women, knowledge of the policy framework and institutions that shape the context in which the production processes operate is necessary. Understanding the interests, constraints and opportunities of different actors and the expected changes from a gender perspective, will allow a better planning directed towards the promotion of innovation by men and women. Examples of real situations that highlight the importance of stakeholder mapping and identification of changes can be found in Part III, Box 3. To incorporate gender issues in stakeholder mapping and identification of expected changes, some of the following recommendations can be considered:

- Analyze the political context related to production and marketing, means and processes, for agricultural products associated to food security; and assess whether there are differences or operational limitations related to gender.
- Analyze the networks of actors identified by men and women, separately and jointly, to appreciate the differences and visualize the most relevant actors as perceived by men and women. This will help produce a gender-disaggregated analysis of information flows and innovation.
- Analyze stakeholder groups or individual actors taking into account gender differentiation. For example: instead of grouping farmers as a general cluster, they can be separated into female and male farmers. Likewise institutions or organizations can be grouped according to the differentiated importance perceived by men and women. The outcomes logic model should also be gender-disaggregated, describing changes for different stakeholders according to the perceptions of men and women.
- Analyze expected changes in knowledge, attitudes, skills and practices for each actor, taking into account the different problems and issues identified by men and women separately. This information

can be used to build problem trees that include gender-disaggregated elements.

- In addition to analyzing the expected changes as a result of innovation in agriculture and food security, it is also advisable to discuss possible changes associated with context, roles, and practices that reinforce gender asymmetries and inequalities.

### **2.2.3. Descriptive analysis linked to innovation**

The baseline is an assessment tool that enables the depiction of the initial situation, defining variables that can be monitored and evaluated during, at the end of, and after the intervention. For baseline data collection of interventions on research, technology development, and promotion of agricultural innovation for food security, it is important to take into account intermediate variables related to the existence and use of technology, and the technology needs of men and women, to monitor and assess changes that occur gradually.

- Identify the crops produced and marketed in the area and determine the roles of men and women in relation to these crops.
- For selected or target crops, it is important to know the resources and services available for production and marketing, and the technology used by men and women.
- Identify the organizations that men and women interact with, as well as their procedures and operating mechanisms in relation to the target crops.
- Understand the market context that governs the actions of men and women in relation to the target crops.

## **2.3. Primary and secondary data**

The collection of primary and secondary data is the body of a baseline study. The variables and type of information to be collected will depend on the study design, and the areas of research and analysis (See section 3.2). Some recommendations for gender mainstreaming are presented below.

### **2.3.1. Secondary data collection**

The collection of secondary data is the first step in baseline design and implementation. This step enables an in-depth situation and context analysis through existing information, and will aid the selection and adjustment of tools for primary data collection.

- Analyze different types of secondary data available and in each case consider gender-differentiated situations and needs depending on the areas of research and analysis defined (See Section 3.2).
- Secondary data collection may be performed both before and after primary data collection. The initial

collection provides information for tool selection and adjustment, while subsequent collection aids the interpretation of primary information.

### 2.3.2. Primary data collection

The primary information to be collected will be determined by: a) the hypotheses or research questions and, b) the hypotheses of change related to the technology and innovation; elements previously defined by the planning, monitoring and evaluation tools (See Part IV). These questions or hypotheses that guide the intervention need to be adjusted and adapted to include a gender perspective.

- The incorporation of a gender perspective should disaggregate the hypothesis or research question for a gendered analysis. This will enable a) an adequate design and selection of tools for data collection, b) the formulation of a strategy and the selection of tools for operational implementation.
- There must be a direct and close relation between variables selected for analysis and questions or hypotheses formulated in the study. In this case it is necessary to highlight the importance of identifying gender-sensitive variables related to the innovations that are being evaluated, developed, introduced, or disseminated.
- To design and select tools to collect gender-sensitive data, it is advisable to develop an evaluation matrix that clearly identifies research questions or hypotheses, change hypotheses, variables or related indicators, the data to be collected and tools to be used. In this context, the design and selection of tools will depend directly on the data that need to be collected.
- An alternative that helps refine the design of tools is the stratified application of tools by sources and levels. This means that information from each source can be used to improve data collection tools used for other sources. A common example of stratification is the application of qualitative tools, such as group discussions and/or key informant interviews, which help clarify the questions, variables and application mechanisms of other tools such as household surveys.

### 2.3.3. Adjustment and implementation of tools

Once tools and specific items or questions within each tool are defined, it is important to pilot them before their formal application. This is particularly necessary for surveys, to minimize the probability of error and maximize the inclusion of gender considerations in the process. Piloting can also be applied for key informant interviews to ensure that questions are fully under-

stood. During piloting, the following recommendations for adequate attention to gender issues should be considered:

- Pilot tools on a sample with gender parity.
- Analyze the understanding of questions by men and women. In some cases there are questions that can be interpreted or understood differently based on cultural elements or gender-related roles and practices.
- Analyze responses disaggregated by gender to identify the need for inclusion of categories or their clarification, to adjust them to the possible responses of men and women.
- Evaluate the differentiated management of measurement units by men and women, for further standardization of the information generated.

Recommendations for the application of quantitative tools

- For the implementation of surveys, the application of a sampling methodology is recommended (stratified, systematic or quotas) to consider the differences of the population by sex.
- It is important to have people aware of the importance and usefulness of collecting sex-disaggregated data in the field team that delivers surveys.
- It is advisable to have a survey team with gender parity, to reduce the risk of error that can be generated due to the gender of the interviewer.
- When working with indigenous communities, it is important to have interviewers who speak the native language and who can apply the survey in that language. This is because indigenous women often have less control of the main languages and express themselves more easily in their mother tongue.
- It is essential to survey both men and women. To avoid doubling the number of respondents an alternative is to work with household surveys that are alternately answered by men or women. There can also be specific questions answered by men or by women.

Recommendations for the application of qualitative tools

- Facilitators applying qualitative tools must also be aware of the importance of gender-disaggregated data, and have the skills and abilities to motivate an inclusive and horizontal participation of men and women.
- When working with separate groups of men and women, it is advisable to have a facilitator of the same sex. This contributes to a relaxed environment that facilitates open discussion.
- For group discussions and individual interviews it is advisable to select separate samples of men and women.
- Implement group discussions of men and women separately.

- When group discussions are held jointly due to the openness and inclusiveness of the context or due to difficulties in logistics-operation, it is advisable to use tools that enable the disaggregation of opinions expressed by men and women. For example, cards of different colors, differentiation during systematization, different voting elements, and others at the discretion of the facilitator.

### 3. Recommendations for gender mainstreaming in intervention design and planning

This section seeks to address gender issues as a constituent element in the design and planning of interventions in research and promotion of agricultural technology innovation for food security.

#### 3.1. MACRO Planning: outcomes, indicators, targets and milestones

A series of recommendations to incorporate the gender perspective in the design and planning of interventions in research and promotion of agricultural technological innovation for food security are presented below. However, it is important to note that these recommendations should not be taken as isolated elements but as part of a gender mainstreaming process that starts with the identification of needs and context analysis implemented under a gender perspective, in accordance with recommendations presented in previous sections of this document.

- Using Baseline information, it is advisable to build a monitoring and evaluation plan that includes gender-specific variables, to serve as the basis for operational planning of research and promotion of innovation (see Part II, Section 2.1 and Part IV).
- Identify and highlight gender differences on defined milestones, targets and results. To this end, it is important to visualize a) how the technology or innovation responds to gender needs and, b) the progress towards social transformation and the reduction of gender gaps.
- For the formulation of indicators the following factors should be taken into account: a) gender considerations immersed in the result and b) the ability to show the progress towards reducing gender gaps.
- Verify the inclusion of men and women among those responsible for achieving the different milestones, goals and results.

#### 3.2. MICRO Planning: activities

Gender considerations during activity design will enable them to address issues such as the relative priority assigned to needs and solutions, the selection of approaches to address specific problems, the need and nature of the targeting mechanisms used, the gender balance of staff in charge of the project and the involvement of different stakeholders as participants in the intervention (Quisumbing & McClafferty, 2006).

- Promote more diverse targeting strategies. While women may be targeted as part of a vulnerable group, men should also be included to promote attention to their own needs and to support the attention of women's needs. For example, although the issues of breastfeeding should be strongly focused on women, including men in trainings and events aids in raising awareness and support for this practice (See examples in Part III, Section 3.2).
- Focusing on youth as a target group is also a good strategy because of the potential flow of information from children to parents and because both technological innovation and gender equality are better accepted by young people.
- Establish mechanisms to link innovation and enhanced income generation to food security. Focusing only on production and/or income can have negative effects on both food supply and gender. However, focusing on food security can have positive effects on gender.
- It is advisable to take into account the workforce of women, and their roles and responsibilities for the design of appropriate technology. For example: a) promote technologies that reduce the amount of labor required; b) develop technologies that require less strength or lower height for their use; c) work on alternatives for food processing and storing due to their direct effect on gender issues; among others.
- Take into account the roles and responsibilities of women when organizing operational details of capacity building. For example:
  - Conduct workshops in days, spaces and/or hours when women have time and feel comfortable, not when they have responsibilities in preparing food, tending livestock or others.
  - Consider the distances that women have to travel and the availability of transport, because they often carry small children.
  - Consider that capacity-building events must be flexible enough for infants or breast-fed children to be present with their mothers; in some cases, child care support staff should be considered.
- Use dissemination media compatible with the con-

ditions of women. For example: a) adjust the production and dissemination of printed material to the language and level of education of women; b) use mass media at times when women have access to them; etc.

On the other hand, global experience shows that beyond the specific type of intervention, some specific actions (methods, tools and approaches) generate results and positive effects in terms of gender. The table below presents a list of approaches or actions that can be incorporated into the design of interventions on research and promotion of agricultural technology innovation for food security, to enhance their positive impact on gender.

**Table 1. Actions that contribute to gender mainstreaming and which can support interventions on research and promotion of innovation**

Action	How does it contribute to gender?	Recommendations for interventions on research and promotion of innovation
<b>Strengthen collective action among women</b>	The structures of collective support help women have greater bargaining power, thus facilitating their access to and participation in decision making. The spaces of "women only" help develop self-esteem, confidence and solidarity.	Strengthen different types of women's organizations, particularly those related to production, health and nutrition. Promote the development of formal or informal groups of dialogue between women (e.g. groups formed in health centers where women attend regularly). Support the negotiation between women groups and mixed groups, and with other stakeholders.
<b>Strengthen the overall collective action</b>	Strengthening collective action between mixed groups of men and women helps promote gender equality, and empowers women to function and develop their activities, and	Promote the development of mixed groups in areas previously reserved for women only (health, nutrition, breastfeeding, etc.). Promote equity and encourage women's leadership within mixed

	to compete in a mixed context.	groups that previously focused mainly on the participation of men (cooperatives, producer associations, etc.).
<b>Promote access to productive resources</b>	The safe and stable access to productive resources such as land, water and natural resources is a pre-requisite for any farmer, male or female. However, in different contexts there are more or fewer differences in access marked by gender. The promotion of equitable access to these productive resources contributes to the reduction of the inequality gap between men and women and to poverty reduction.	It is important to understand the different mechanisms of access to productive resources that men and women have. In the case of women and for productive issues, access to water resources is particularly important and it should be strengthened. The same is true for access to land and natural resources for food production and household food security.
<b>Promote access to technology</b>	Access to productive inputs, technical assistance and technology compatible with the needs of women allows them to improve their productive role and increase the availability of food for home consumption and sale.	Identify areas and production chains where women can play an important role. Involve women in research priority setting to define gender-sensitive technologies. Agricultural extension and training must take into account the capabilities and access limitations that women face.
<b>Promote access to markets and financial services</b>	Promoting access to markets and financial services contributes to the economic empowerment of women. The improvement in economic conditions of women is an important factor for	Identify value chains and market roles where women can play an important role. Propose alternative approaches of access to financial resources such as: management of revolving funds, savings

Action	How does it contribute to gender?	Recommendations for interventions on research and promotion of innovation
	the development of self-confidence and for the creation of new opportunities.	and credit groups, etc. Facilitate access of women to information so that they can make informed decisions regarding financial markets and services.
<b>Challenge structural inequalities</b>	The attention to the underlying causes of gender inequality, and a rights-based approach can have positive effects on food security.	Promote the representation of women in decision-making spaces by strengthening their capacity to negotiate and express their needs and aspirations. Socialize and disseminate legal information on the rights of women.

## 4. Recommendations for gender mainstreaming during implementation

Many times, even though gender issues are emphasized in the design stage of the intervention, the process gradually loses strength during implementation. This problem stems from a wide range of factors that hinder or limit the operational integration of gender considerations. Some of the major limiting factors or situations are:

- Sometimes the field operating team perceives that technologies are neutral and therefore the views of women and their participation are not differentiated or singled out.
- The views of women are often not taken into account because they do not regularly attend meetings or do not have the necessary communication skills.
- There is limited availability of gender-disaggregated quantitative data.
- It is difficult to incorporate gender issues when objectives, outcomes and indicators formulated have not considered their inclusion during the design or planning stage.

In addition to the above-mentioned limiting factors, one of the main constraints for gender mainstreaming in the implementation of interventions on research and promotion of agricultural technology innovation for food security is the lack of knowledge, skills and abilities of the field operating team. While gender issues may have been mainstreamed effectively in the initial data collection, design and planning, without awareness development and capacity-building of the field operating team, expected results and impacts may not be achieved. Therefore it is advisable to consider the following suggestions:

- Allocate specific resources for gender capacity-building to gender focal points in management roles and their operational counterparts.
- Raise awareness among the field operating team about the importance of addressing gender issues to generate technology and promote innovation that benefits men and women.
- Build the capacity of the field operating team on tools and methods for gender mainstreaming in various activities.
- Make available a gender mainstreaming toolbox for the field operating team. It is also advisable to develop and implement guidelines for the implementation of activities with gender considerations.
- Develop awareness among researchers and decision makers about the importance of incorporating gender considerations to help develop technology adapted to the needs of men and women and to promote innovation.
- Create incentives to promote gender mainstreaming in project operation.
- Monitor and evaluate the implementation of tools and methods for gender mainstreaming, throughout the intervention.
- Define gender focal points for the management unit and for the research and dissemination units, so that there is communication between implementers and the team responsible for management, monitoring and evaluation.

## 5. Recommendations for gender mainstreaming in monitoring and evaluation of interventions

The process of monitoring and evaluation are important steps that enable the measurement of progress toward outcomes and impacts. Gender issues should be monitored and evaluated for the same reasons as other themes: to assess whether activities

are achieving the desired results, to learn, and to adjust interventions.

For the particular case of interventions on research and promotion of agricultural technology innovation for food security, gender issues become more important due to the particular position of women and the relationship of their productive and reproductive roles to household food security. If results and impacts on gender are not evaluated, it is likely that they will not receive enough attention.

The actions to be developed in the early stages of the project life cycle were addressed in previous sections of this document (see Part II, Section 3, and Part III, Sections 3.). This section focuses on suggestions and recommendations to strengthen gender mainstreaming during monitoring and evaluation, given that it was already addressed systematically during baseline data collection, intervention design and planning, and operational implementation. The following are some general tips for gender mainstreaming during monitoring and evaluation:

- Design and implement reflection moments for monitoring and evaluation. These moments can be specific workshops or they can be integrated with monitoring meetings.
- Train staff involved in monitoring and evaluation in gender analysis, and participatory monitoring and evaluation tools.
- Implement data collection and systematization of information from monitoring and evaluation with men and women.
- Implement monitoring and evaluation specifically to gender issues.
- Establish incentive mechanisms for gender-related outcomes to encourage monitoring of gender-sensitive indicators.
- Focus heavily on the analysis of causality and the factors that affected positively or negatively the achievement of gender outcomes. Adjustments to process will emerge from this causality and influencing factors analysis.
- Involve women's organizations, research institutions and other stakeholders in the monitoring and evaluation of gender mainstreaming in the intervention.



# Part Three:

## Analysis of gender mainstreaming in the IssAndes project

### 1. Structure of the case study

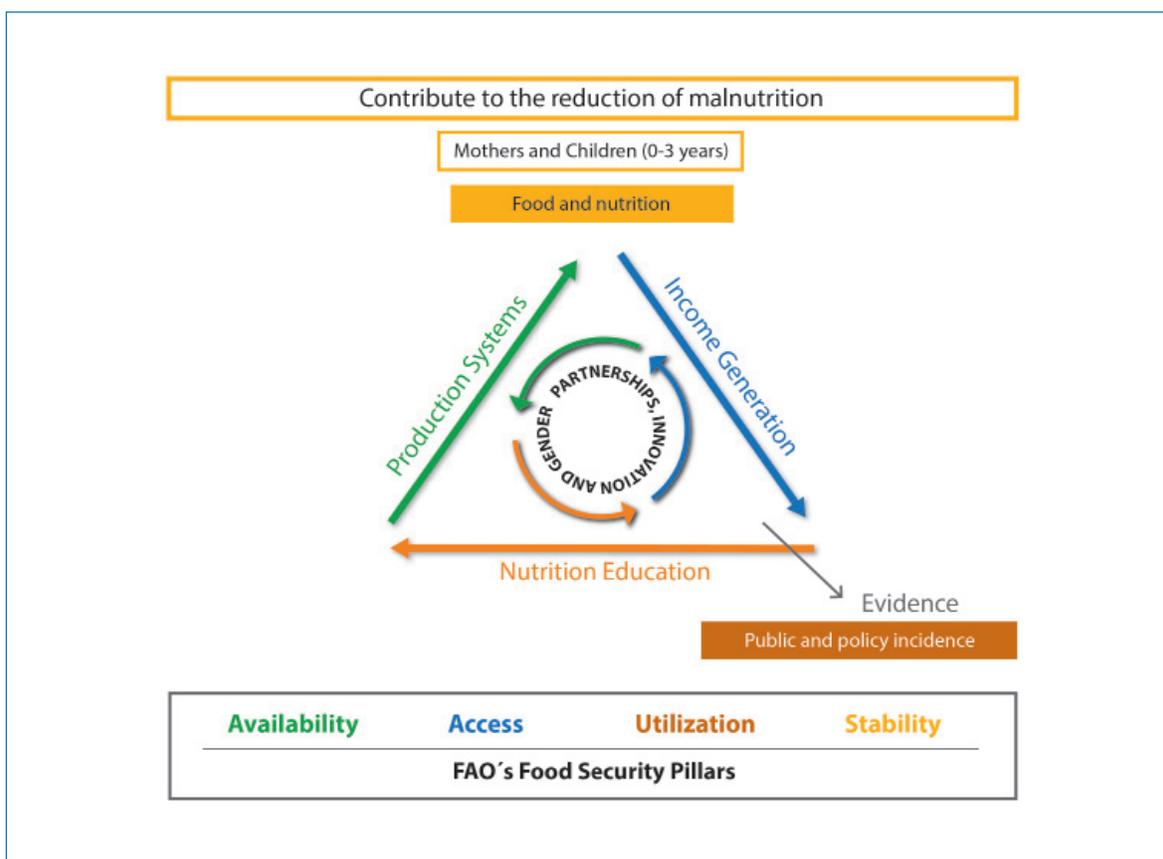
This case study follows the structure of the central document and presents examples for different sections of the document. It is important to note that it follows a numbering sequence that can be reconciled with the numbering of the core document, which aids the reader in finding practical examples and recommendations based on the IssAndes case for different sections of the document. Most sections have a Box that describes a situation experienced in the IssAndes case, to later formulate specific recommendations related to gender mainstreaming.

### 2. The IssAndes project

The project “Strengthening pro-poor agricultural innovation for food security in the Andes” (IssAndes) is a regional initiative funded by the European Commission through the International Fund for Agricultural Development, coordinated by CIP and implemented with national partners. IssAndes seeks to improve the conditions of food security and nutrition of vulnerable rural populations from the poorest sectors of the Andean region; to achieve this goal, IssAndes promoted innovation processes in local consultation spaces (platforms) in order to: i) use potato biodiversity linked to food security and nutrition; ii) strengthen production and income generation systems; iii) promote better feeding practices; and iv) based on the results, contribute to local, national and regional policies related to food security and nutrition. Additionally, gender and climate change issues were mainstreamed in the project (see Figure 2).

The IssAndes intervention had its particularities in each country according to the dynamics of context, target population, regional partners, among others. However, the common element in different areas and countries was the work on potato-based farming systems, in areas where the population is mainly engaged in agriculture and where there is high prevalence of chronic malnutrition (height / age). In the case of Bolivia, the project intervened in the areas of Chuquisaca, Oruro, Potosí and La Paz, with a target population of 3094 families and 2888 school-age children; and a 32.6% rate of chronic malnutrition in children under two years old. In Ecuador, the project was implemented in the areas of Chimborazo, Cotopaxi and Tungurahua, with a target population of 1135 families and a chronic malnutrition rate of 56.3%. In Peru, IssAndes worked in Huncavelica and Andahuayllas with a target population of 698 families and a chronic malnutrition rate of 42% (IssAndes-RTB, 2014).

**Figure 2.** IssAndes project work approach



Source: IssAndes-RTB, 2014. Quantitative and qualitative analysis of the productive and nutritional baselines of IssAndes project with a gender focus. Regional Report Bolivia, Ecuador, Peru.

### 3. Recommendations for a gender-sensitive baseline design and data collection

#### 3.1. Overall design of the baseline study

The initial planning of the IssAndes project was structured around a neutral logical framework that considered households for the intervention. The baseline data collection was also conducted in response to targets and indicators neutrally formulated. This particularity hindered a gender analysis of baseline information.

#### Some Recommendations Based on the IssAndes Experience

- Formulate and, if already developed, reformulate the objectives, outcomes, targets and indicators

outlined in the logical framework, disaggregating by gender. (See examples in Part IV).

- Analyze the problems of nutrition and food security from the perception of men and women. This implies for example:
  - Understand what food security and good nutrition are or what they mean for men and women.
  - What criteria do men and women use to measure or classify food security and nutrition?
  - What social, cultural and productive factors are considered by men and women to assess food security and nutrition?
- Analyze contextual factors that influence nutrition and food security status of men and women. This would involve assessing the relationship between context variables, and nutrition and food security variables. For example:
  - Relationship between levels of malnutrition and farming regions (proximity to urban centers, average

B O X 1

## Incorporating gender from the beginning

One of the main difficulties in incorporating gender is the lack of attention to this issue in the project objectives, targets, and indicators. Often, tools for planning, monitoring and evaluation address objectives, results and targets, generically; thus making the systematic and consistent incorporation of gender a difficult task.

For the IssAndes project the primary tool used for initial planning, monitoring, and evaluation was the logical framework. This tool reflected the projected generic objectives, outcomes and goals on food security, nutrition and technological innovation, where gender was a factor for mainstreaming but contained separately. Additionally, in some pilot sites the project used the Impact Pathways approach to further analyze problems and identify the expected changes. For baseline implementation, data on nutritional and productive issues were collected following generic objectives and indicators.

When the recommendation of the evaluators suggested the analysis of nutritional and productive baseline data with a gender focus, the project team faced great challenges working with data that were not initially disaggregated by gender nor oriented to gender objectives or indicators. This gave way to an in-depth analysis of mechanisms and processes to incorporate gender issues from the beginning. Part IV of this document provides an outline of the Impact Pathways approach as a tool for planning, monitoring and evaluation, and presents some recommendations for gender mainstreaming in this approach.

altitude that defines productive characteristics, access to transportation).

- The overall design of the baseline study should follow a structure that aims to answer the research questions or hypotheses and change hypotheses. The exploration questions (research questions) or confirmation questions (hypotheses) must be answered.
- The overall design should include the assessment of variables likely to change as a result of the intervention. This will enable later monitoring and evaluation. For example: If the expected change is an increase in the production and consumption of a particular variety of potato, outcomes should be formulated in terms of production volumes by men and women, and frequency and quantity of consumption at home and by vulnerable groups.

**Table 2. Example of gender mainstreaming in objectives, outcomes and indicators formulated for the IssAndes project**

Level	Original Version	Incorporating the gender focus
Purpose	Strengthening pro-poor agricultural innovation for food security at different territorial levels in the Andean region, in response to the needs of vulnerable rural groups.	Strengthening agricultural innovation for food security for poor men and women at different territorial levels in the Andean region, in response to the needs of men and women of vulnerable rural groups.

Level	Original Version	Incorporating the gender focus
<b>Purpose indicators</b>	At least one institutional alliance per country, working towards achieving agricultural innovations that respond to the region. <ul style="list-style-type: none"> <li>• XX% of households served by the project improved their food security and income through the incorporation of innovations.</li> </ul>	At least one institutional alliance per country, working towards achieving agricultural innovations that respond to the needs of men and women in the region. <ul style="list-style-type: none"> <li>• XX% of men and women served by the project improved their food security and income through the incorporation of innovations for their respective needs.</li> </ul>
<b>Expected Result (R 1)</b>	Innovation processes for food security with potential to be replicated meet the demands of farming families in vulnerable areas.	Potentially replicable innovation processes for food security meet the demands of male and female farmers in vulnerable areas.
<b>Indicators for result (R.1)</b>	XX% of producer organizations involved in innovation processes. <ul style="list-style-type: none"> <li>• XX% of technological innovations validated by vulnerable smallholder farmer families in target areas.</li> </ul>	XX% of productive organizations (men, women, mixed) participating in innovation processes. <ul style="list-style-type: none"> <li>• XX% of technology innovations validated by vulnerable female farmers in target areas.</li> <li>• XX% of technology innovations validated by vulnerable male farmers in target areas.</li> </ul>

In the above example it is important to note that although gender differentiation seems a simple exercise of exchange of common words such as home, family and farmers, for “men and women,” this change has a profound connotation in the baseline study design and the subsequent data collection. For example, surveys and interviews will no longer be applied to a household as a macro group, but to men and women; alternatively, surveys will collect data about men and women; technology validation will analyze and incorporate the needs of men and women separately.

## 3.2. Areas of research and analysis

In IssAndes, a first neutral context and problems analysis was applied. It is advisable for this analysis to include a gender focus to help plan research and interventions that address the problems of men and women in a differentiated and complementary way.

### 3.2.1. Context and problem analysis

#### Some Recommendations Based on the IssAndes Experience

- Perform an in-depth analysis of problems and their causes as perceived by women for the topics of: potato seed selection, animal feed and health, home distribution and use of food supplies, since women are mainly responsible for these activities.
- Perform an in-depth analysis of problems and their causes as perceived by men for the topics of: fertilization and pest management in potato production; since men are mainly responsible for these activities.
- Analyze the problem of malnutrition and its root causes from a differentiated gender perspective. This will allow the capacity-building events on food and nutrition education to address the problems identified by both men and women.

A disaggregated analysis of productive and reproductive problems in IssAndes sites can help identify technology alternatives appropriate for the needs of men and women.

### 3.2.2. Stakeholder mapping and identification of changes

#### Some Recommendations Based on the IssAndes Experience

- Baseline information from Bolivia and Peru showed a low participation of women in training events about productive issues (Flores, 2014). Therefore, although capacity-building events are generally aimed at men and women, differences in expected changes and the low participation of women show the need to adjust the design of the intervention and methodologies to ensure a better reach of women, particularly with issues of potato storage and storage pest control.
- The baseline data in Ecuador show that in some rural households women take on roles that are

## B O X 2

### **Gender differences in problem identification**

Gender differences in the identification and prioritization of problems, and in the analysis of the causes that lead to these problems, arise from differences in productive and reproductive roles of men and women in a given context. A clear example of these differences was observed in potato growing areas intervened by the IssAndes project in Bolivia, Ecuador and Peru, where the baseline data collection evidenced the differences in agricultural work roles of men and women. Men are in charge of the heaviest agricultural tasks such as harvesting and input purchase, while women select seeds, and are in charge of feeding and taking care of animals (IssAndes, 2014). In this context of differential roles, men are more likely to identify problems related to crop harvest such as the use of equipment and application of inputs, while women will identify problems related to quality of seed, animal feed and health. These differences highlight the importance of gender-disaggregated problem identification, to aid the design of interventions that address the needs of men and women.

## B O X 3

### **The change depends on who changes: differences between the expected changes in men and women**

Improving conditions for food security and nutrition requires changes at different levels and in different actors. Often these changes in men and women are different, yet complementary because of the role each of them plays in household productive and reproductive processes. A first reconstruction of the Impact Pathways for IssAndes and the World Food Program pilot case in Chuquisaca - Bolivia showed that to improve food security conditions through improvements in the production system, it was necessary to improve production and productivity. Part of the potato production was reserved and stored for consumption and a greater proportion was destined for sale. Because of the distribution of roles, men were responsible for fertilization tasks and women were in charge of separating the product for home consumption and storage. Based on these roles, the impact pathway identified different and complementary changes expected for men and women. An expected change in men was greater knowledge about the preparation of natural fertilizers and their application. The strengthening of capacities in best practices for potato storage and for storage pests control was a change sought for women (Flores, 2013).

typically male such as soil tillage and fertilizer application. This new role has come about due to the migration of men in search of income. Considering these variances is important to propose differentiated changes that are at the same time inclusive of non-typical situations.

- In the case of Ecuador, unlike other countries, the role of men in feeding babies (62% of respondents) stands out. This information is vital to raise awareness and for behavior changes in men regarding nutrition issues.

An adequate identification of changes by actor and gender will allow a more detailed intervention planned to address changes specifically.

### 3.2.3. Descriptive analysis linked to innovation

In the IssAndes case the baseline included little descriptive information linked to innovation, and the existing data were not disaggregated by gender. For example: there was no information on resources and services available, or on the technology used by men and women for potato production. This situation made the design of gender-sensitive technologies difficult.

## 3.3. Primary and secondary data

### 3.3.1. Collection of secondary data

Different types of secondary data were considered for IssAndes but some others were ignored. For this particular case it is advisable to consider the following information:

**Table 3. Types of information and recommendations to incorporate the gender perspective**

Type of Information or Process	Recommendations	
	Gender-differentiated situations and needs	Presence of opposite factors
<b>Context and gender relations</b>	Analyze contextual factors that shape gender relations (culture, values, practices, religion, education, politics, law, economics, demography, etc.).	Collect statistical data to describe population trends, access to and control of resources, and qualitative descriptive data to understand the quantitative demonstrations. Integrate qualitative and quantitative data, local and regional.
<b>Access and control of</b>	Access and control of resources, services	

<b>resources</b>	and production factors differentiated by gender. It is important to emphasize variables related to the intervention.	
<b>Income</b>	Differences in income. Proportional distribution of expenditure, disaggregated by gender.	
<b>Economy</b>	Food price behavior, availability and trends.	Statistics about products and prices, risks, trends and vulnerabilities.
<b>Education</b>	Trends in schooling levels by gender.	Statistical data on education and employment. Cultural factors, practices, values and gender roles that influence schooling and occupation.
<b>Occupation</b>	Feminization of agriculture and of other production processes. Participation of men and women in productive activities.	
<b>Food Security and Nutrition</b>	Levels of malnutrition, vulnerability and roles in nutrition and food security by gender. Major food sources. Factors affecting food security.	Statistical data on health and nutrition. Food consumption statistics. Description of roles, practices, and food culture.

### Some Recommendations Based on the IssAndes Experience

- An analysis of secondary data of health information in the areas of project intervention, considering data on disease incidence and prevalence of malnutrition in children, can contribute to triangulation for a better interpretation of the baseline information.
- It is advisable to perform an analysis of secondary data on access to basic services (water and sanitation) and variables of access to health services, in relation to the incidence of acute malnutrition in the various project areas. This information can help us understand the relationship between acute malnutrition and lack or deficit of access to basic services.

## B O X 4

### Importance of secondary data disaggregated by gender

The availability of secondary information disaggregated by gender in Latin America, particularly in the Andean region, is very limited. In the case of IssAndes, the collection of secondary data focused on regional data (Latin America and the Caribbean) and some general information by country. Limitations in terms of freely accessible centralized data availability forced an extensive and detailed primary data collection. However, some local secondary information sources were not taken into account. This is the case of medical records from hospitals and health centers in the areas of project intervention. These centers manage health statistics on the existing population. The analysis of this information would have allowed some triangulation and validation of primary data collected. For example, in the case of Ecuador, primary data showed that there were significant differences in the levels of malnutrition of female and male children. Based on these data, a higher proportion of male children tend to have higher levels of malnutrition compared with girls. Additionally, there are popular beliefs that say that boys are weaker than girls and therefore tend to get sick more often, which is detrimental to their overall health and nutrition.

#### 3.3.2. Primary data collection

##### Research Question

Is there a relationship between the number of varieties of potato on a farm and:

- a) the sex of the head of household
- b) the degree of food insecurity
- c) the level of malnutrition in children (boys and girls)
- d) the participation of women in decision-making on productive activities?

**What criteria or preferences do men and women consider when selecting potato varieties?**

##### Variables for analysis

- Sex of the head of household
- Number of potato varieties on the farm
- Sex of the person who decides on potato planting, and who decides on potato selection (post-harvest)
- Degree of food insecurity
- Level of family expenses
- Level of malnutrition in children (boys and girls)
- Main varieties consumed in the area

- Preferences of women and men when selecting potato varieties

This analysis showed that there is no clear relationship between cultivated biodiversity (number of potato varieties planted) and food security and nutrition. The gender analysis, in turn, suggests that women have important roles in selecting varieties for consumption.

##### Some Recommendations Based on the IssAndes Experience

- In IssAndes many research questions that sought an in-depth gender analysis were formulated to prove or disprove assumptions. However, there were no initial primary data that led to these assumptions. In these cases, it is advisable to formulate exploratory research questions to explore different factors and relationships. This is the case of the example presented in Box 5, where gender analysis raises the question: **Do women have a predominant role in maintaining biodiversity?** In this case, the answer should be dichotomous yes/no. However, variables studied do not allow this type of analysis. Therefore,

## Gendered Research Questions

Al iniciar una intervención existen algunos planteamientos o supuestos que necesitan ser abordados desde una perspectiva de investigación para entender su manifestación en el contexto particular de la intervención. Este es el caso de un planteamiento ampliamente manejado sobre la relación positiva entre biodiversidad, seguridad alimentaria y nutrición (Frison, Cherfas, & Hodgkin, 2011; Thrupp, 2000; Toledo & Burlingame, 2006). Sin embargo la mayor parte de los análisis que sustentan este planteamiento no toman en cuenta la situación particular de los sistemas productivos basados en papa de las regiones alto-andinas. Con el fin de analizar la validez de este planteamiento en relación a la diversidad de papa en sistemas productivos de los Andes, el proyecto IssAndes analizó la siguiente pregunta de investigación:

When starting an intervention, there are some proposals and assumptions that need to be addressed from a research perspective to understand their manifestation in the particular context of the intervention. This is the case of an assumption largely managed about the positive relationship between biodiversity, food security and nutrition (Frison, Cherfas, & Hodgkin, 2011; Thrupp, 2000; Toledo & Burlingame, 2006). However most of the analysis that supports this approach does not take into account the particular situation of potato-based production systems of the high Andes. In order to analyze the validity of this approach in relation to the diversity of potato production systems in the Andes, the IssAndes project analyzed the following research question:

### **What is the relationship between cultivated biodiversity and food security and nutrition?**

To address this question, the baseline study considered an analysis of the relationship between diversity of species, cultivated varieties of potato, and levels of child malnutrition. The inclusion of a gender perspective broadened the scope of the research by exploring gender variables with a possibility of influencing the “diversity-nutrition” relationship. Thus, the gendered analysis posed the following research question (IssAndes, 2014):

### **Do women have a predominant role in maintaining biodiversity?**

Based on this research question, new sub-questions were formulated and specific variables were identified for analysis, as follows:

#### **Research Question**

**Is there a relationship between the number of varieties of potato on a farm and:**  
a) the sex of the head of household

#### **Variables for analysis**

- Sex of the head of household
- Number of potato varieties on the farm
- Sex of the person who decides on potato planting, and who decides on potato

- b) the degree of food insecurity
- c) the level of malnutrition in children

**What criteria or preferences do men and women consider when selecting potato varieties?**

- selection (post-harvest)
- Degree of food insecurity
- Level of family expenses
- Level of malnutrition in children (boys and girls)
- Main varieties consumed in the area
- Preferences of women and men when selecting potato varieties

This analysis showed that there is no clear relationship between cultivated biodiversity (number of potato varieties planted) and food security and nutrition. The gender analysis, in turn, suggests that women have important roles in selecting varieties for consumption.

the formulation of exploratory questions is suggested, such as the following: **What is the role of women in maintaining diversity?** In response to this question, the existing baseline data suggest that while there are no differences between the number of varieties planted and the sex of the head of household or whoever decides about planting, there is a significant role of women in the selection of varieties for consumption, with more openness to consumption parameters and criteria for the selection of varieties.

In the following section there are some suggestions of variables that can be considered to ensure the inclusion of gender in different thematic areas related to food security. These suggestions of variables emerge from the IssAndes case and do not seek to be exhaustive but referential and can be adjusted and improved according to the type of intervention and the research questions or hypotheses.

**Table 4. Variables to be considered for the inclusion of gender issues in different topics related to food security**

Observation fields	Main variables	Variables for analysis of relationships
<b>Socio-economic context</b>	<ul style="list-style-type: none"> <li>• Level of poverty or vulnerability.</li> <li>• Household access to basic services, health</li> </ul>	<ul style="list-style-type: none"> <li>• Types of households according to the sex of the head of household.</li> <li>• Level of education of</li> </ul>

	<ul style="list-style-type: none"> <li>and education.</li> <li>• Level of education by gender.</li> </ul>	<ul style="list-style-type: none"> <li>the household head.</li> <li>• Level of education of the mother.</li> <li>• Access to health and education services by gender.</li> </ul>
<b>Agriculture</b>	<ul style="list-style-type: none"> <li>• Main economic activity.</li> <li>• Types of crops produced by men and women.</li> <li>• Level of production and productivity of crops.</li> <li>• Type and dimension of the production problems by crop.</li> <li>• Destination of production per crop.</li> <li>• Level of access to different production factors by gender.</li> </ul>	<ul style="list-style-type: none"> <li>• Level of participation of women in decision making regarding productive issues.</li> <li>• Level of decision making of women about the destination of production.</li> <li>• Roles of women and men in production processes.</li> <li>• Workload of men and women throughout the year.</li> <li>• Types of households according to the sex of the head of household.</li> </ul>
<b>Food security and nutrition</b>	<ul style="list-style-type: none"> <li>• Minimum acceptable diet.</li> <li>• Chronic malnutrition.</li> <li>• Global malnutrition.</li> </ul>	<ul style="list-style-type: none"> <li>• Types of households according to the sex of the head of household.</li> <li>• Level of education of</li> </ul>

Observation fields	Main variables	Variables for analysis of relationships
	<ul style="list-style-type: none"> <li>• Acute malnutrition</li> <li>• Consumption of specific nutrients</li> <li>• Degree of food insecurity</li> <li>• (all previous variables disaggregated by sex of the child)</li> <li>• Distribution of food at home by gender and age</li> </ul>	<ul style="list-style-type: none"> <li>the head of household</li> <li>• Level of education of the mother</li> <li>• Level of decision making of women about food topics</li> <li>• Gender differentiation in levels of malnutrition, food insecurity and food distribution</li> </ul>
<b>(Natural Capital)*</b>	<ul style="list-style-type: none"> <li>• Proportion of plant varieties in the total production of different crops (potato)</li> <li>• Number of cultivated species and varieties</li> <li>• Availability of water</li> </ul>	<ul style="list-style-type: none"> <li>• Level of decision making of women on diversity management</li> <li>• Level of decision making of women on water management</li> </ul>
<b>Demo-graphics, health and education (Human Capital)</b>	<ul style="list-style-type: none"> <li>• Family size</li> <li>• Number of children (boys/girls) by age group</li> <li>• Level of migration by sex</li> <li>• Level or frequency of participation in capacity-building by sex</li> <li>• Type of capacity-building</li> </ul>	<ul style="list-style-type: none"> <li>• Level of participation of women in decision making about reproductive issues</li> <li>• Types of capacity-building in which men and women participate</li> <li>• Time distribution of women</li> </ul>
<b>Social participation (Social Capital)</b>	<ul style="list-style-type: none"> <li>• Level of household participation in social organizations</li> </ul>	<ul style="list-style-type: none"> <li>• Level of participation of men and women in social organizations</li> <li>• Types of organization in which men and women participate</li> <li>• Roles of men and women in social organizations</li> </ul>
<b>Assets (Physical capital)</b>	<ul style="list-style-type: none"> <li>• Distribution of the population according to asset holdings</li> <li>• Availability or access</li> </ul>	<ul style="list-style-type: none"> <li>• Women's access to different types of assets</li> <li>• Level of decision</li> </ul>

	to specific types of assets	making of women over assets
<b>Economy (Financial Capital)</b>	<ul style="list-style-type: none"> <li>• Definition of the main source of household income</li> <li>• Definition of the main source of income for men and women in the family</li> <li>• Roles of men and women in the value chain</li> <li>• Level of household income</li> <li>• Patterns of family income and expenditure disaggregated by sex</li> <li>• Proportion of male and female contribution to family income</li> <li>• Distribution of household expenditure</li> </ul>	<ul style="list-style-type: none"> <li>• Types of households according to the sex of the head of household</li> <li>• Level of education of the household head</li> <li>• Level of education of the mother</li> <li>• Level of decision making of women about family income</li> <li>• Decision making regarding the distribution of expenditure of personal income in men and women</li> <li>• Level of participation of men and women in marketing processes per product</li> </ul>

Source: Personal preparation

\* The natural capital comprises the items of natural resources which produce a flow of resources and services. For example: biodiversity, land and its fertility, water availability, among others.

### Some Recommendations Based on the IssAndes Experience

- Baseline data collection in IssAndes was based on key variables, making it difficult to measure or disaggregate by sex and to do the analysis of relationship variables. Some variables for further analysis and which can aid the design of appropriate technology for men and women are:
  - Perceived importance of different productive sectors by men and women.
  - Main productive problems identified by men and women for the main production crops.
  - Main problems in potato production as perceived by men and women.

### 3.3.3. Selection, design and implementation of tools for data collection

An evaluation matrix is presented below with elements of gender analysis, for some examples of research questions, research hypotheses and change hypotheses related to IssAndes. This matrix outlines the way forward, starting with the research questions through to the definition of tools for data collection.

**Table 5. Example of evaluation matrix according to hypotheses or questions**

Questions or Hypotheses	Main variables or indicators	Variables or indicators for a relationships analysis	Tools for data collection
<b>Hypothesis linked to an assumption: There is a relationship between diversity of species and varieties and nutritional status of boys and girls</b>	<ul style="list-style-type: none"> <li>• Proportion of plant varieties in the total production of different crops (potato).</li> <li>• Rate of chronic malnutrition (Age/Size) of boys and girls under 3 years old.</li> </ul>	<ul style="list-style-type: none"> <li>• Level of women's decision making regarding the selection of varieties for agricultural production.</li> </ul>	<ul style="list-style-type: none"> <li>• Food and nutrition surveys.</li> <li>• Socio-productive survey.</li> <li>• Dynamic of "Who does what and who decides about production".</li> </ul>
<b>Research Hypothesis: There are differences in the nutritional status of boys and girls</b>	<ul style="list-style-type: none"> <li>• Rate of chronic malnutrition (Age/Size) of boys and girls under 3 years old.</li> </ul>	<ul style="list-style-type: none"> <li>• Sex of head household.</li> <li>• Level of education of the mother.</li> <li>• Destination of the agricultural production (potato).</li> </ul>	<ul style="list-style-type: none"> <li>• Food and nutrition surveys.</li> <li>• Socio-productive survey.</li> </ul>
<b>Research Question: How is food distributed within the household?</b>	<ul style="list-style-type: none"> <li>• Distribution of food within the household in quantity and quality by sex and age.</li> </ul>	<ul style="list-style-type: none"> <li>• Level of decision making of women about the proportion of expenditure devoted to food purchases.</li> <li>• Level of control of women about production factors of production.</li> </ul>	<ul style="list-style-type: none"> <li>• Food and nutrition surveys.</li> <li>• Socio-productive survey.</li> <li>• Dynamic of food identification and distribution.</li> </ul>
<b>Hypothesis of change: Production and consumption of bio-fortified potato va-</b>	<ul style="list-style-type: none"> <li>• Extension produced, and average yield of target varieties.</li> <li>• Amount of target varieties</li> </ul>	<ul style="list-style-type: none"> <li>• Occupation of women and</li> </ul>	<ul style="list-style-type: none"> <li>• 24-hour dietary recalls</li> <li>• Report of mothers and caregivers</li> <li>• Socio-productive survey</li> </ul>

varieties has increased	consumed, by gender and age.	proportion of time dedicated to productive and reproductive work.	
<b>Change hypothesis: Food and nutrition education contributes to the reduction of chronic malnutrition</b>	<ul style="list-style-type: none"> <li>• Rate of chronic malnutrition (Age/Size) of boys and girls under 3 years old.</li> <li>• Level of participation of men and women in food and nutrition education.</li> </ul>	<ul style="list-style-type: none"> <li>• Decision level of men and women about food.</li> </ul>	<ul style="list-style-type: none"> <li>• Food and nutrition surveys.</li> <li>• Socio-productive survey</li> <li>• Dynamic "Who does and who decides about food".</li> </ul>

Source: Personal preparation

The example matrix presented above clearly shows the process flow for tool selection from the questions or hypotheses formulated, including not only the main variables but also variables or indicators for the analysis of relationships with a gender focus, up to specific data collection tools.

### Some Recommendations Based on the IssAndes Experience

- In the IssAndes case, the main tools used were a productive survey and the food and nutrition survey, which produced the productive and nutritional baselines, respectively. The application of qualitative tools took place later with the objective of filling in some gaps. It is also recommended to use (gendered) qualitative exploratory tools to help design and specify quantitative tools such as surveys.
- Use qualitative tools for an in-depth understanding of the following results:
  - Why do households with a woman identified as "head of household" perceive higher levels of food insecurity?
  - Why in some regions, when men are the ones who make the decision about medical checks and care, do boys and girls attend fewer controls?
  - Considering that women make decisions primarily on "other income" generated and that these funds are primarily intended for family nutrition, it is important to perform an in-depth analysis of

## B O X 6

### When an in-depth analysis is needed

Often the statistical information produced shows relationships between different variables but does not explain or justify these relationships. The IssAndes baseline study in several pilot cases within the Andean region showed statistically significant differences between the levels of malnutrition of boys and girls and sex of the head of household. Additionally, the implementation of the Latin American and Caribbean Survey on Food Security ELCSA showed that households perceive higher levels of food insecurity when a woman is identified as “head of household-” According to this information, boys and girls from homes where the “head of household” is a woman, are more likely to be food insecure and have some degree of malnutrition. This information is referential and does not explain the reasons why households with female heads experience this food insecurity. Therefore an in-depth analysis is needed through qualitative tools to understand the reasons and underlying causes for this perception of food insecurity and these manifestations of malnutrition in boys and girls. Only this understanding will allow the design of interventions to mitigate the causes of food insecurity in households with female heads of family.

## B O X 7

### Refining Tools: The Latin American and Caribbean Survey on Food Security ELCSA and its adjustment with female respondents

To assess the state of food security and nutrition there are different tools already designed and tested in various contexts. One of these is the Latin American and Caribbean Survey on Food Security ELCSA that was used by IssAndes to assess the perception of food security in homes intervened by the project. The 15 ELCSA questions were incorporated into the nutritional baseline surveys of IssAndes in Bolivia, Ecuador and Peru. However, given the country-specific socio-cultural and linguistic features, these questions were validated and adjusted in the field with women who were the main target group of the survey, given their condition of mothers and their role in child care. This validation and adjustment with women improved the reliability of the tool. A subsequent assessment of the predictive validity and convergent validity of the tool confirmed its validity, reliability and complementarity for the measurement of food security in rural households with potato-based production systems in the Andes (Kopp, Aguilar, & Velasco, 2014).

current and potential sources of these “other income” items.

### 3.3.4. Tools adjustment and implementation

#### Some Recommendations Based on the IssAndes Experience

In IssAndes the productive and nutritional surveys were applied generically, in the first case to households and in the second case to people responsible for the care of children under three years of age (usually women). Based on this experience it is advisable to take into account the following recommendations for future data collection actions:

- When collecting productive information from households, include gender disaggregation to collect data about women and men within the same household.
- When collecting productive information from households, divide the sample so that the survey is answered by men and women in similar proportions.
- The nutritional information was collected mainly with women responsible for childcare, and this creates a gap in terms of the perceptions of men about food security and nutrition. In this case it is advisable that the survey includes sections to be filled by the childcare responsible (regardless of gender) and

sections on perception of nutrition and food security to be filled by men and women separately.

- In IssAndes the productive and nutritional surveys were applied separately; this created differences in data reports with some families who participated in one survey and not in the other. To minimize this difficulty, it is advisable to apply surveys in parallel so that both can be applied to the same family. An alternative is the stratified application where the nutritional survey is applied first to verify the presence of children under three, to later give way to the application of the productive survey with the same family.

## 4. Recommendations for gender mainstreaming in intervention design and planning

### 4.1. MACRO Planning: outcomes, indicators, targets and milestones

#### Some Recommendations Based on the IssAndes Experience

- The baseline study in Ecuador revealed that a high

#### BOX 8

### Milestones and targets with a gender perspective

Men and women contribute in different and complementary ways to achieving the objectives and intended outputs of an intervention. These differences should be reflected explicitly in the milestones and targets to be monitored. In the case of IssAndes, for example, to contribute to the higher goal of improving food security conditions, the development of systems for quality seed provision of improved or native potato varieties with higher iron and zinc contents was proposed. Building milestones and targets for this outcome involves analyzing the roles of men and women, and identifying the participation and responsibility of everyone in achieving the result. In this particular case, the IssAndes baseline study identified an important role of women in the selection of seeds and a partially important role in marketing and seed flows. Therefore, milestones and targets should include gender-disaggregated participation in: capacity-building events, and the implementation and management of technologies such as positive selection and seed production through potato sprouts, among others. Another way of approaching milestones and targets can be to define the volumes of quality seed produced, and the amount of seed sold or exchanged by men and women.

proportion of men (62% of the surveyed population) are responsible for feeding babies at home. This information should be the starting point for milestone and target planning in relation to capacity-building of men in food and nutrition topics.

- An important result of IssAndes is the generation of productive technology that contributes to food security and nutrition in potato-based systems. Typically, technology generation is managed as a neutral process and ends up dominated by the perceptions and technological needs of men. To make explicit the inclusion of the gender perspective, it is advisable to include differentiated outputs such as:
  - Needs of female producers identified separately.
  - At least two needs of female producers incorporated into the design of technologies that contribute to food security and nutrition in potato-based systems.
  - At least one technology generated that meets the specific needs of female farmers.

- Female producers adopt at least one technology that meets their potato production needs.

## 4.2. MICRO Planning: Activities

### Some Recommendations Based on the IssAndes Experience

- IssAndes identified that despite the limiting factors that adversely affect women's participation (see Box 9), there is a good share of them participating in non-productive spaces such as medical checkups or health centers. Therefore it is advisable to conduct workshops in spaces where women or men already participate, and where they feel comfortable. An example of this would be to give out information or productive capacity-building during medical checkups and in health centers where women participate frequently. In the case of men, the spaces of productive capacity-building where they traditionally

### BOX 9

## Understanding the conditions and limitations of men and women

The different roles of men and women, and the conditions they face can promote or limit their participation in interventions. An example of these conditions was seen through the qualitative analysis implemented by IssAndes about the reasons why women participate less in capacity-building events. Both men and women surveyed said that the low turnout is essentially due to three factors (IssAndes, 2014):

1. Women are afraid and prefer not to participate because their views are often not taken into account by men.
2. Women often have limitations in understanding what is spoken in capacity-building events because they speak little or no Spanish, have less education, and are not skillful in reading and writing.
3. They have many other things to do, and many times to attend events they must travel long distances carrying children.

Given these limiting factors, specific consideration must be given to designing interventions that promote women's access to events and activities. For this particular case it is advisable to consider the use of native language training strategies and material designed for low levels of schooling. To reduce the effect of travel limitations, it is advisable to consider personalized technical assistance, identification of hours of the day and places that favor women's participation, or finding alternative mass media such as the radio.

## BOX 10

### A conscious and capable team is the key to gender inclusion

For a consistent gender mainstreaming it is not enough to have gender-disaggregated information, and gender-sensitive indicators and targets. One of the most important elements is a field implementation team, conscious and qualified to start the process. This is why IssAndes decided to assign in each country gender focal points in management or general support roles. This facilitated dialogue between the management component and the operating component, to integrate the gender approach practically in project activities. The gender focal points raised awareness among researchers and field implementation teams on the importance of addressing gender issues to promote innovation for food security and nutrition of families.

participate can be used to provide information or training on food and nutrition issues.

- Another alternative is to use neutral spaces where men and women participate, such as local fairs and other public events, to disseminate information.

## 5. Recommendations for gender mainstreaming during implementation

### Some Recommendations Based on the IssAndes Experience

- While it is important to identify gender focal points in a management and general support role, they need operational counterparts that recognize the importance of gender in each and every one of the partner institutions (research partners, productive sector partners and nutritional sector partners).
- It is common for technicians working in agricultural development to be mostly men. It is important to include female technical staff because they are an important role model for rural women. The presence of a woman leading capacity-building processes and technology dissemination helps to promote the participation of female farmers and strengthens their self-esteem.

- Considering the objectives of IssAndes related to agricultural innovation for food security in potato-based systems, it is advisable for field operators to have tools to analyze the technological needs and preferences of men and women separately. This will help design and generate technology that best meets these needs.
- It is important to have a thorough analysis of the factors and criteria that influence the adoption of technologies by men and women. This will help with the subsequent design of tools for dissemination and technology transfer.

## 6. Recommendations for gender mainstreaming in monitoring and evaluation

### Some Recommendations Based on the IssAndes Experience

- It is advisable to define gender focal points with each operational partner to stimulate dialogue between parties and with the management unit, thus promoting cross-learning.
- The use of participatory methodologies such as “SEP”<sup>1</sup> Participatory Monitoring and Evaluation is

<sup>1</sup> <http://www.proinpa.org/tic/pdf/Metodologias%20participativas/Evaluacion/pdf67.pdf>

## B O X 1 1

### Monitoring strategies thinking of men and women

Often when monitoring and evaluating interventions, efforts are concentrated on recognizing the changes generated based on neutral indicators that measure technologies and processes, where gender mainstreaming is limited to counting the number of women that attend, participate or are trained. Although these indicators are an important element of reference, monitoring and evaluation should go a step beyond more attendance or participation of women. There is a need to focus on the qualities or nature of the intervention, changes in attitudes, perceptions and use. In the case of IssAndes, for example, the baseline identified that women and men have different selection criteria and preferences about potato varieties planted (IssAndes, 2014). A suggested monitoring variable in this case would be the degree of inclusion of women's views on methodologies and technologies designed and implemented to contribute to food security.

Another important monitoring factor is the perception and attitude of women about capacity-building. The IssAndes baseline found that women perceived participation in training as not helpful due to the discrimination by men, their communication limitations, and low level of education. A monitoring strategy may include a short evaluation by men and women after each training event, analyzing general aspects such as the usefulness of the technology socialized, ease of understanding, and a general perception of how they felt during the activity. For this purpose some participatory evaluation tools or methods can be used.

recommended to monitor and evaluate the intervention at different stages. This tool is flexible and can be applied to activities, milestones, targets, and indicators at different points in time.

- Considering the objectives of IssAndes linked to strengthening innovation networks and technology platforms for food security, it is advisable to es-

tablish space and moments for dialogue between institutions on gender issues related to technology innovation, and on cross-assessment processes about gender issues. This would help to promote cross-learning and to motivate or encourage the inclusion of the theme by the partners with less strength in gender issues.

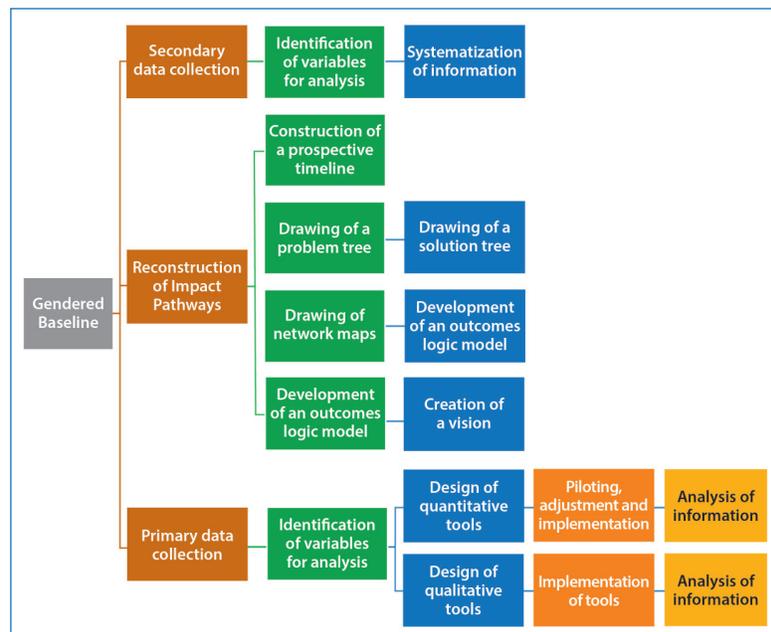


# Part Four:

## Methodological recommendations for gender mainstreaming in the “Impact Pathways” approach as a tool for planning, monitoring and evaluation

The recommendations for baseline studies reflected in this document emerge from the application of the Impact Pathways approach which allows an understanding of how the project will develop its products, which actors will participate in the generation and use of these products, and which variables or indicators are likely to reflect changes generated by project outputs (Polar, 2012) The IssAndes intervention integrated tools used by the Impact Pathways approach (participatory workshops, network mapping) with quantitative and qualitative data collection tools (surveys, interviews, focus groups and secondary information) for both the productive component and the nutrition component. The figure below describes each of these stages in the process of baseline design and data collection (See Figure 3)

**Figure 3.** Stages and steps in the implementation of a baseline study



Source: Personal preparation

This part of the document presents a summary of the steps to be followed for the reconstruction of the impact pathways. To mainstream gender in the reconstruction of impact pathways, it is advisable to work at every step

of the process, adjusting the approach so it can properly capture gender situations, conditions and needs. The steps involved in the reconstruction of impact pathways are presented below with a general description of their implementation.

## 1. Construction of a prospective timeline

The construction of a timeline enables the identification of the main events or projected milestones, and past events that set the stage or molded the context. The information generated will enable an analysis to be made of causality of events in time.

To build the timeline the following steps can be followed (Polar, 2012):

- 1) Convene a participatory meeting of stakeholders involved in the intervention.
- 2) Draw a timeline and place the time of intervention onset in the middle.
- 3) Consult participants as to when and why the intervention began.
- 4) Identify other interventions or past processes that led to the current intervention or that are related to it. Specify milestones or important moments.
- 5) Identify important moments in the future. Specific events, turning points or changes, etc.; and describe them.

Every moment along the timeline must be clearly marked by timing (date). When working with parallel interventions, for example ISSANDES and another project, it is advisable to build parallel timelines. This will facilitate a visualization of how interventions interact. To ensure the inclusion of gender, it is necessary to construct the timeline with men and women, as they may perceive the importance and occurrence of various events differently.

The timeline built as part of the baseline must be re-analyzed and completed according to the established monitoring and evaluation plan (semi-annually, annually, etc.).

## 2. Drawing of the problem tree

A sex disaggregated identification of problems and their causes is a central element that must be integrated in the impact pathway reconstruction and the base-

line data collection; because it enables an adjustment of subsequent planning, implementation and monitoring processes to respond to gendered conditions and needs. The problem tree can be drawn separately by groups of men and women; or jointly, but considering a clear differentiation of problems and causes as perceived by men and women.

The drawing of a problem tree requires essentially an inquiry into the causal logic of existing problems. To draw a problem tree, the sequence of steps described below (Polar, 2012) can be used:

- 1) Inquire into the main problem faced by families participating in the intervention. This can be done through open dialogue and brainstorming to identify the problem source.
- 2) Identify the causes leading to the main problem, asking: Why does this problem occur? As causes are manifested they should again be challenged in a sequence, detailing levels. Each level of causes is explained by a deeper level down to the root problems or determinants. It is advisable to maintain a manageable number of levels (four or five) to avoid excessive complexity.
- 3) Root problems or determinants will be directly related to the outputs of the intervention.

## 3. Drawing network maps of actors

The initial actor network mapping is a diagnosis tool that, in addition to its contribution to the analysis of causality of the problem tree, aids in the visualization and evaluation of changes generated towards the end of the intervention.

The actor network mapping presents a systemic and dynamic visualization of relationships between actors, and it complements the causality of the problem tree through an understanding of the dynamics that lead to changes. The actors are perceived differently by men and women, so a mapping that differentiates the perceptions of men and women is advisable. To draw participatory network maps, the following steps are suggested:

- 1) Build a matrix that identifies all actors working on issues related to food security in the territory. This matrix should include details that enable a classification and an understanding of the role of actors such as: type of actor, role, activities, level or scale of work, geographical coverage. and level of influence

within the network, among others. It is advisable to use only three levels of influence to simplify the analysis (1 = low, 2 = medium, 3 = high).

- 2) Network maps are drawn with the actors listed in the matrix, linking actors through different types of lines depending on the different types of relationships. It is advisable to identify only the main relationships and not use more than three or four to avoid too much complexity.

In some cases when interventions are focused on the development of linkages and relations, it is advisable to perform an in-depth actor network analysis. This can be done through targeted surveys that include men and women in the sample. A network analysis is also important to visualize information flows and relationships between other variables. This information can help guide the intervention planning and its evaluation.

struction of an outcomes logic model with a gender focus enables the differentiation of expected changes based on the gender composition of the target group, thus helping to plan and monitor these changes.

Understanding the existing problems, the roles and relationships between institutions, is a step forward towards the construction of an outcomes logic model. Changes presented in the model generally reflect project outcomes as they are not direct outputs of the intervention, but rather an appropriation or use of these outputs by the actors involved. To prepare an outcomes logic model, the project operating team and participant actors describe their ideas about the expected changes in each of the actors or actor groups. The matrix prepared is divided according to the types of changes: knowledge, skills, attitudes, and practices KSAP.

## 4. Develop an outcomes logic model (Expected Changes)

Through the actions of an intervention, changes are expected to take place in the target population or within specific groups of this population. The explicit con-

## 5. Drawing of the solutions tree

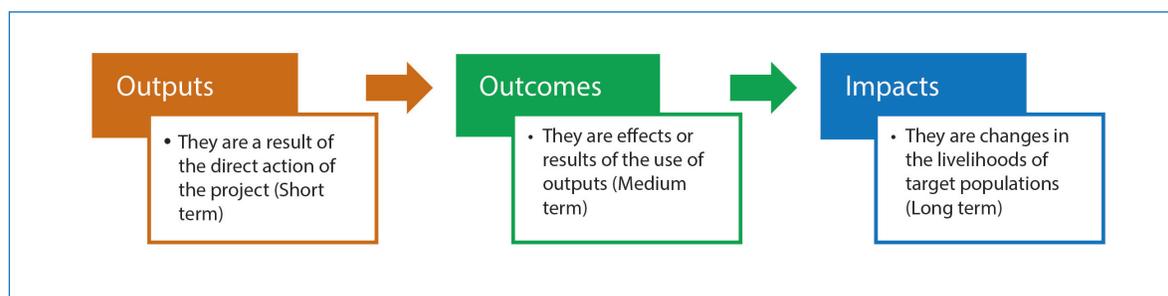
The drawing of the solutions tree is the beginning of the planning and monitoring process. This approach uses the problem tree, network maps and logic model to graphically create a solutions tree. This tree visually represents the sequence of changes that occur from the

**Table 6. General scheme of an outcomes logic model and KSAP changes in actors**

Group of Actors	Knowledge	Skills	Attitudes	Practices
Groups of stakeholder or individual actors can be included.	It may be knowledge related to innovation in all of its manifestations or to other aspects.	Reflect the ability to make or implement elements of innovation or other aspects.	Involves changes in perception regarding situations or processes.	It is a combined result of the previous three types of changes and reflects the social USE of the innovation or process.

Source: Adapted from (Douthwaite, Alvarez, Cook, et al., 2008)

**Figure 4. Different levels of changes generated by the intervention**



Source: Personal preparation

achievement of outputs as they progress in complexity to become outcomes and impact. These outputs travel the reverse route of the problem tree following various levels of changes (outcomes) to bring about changes in the livelihoods of the people (impact).

To include a gender perspective in the solutions tree it is important to explicitly formulate gender-disaggregated changes at the levels of output, outcome and impact.

## 6. Create a vision (formulation of research questions and hypotheses)

The hypotheses or research questions can be explicitly formulated and they seek deeper knowledge about situations related to different variables, social, economic, cultural, productive and others. It is also possible that these hypotheses or research questions are not explicitly formulated but are assumptions considered in the formulation of the proposal.

The change hypotheses emerge from the analysis of the outcomes logic model. These hypotheses are formulated as deductions or assumptions of the changes that can be achieved through the intervention. The main changes in outcomes and impacts that can be monitored and evaluated over time are selected from the outcomes logic model. This is the guiding basis of the primary data collection process for the baseline study.

It is important to note that other stages in the development of a baseline study should be developed around the change hypotheses, through the review of secondary data and the reconstruction impact pathways. Therefore, to ensure systematic and consistent gender mainstreaming, the research questions and hypotheses, as well as the change hypotheses, should address gender issues.

## 7. Identification of variables of analysis for the baseline study

As mentioned in the previous section, the variables of analysis directly depend on the hypotheses formulated for the intervention, regardless of whether these

are research questions, research hypotheses or change hypotheses. The inclusion of a gender perspective is particularly important in the identification of variables because, in addition to the variables needed for the analysis of questions and hypotheses directly related to gender, an overall gender disaggregation should be considered in different variables.

## 8. Identification of outputs and targets

The identification of targets and outputs should be derived from the baseline study that includes the reconstruction of the impact pathways. The reconstruction of the impact pathway proposes targets and outputs in the solutions tree, the logic model, and the change hypotheses. Additionally, qualitative and quantitative information collected as part of the baseline study describes and quantifies the initial situation, information that will serve as a starting point for the formulation of indicators.

**Table 7. Planning and monitoring matrix**

Outputs	Assumptions	SMART Indicators	Means of verification
Derived from the impact pathways logic model (Table 6)	Assumptions, situations and factors that are not in control of the intervention but that may affect its operation are formulated.	Based on the results generated by the primary and secondary data, indicators should be formulated (Specific, Measurable, Achievable, Relevant, and Temporary) for each outcome.	Describes the verification mechanism for the achievement of outputs, including the tools used (surveys, participatory evaluation, focus groups, review of records, etc.); the person in charge; and the reporting method (report, pictures, records, etc.).

Source: Adapted from (Douthwaite, Alvarez, Beveridge, et al., 2008; Douthwaite, Alvarez, Cook, et al., 2008)

Often, monitoring and evaluation focus on processes and inputs rather than outcomes and impacts, which limits the possibilities of learning about the medium- and long-term changes produced, including impacts on gender equality. It is in this learning context that the usefulness of the “Impact Pathways Approach”, which places emphasis on outputs, outcomes and impacts, stands out.

The identification of outputs and targets begins with the impact pathways logic model, through a prioritization with the actors involved in the implementation. Gender mainstreaming at this stage includes the development of gender-disaggregated outcomes and indicators. This information will be included in a planning and monitoring matrix. An example of a planning and monitoring matrix derived from the various components of the baseline study is presented below:

## 9. Identification of milestones

Usually the targets and outcomes are set towards the end of the intervention. Therefore, it is necessary and useful to identify milestones to assess project progress towards intermediate targets. It is advisable to review and update the impact pathway every six months, and it is advisable also to set milestones with this frequency.

Starting from the selected outputs in the planning and monitoring matrix (Table 7), milestones and intermediate targets are identified through prioritization and emphasis on gender disaggregation. This information

will be part of a milestone matrix. An example of this milestone matrix is presented below.

**Table 8. Milestone matrix**

Outputs	SMART Indicators	Means of verification	Responsible
<b>These are the results reported in the planning and monitoring matrix (Table 7)</b>	Milestones to be achieved and their timing (initially 6 months or more).	Describes the verification mechanism for the achievement of outputs, including the tools used; the person in charge; and the reporting method.	Indicates the person or persons responsible for the achievement of the milestone.

Source: Adapted from (Douthwaite, Alvarez, Beveridge, et al., 2008)

The identification of outputs and milestones is the first step for the operational design of the intervention, and its monitoring and evaluation. The “Impact Pathways” is a participatory and flexible approach for planning, monitoring and evaluation, which can easily be adapted to incorporate the gender perspective. This approach can help direct research projects and agricultural technology innovation to meet the needs and conditions of men and women.

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