

Assessing How Agricultural Technologies can Change Gender Dynamics and Food Security Outcomes: Part Two

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Part Two:

Apply



The toolkit, "Assessing how Agricultural Technologies can change Gender Dynamics and Food Security Outcomes," is a three-part document developed under the United States Agency for International Development-funded (USAID) [Integrating Gender and Nutrition within Agricultural Extension Services \(INGENAES\)](#) project led by the University of Illinois-Urbana-Champaign.

Part 1: Learn	Part 2: Apply	Part 3: Share
<p>This section of the toolkit discusses the relationships between gender, nutrition, and agricultural technologies. It is divided into short thematic chapters that each describe one of three areas of inquiry:</p> <ul style="list-style-type: none">• time and labor,• food availability, access, safely, and quality,• and income and assets.	<p>This section of the toolkit introduces a gender analysis framework and a range of tools that can be used to enhance the design and dissemination of agricultural technologies.</p>	<p>This section of the toolkit is a facilitator's guide for designing and conducting a workshop on the methodology. The facilitator's guide is made up of slides and exercises that over the course of the pilot's four (4) workshops we found to be most useful in sharing the methodology.</p>

This document is Part Two of the toolkit.

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Introduction

Part Two: Apply describes how to conduct the INGENAES technology assessment. It builds on the discussion of gender and agricultural technologies and the three areas of inquiry (Box 1) described in **Part One: Learn**. The purpose is to provide researchers, extension agents, and practitioners with a systematic process for improving the design and dissemination of agricultural technologies to support gender equality and improved nutritional outcomes.

Box 1: Three Areas of Inquiry

- Time and Labor
- Food Availability, Access, Quality, and Safety
- Income and Assets

As explained in Part 1, agricultural technologies are “practices or techniques, tools or equipment, know-how and skills...[alone or together] ...that are used to enhance productivity, reduce production and processing costs, and save on scarce resources or inputs, such as labor or energy” (Ragasa 2012: 5). These can be broadly categorized into three groups: (1) intangible (knowledge-based or management practices); (2) a tangible or physical technology; or (3) a biological technology.

The INGENAES technology assessment methodology was developed over the course of two years by Cultural Practice, LLC, a consortium partner of the INGENAES project. The methodology described here was piloted between 2015 and 2017 in Bangladesh, Zambia, Nepal, and Sierra Leone. The pilot consisted of two components: 1) Design and delivery of training materials and 2) Production of technology profiles. Four workshops were delivered with practitioners and US and developing country university students (graduate and undergraduate) to test the methodology. The workshops offered insights into the framing and content of this toolkit. Assessments conducted during the pilot phase resulted in [11 technology profiles](#). In some cases, they were an output linked to the training workshops, while in other cases they were produced separately. Each describes the gender dimensions of technologies such as beehives and digital fat testers to mini-tillers and treadle pumps as well as integrated farming practices related to fish ponds and gardening. The profiles are one of the analytical outputs of the methodology.

Objectives

Part Two of the toolkit is intended to provide readers with a set of tools to collect, organize, and interpret information about agricultural technologies to improve the design and dissemination of agricultural technologies in ways that increase adoption by men and women farmers.

At the end of this section, you will:

- Be familiar with the INGENAES technology assessment process
- Understand how to identify gender-based constraints (GBCs) and gender-related opportunities associated with agricultural technologies
- Be familiar with data collection and analysis tools used to conduct a technology assessment.

Structure

Part Two begins with an overview of the technology assessment. This is followed by a detailed description of the stages of the technology assessment methodology and accompanying tools.



Stage 1: Data Collection

Tools:

- Questionnaires for technology designers and disseminators
- Questionnaires for producers

Stage 2: Interpretation

Tools:

- Three worksheets to organize and interpret the data

Stage 3: Opportunity for Action

Tools:

- Design and dissemination recommendations
- Template for technology assessment profile

What is the INGENAES technology assessment?

The INGENAES technology assessment is an analytical process designed to reveal the potential gender-related and nutritional impacts of specific agricultural technologies on men and women. It highlights the gender dimensions of agricultural technologies, drawing specific attention to issues related to: Time and Labor; Food Availability, Access, Quality, and Safety; and Income and Assets. These areas of inquiry are described in detail in **Part One: Learn** of this toolkit.

Gender analysis: Gender analysis is a process of using socio-economic methodologies to systematically identify and interpret the consequences of gender differences, disparities, and relationships. It takes into account different roles, responsibilities, rights, services, opportunities, and resources of men and women and the legal and institutional context in which they operate to better understand human development outcomes. It examines the relative status of men and women, and the causes and consequences of inequality by **collecting sex-disaggregated data** and other qualitative and quantitative information on gender issues, including access to and control over assets (tangible and intangible), as well as beliefs, practices, and legal frameworks, and **analyzing that data**.

The technology assessment is primarily a tool to examine the potential impact of agricultural technologies on men and women. The nutritional impacts of agricultural technologies are a secondary focus of the tool and are examined as they relate to the FAQS and income areas of inquiry. At its core however, the assessment uses a gender analysis (Box 2)

but draws on market systems and value chain approaches to identify actors, including extension agents, who can implement actions to address gender-based constraints that shape the adoption process and dissemination efforts (Box 3). These constraints are the result of differences in men's and women's access to assets, practices, social norms, laws and policies that shape opportunities for men and women. Once identified, it is possible to relate these constraints to the three areas of inquiry and develop options for

Source: INGENAES 2015

overcoming them and improve the design, use, and dissemination of technologies. It can be conducted alongside, or integrated into, other analyses to design or select appropriate technologies for specific value chains, and dissemination pathways.

How to conduct the INGENAES technology assessment

The INGENAES technology assessment is a multi-staged process that uses quantitative and qualitative data to analyze the potential gender-related and nutritional impacts of specific agricultural technologies on men and women. It consists of three stages 1. Data collection; 2. Interpretation; and 3.

Opportunity for Action (Table 1). Together these constitute a gender analysis, consisting of the collection and analysis or interpretation of sex-disaggregated data and relating that to the design and dissemination of agricultural technologies.

Table 1: Stages of the INGENAES Technology Assessment

Stage	Objectives
Data Collection	<ul style="list-style-type: none">• Understand the background to and purpose of the technology• Understand the actors involved in the technology design, use, and dissemination process• Gather information about gender roles and relations related to the technology and associated agricultural value chain
Interpretation	<ul style="list-style-type: none">• Organize data in a systemic way• Identify how gender-based constraints shape technology design, use, and dissemination
Opportunity for Action	<ul style="list-style-type: none">• Identify opportunities to improve men's and women's access to and use of technologies

Box 3: Definition of Gender-based Constraints

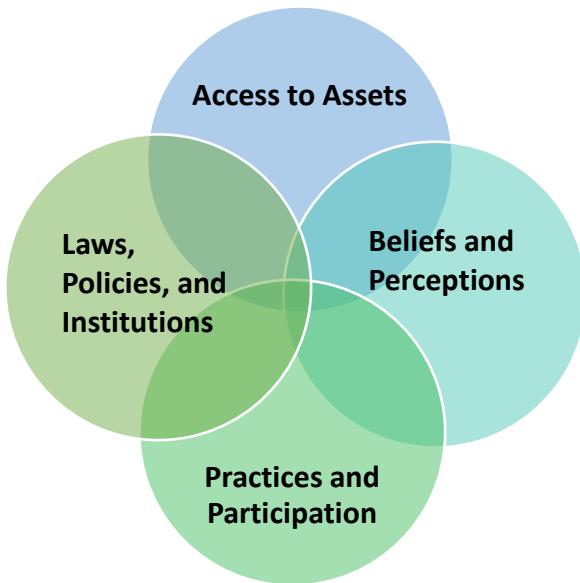
Gender-based constraints are restrictions on men's or women's access to resources or opportunities that are based on their gender roles or responsibilities. The term encompasses both the measurable inequalities that are revealed by sex-disaggregated data collection and gender analysis as well as the processes that contribute to a specific condition of gender inequality.

Source: INGENAES 2015

The Gender Dimensions Framework

The INGENAES technology assessment draws on the Gender Dimensions Framework, developed by Cultural Practice, LLC to organize and interpret the data collected for the gender analysis. The Gender

Figure 1 The Gender Dimensions Framework



Dimensions Framework uses four dimensions of social life to organize and interpret information. These are: 1. Access to assets; 2. Practices and participation; 3. Beliefs and perceptions; and, 4. Laws, policies, and institutions (Figure 1).¹ These dimensions were used to develop the questionnaires and the tools for organizing and interpreting information. For more detailed information the Gender Dimensions Framework, consult [Promoting Gender Equitable Opportunities in Agricultural Value Chains: A Handbook](#).

Access to Assets

This dimension refers to the social relationships that shape access to the resources that are necessary to be a fully active and socially, economically, and politically productive participant in society. Assets include a range of tangible and intangible resources

from which individuals can generate wealth or other value-added outputs. Some common assets include land, labor, capital, and natural resources. And other assets include education, social networks, and information.

While this dimension is entitled “Access to Assets” it is really intended to understand a diverse set of rights to assets. This includes not just access, but control and ownership. This spectrum is particularly relevant for tangible assets, for example land, where men and women may have different types of access: Men may own land, but women may have the permission to use land. These distinctions may be important depending on where your project is being implemented.²

Practices and Participation

This dimension is about understanding what men and women do in their daily lives. In many cases, gender roles influence how people behave and act, for example, they determine who does what kind of work in the household, as well as what kinds of jobs people are able to hold. They can also influence decisions about who should go to primary, secondary, or tertiary school. In other cases, men and women take on atypical work. Capturing what people do is important for understanding how men and women’s work will be, or can be affected, by the introduction of agricultural technologies.

¹ The categories of the Gender Dimensions Framework encompass the domains outlined in [USAID ADS Chapter 205](#). In the GDF, Beliefs and Perceptions is comparable to the categories of Cultural Norms and Beliefs, as well as some elements of Patterns of Power and Decision-making. The GDF’s Practices and Participation encompass other elements of Patterns of Power and Decision-making and Gender Roles, Responsibilities, and Time Use.

² For more information about the gender dynamics of assets in agriculture, see the following [technical resource guide](#).

Beliefs and Perceptions

Men and women are socialized to learn about different aspects of life. Different places have different norms defining appropriate or acceptable behavior for boys, girls, women, and men. These norms affect who goes to school and for how long; who goes to work and what type of work; how far individuals can travel, when, and with whom. For instance, in many situations, boys and girls are expected to learn about different productive and household activities. Girls are often socialized to assume more responsibility for the care of children and elderly. As a result, women's roles as providers can increase the burden of care tasks for women, such as provision of food and caring for the sick, especially following an emergency or crisis. Boys, on the other, may be taught that they need to assume primary responsibility for providing for the household.

Laws, Policies, and institutions

Gender influences the way people are regarded by and treated by both customary law and the formal legal code and judicial system. Men and women are often treated differently by formal and informal laws, policies, and regulations on issues surrounding ownership and inheritance, reproductive choice and personal safety, representation, and due process.

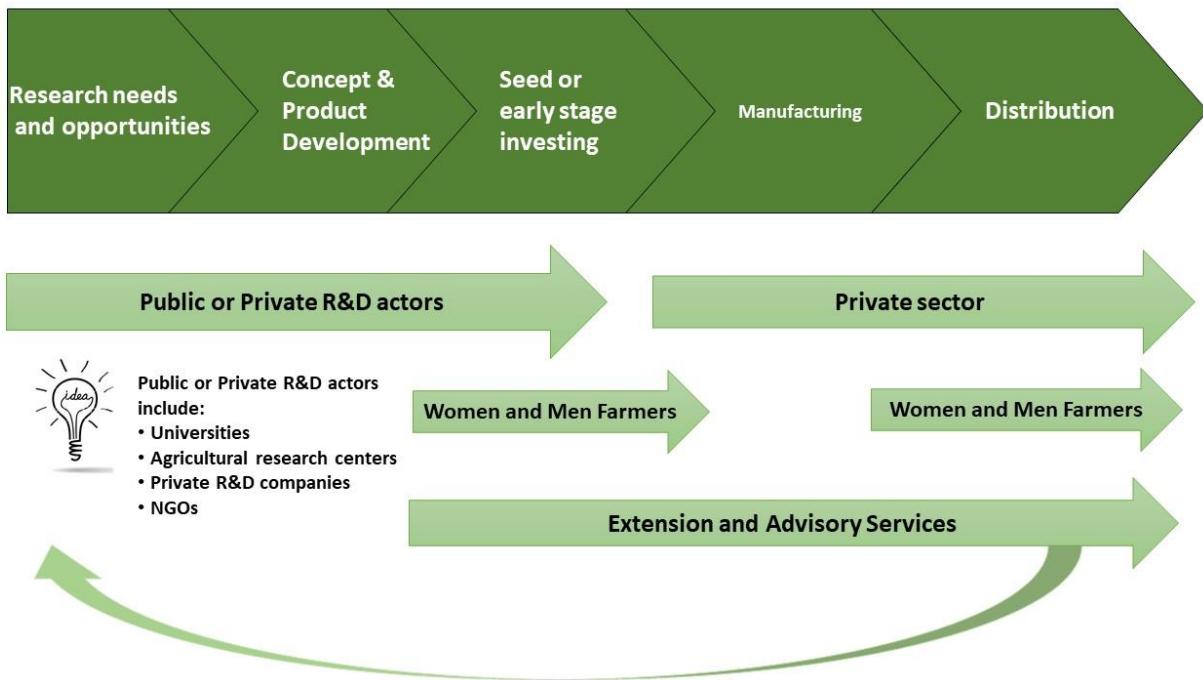
Outputs and Timing of the Technology Assessment

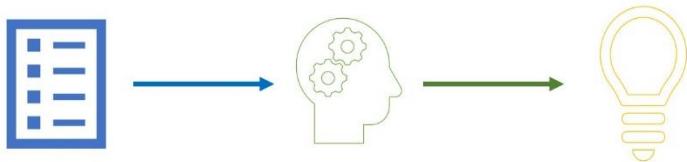
The methods described here, when applied, will yield suggestions for ways to improve men's and women's access to and use of agricultural technologies. These can be integrated into agricultural development projects and/or the activities of different actors, including extension and advisory services, input suppliers, and agricultural researchers. The technology assessment can also be used to develop a knowledge product in the form a technology profile, like those created under the [INGENAES project](#). See **Annex B: Technology Assessment Profile Template** for a profile template.

The methodology, as described in this toolkit, is designed to be applied after technologies have been introduced to farmers to understand what changes have happened. However, the questionnaires can be modified for use at different points in the technology development process (Figure 2). **Early** in the technology development process, actors can use the assessment to gather valuable information about men's and women's preferences and needs that can influence the selection of time-consuming and labor-intensive tasks to upgrade or the design of other technologies. **Later** in the technology development process, the assessment can inform dissemination strategies to ensure that products are accessible and affordable for men and women farmers. Regardless of when the technology assessment is conducted, it is strongly recommended that this is tied to an assessment of the value chain into which the technology is being introduced, and the gender and nutrition dimensions of the chain, to ensure that strategies align with other market development actions.³ A useful resource is the [Feed the Future Gender Integration Framework \(GIF\)](#) which uses seven domains of empowerment related to agricultural productivity to organize information about gender, including the [Women's Empowerment in Agriculture Index \(WEAI\)](#), and guides the design team in setting priorities and discussion points

³ See for example Rubin, Manfre, and Nichols Barrett (2009) and Mayoux and Mackie (2008).

Figure 2 Technology Development Pathway





Stage 1: Data collection

Objectives of the data collection stage:

- Understand the purpose of the technology
- Understand the actors involved in the technology design, use, and dissemination process
- Gather information about gender roles and relations
- Gather information about the nutritional consequences of technology use

Data for the assessment is collected from different sources to understand how a technology is designed, disseminated, and used; why it is used; and, the experiences users have had with the technology. Desktop research and a review of secondary literature about the technology should be used where available.

This is complemented with primary data collection, through key informant interviews (KIs) and group interviews⁴ with 1) research institutions, organizations or companies who have designed or modified the technology; 2) both men and women working in agriculture who are using the technology (or not), including farmers, entrepreneurs, and laborers along the value chain; and, 3) extension agents and implementing partners promoting or disseminating the technology. It is useful to speak to targeted clients who are either users or non-users to understand the motivations, barriers, and incentives to use the technology. Table 2 outlines the different objectives of the data collection efforts, to whom these should be directed, and the name of the illustrative questionnaire developed for that purpose. The basic set of questionnaires is provided in [Annex A: Data Collection Tools for the INGENAES Technology Assessment](#). These questionnaires are illustrative and both can be and have been modified to accommodate different types of agricultural technologies.

Table 2 INGENAES Technology Assessment Data Collection

Objective of the interview	Who to interview	Name of questionnaire
To learn about the purpose of the technology	<ul style="list-style-type: none"> • Agricultural researchers • Input suppliers • Manufacturers • Extension officers • Men and women farmers 	<ul style="list-style-type: none"> • Technology Overview Questionnaire • Extension Officer/Dissemination Agent Questionnaire • Producer Questionnaires

⁴ For more information about qualitative methods, see Rubin, D. 2016. [Qualitative methods for gender research in agricultural development](#). IFPRI Discussion Paper 01535. Washington, D.C.: IFPRI.

To learn about the design of the technology	<ul style="list-style-type: none"> Agricultural researchers Input suppliers Manufacturers Extension officers 	<ul style="list-style-type: none"> Technology Overview Questionnaire Extension Officer/Dissemination Agent Questionnaire
To learn about the dissemination of the technology	<ul style="list-style-type: none"> Agricultural researchers Input suppliers Manufacturers Extension officers Men and women farmers Producer groups 	<ul style="list-style-type: none"> Technology Overview Questionnaire Extension Officer/Dissemination Agent Questionnaire Technology Users and Non-Users Questionnaire Producer Association/Cooperative Questionnaire
To capture the experiences of <i>men and women users</i> with the technology	<ul style="list-style-type: none"> Men and women farmers who are using the technology 	<ul style="list-style-type: none"> Technology Users and Non-Users Questionnaire Group Interview Questionnaire with Technology Users
To learn about <i>men and women non-users</i> knowledge of the technology and reasons for not adopting	<ul style="list-style-type: none"> Men and women farmers who are not using the technology 	<ul style="list-style-type: none"> Technology Users and Non-Users Questionnaire
To understand the gender dynamics in the targeted agricultural value chain	<ul style="list-style-type: none"> Men and women farmers Producer groups Buyers and traders Input suppliers 	<ul style="list-style-type: none"> Technology Users and Non-Users Questionnaire Producer Association/Cooperative Questionnaire <p>For all other actors, questionnaires to understand the gender dynamics in agricultural value chains please consult, <u>Promoting Gender Equitable Opportunities in Agricultural Value Chains: A Handbook.</u></p>

The purpose of the technology and who is involved in its design and dissemination

The technology assessment begins with understanding the purpose of and the actors involved in the design and dissemination of a specific technology. For a reminder of how the INGENAES technology assessment defines a technology refer back to **Part 1: How we define agricultural technologies**. This overview provides the user with a basic understanding of the context in which the technology was developed, how it is being disseminated and to whom. Where there is existing data on adoption by men and women, this initial overview should gather that data.

The data being collected about the technology includes the following:

- **Type of Technology:** Is the technology (1) intangible (knowledge-based or management practices); (2) a tangible or physical technology; or (3) a biological technology (for example, a technology incorporated in the seed or planting materials)?

- **Purpose:** What was the technology designed to do?
- **Origins of the technology:** How was the technology developed? Which organizations were involved?
- **Dissemination:** How is the technology being disseminated? What actors are involved in this dissemination?
- **Targeted Communities:** To whom is the technology being targeted? (Factors to consider: sex, age, size of farm/business, place in the value chain)
- **Adoption Data:** Where it is available, data on adoption should be included. The aim is to understand how widely the technology has been adopted by the targeted client or client groups. The data from indicators outlined in Box 4 was developed for Feed the Future projects although other projects can use similar indicators. **Sex-disaggregated adoption data is necessary to be able to understand gender gaps in adoption of the targeted technology.**

This data can be collected using both secondary and primary resources. A preliminary set of information related to these questions can come from background literature from scientific communities and other communities working with these technologies, preferably focused in the geographic areas of investigation. For some agricultural technologies, significant literature, like research reports, adoption analyses, product fact sheets, and videos may be available. The *Technology Overview Questionnaire* and *Extension Officer/Dissemination Agent Questionnaire* are designed to complement and fill gaps in the existing literature or when agricultural technologies are being adapted to new geographic areas or for different crops or animals.

Box 4 Feed the Future Indicators on Adoption

The indicators below come from the [Feed the Future Handbook](#). These or similar indicators can be used to measure adoption. As indicated below, sex-disaggregated needs to be collected.

- **INDICATOR TITLE: 4.5.2(2)** Number of hectares under improved technologies or management practices as a result of USG assistance. *Disaggregated using the categories: Male, Female, Joint, Association-applied*
- **INDICATOR TITLE: 4.5.2(5)** Number of farmers and others who have applied improved technologies or management practices as a result of USG assistance. *Disaggregated using the categories: Male, Female, Joint, Association-applied*
- **INDICATOR TITLE: 4.5.2(42)** Number of private enterprises, producer organizations, water users associations, women's groups, trade and business associations and community-based organizations (CBOs) that applied improved technologies or management practices as a result of USG assistance
SPS LOCATION: Program Element 4.5.2: Agricultural Sector Capacity
- **INDICATOR TITLE: 4.5.2(39)** Number of technologies or management practices in one of the following phases of development in Phase I: under research as a result of USG assistance; in Phase II: under field testing as a result of USG assistance; in Phase III made available for transfer as a result of USG assistance

Source: Feed the Future 2016

Some agricultural technologies, like small-scale machinery and irrigation systems, are introduced to groups, like producer associations, or managed by them. For example, multi-use water systems are managed by a water user group who determine the rules of access to water. Processing machinery, which can be more expensive and unnecessary for individual farmers to own, may be managed and operated by

groups. The *Producer Association/Cooperative Questionnaire* is an illustrative questionnaire that can be tailored to understand the rules governing access and use of technologies by groups.

Gender roles and relations linked to the technology

The information gathered about gender roles and relations will include, but not be limited to: i) understanding the gender dynamics in the country in which the assessment is being conducted; ii) the gender division of labor around the targeted product; and, iii) additional gender dynamics in the household or in the agriculture sector that can help you understand the context in which the technology is being introduced. Once again, secondary data can be useful in providing an initial framing of the country or regional gender dynamics and providing an overview of the men's and women's participation in agriculture. Some useful resources are highlighted in Box 5.

The primary data being collected about the gender dynamics includes the following:

- Whether men or women are using the targeted technology, and if not, why not
- Users' experience with the targeted technology with respect to
 - Changes in time (e.g., duration, frequency) needed to perform task associated with the technology
 - Changes in labor (e.g., intensity)
 - Changes in who performs the tasks (e.g., as a result of skills required to use new technology; appropriateness relative to local norms)
 - Whether men or women are able to influence the use or adoption of new technology
 - The extent to which use of the new technology will change benefits derived from product associated with the new technology (e.g., amount, control)
 - The extent to which the targeted technology might affect nutritional outcomes (e.g., food availability, quality, or preparation)
- Men's and women's constraints related to production, processing, and marketing activities within the targeted value chain.

Box 5 Online Resources for Gender and Agriculture

- [FAO Gender and Land Database](#)
- [IFPRI Program on Gender and Assets](#)
- [Social Institutions and Gender Index](#)
- [World Bank Gender in Agriculture Sourcebook](#)

Group or individual interviews can be conducted, and questionnaires are provided for both scenarios. Men and women need to be interviewed separately. The group interview is designed to be used with men or women users of the technology, although it can be adapted for non-users as well. There are two producer questionnaires in [Annex A: Data Collection Tools for the INGENAES Technology](#)

Box 6 Who is a user?

A user can be someone who has tried a technology and is either still using it or has stopped using it. A user does not have to operate the technology him or herself but may benefit from the productivity enhancing or time and labor-saving advantages of the technology. For example, a user can be a woman farmer who hires men to use a mini-tiller (the targeted technology) on her land. A user can also be a dairy farmer who changes the feeding practices with her cows as a result of receiving information from a digital fat tester about the fat content of the milk she sells at the local aggregation point. In contrast, someone who is not involved in the production or processing of a technology but who benefits from increased income derived from changes in the animal or plant crop quantity or quality is NOT considered a user, such as an individual who only sells vegetables grown or processed by others.

Assessment. The first questionnaire, Producer Questionnaire #1, can be used to interview users and non-users of a technology about their knowledge of a technology, and experience with it, if they have used it (See Box 6 for definition of a user). The questionnaire has three sections:

1. Section 1: To be used with all informants with purpose of understanding the individual's knowledge of the targeted technology.
2. Section 2: To be used with only non-users with purpose of understanding why the individual has not used or adopted the technology.
3. Section 3: To be used with users of the technology with the purpose of understanding how the individual learned about the technology and their experience with it.

Producer Questionnaire #2 is focused on gathering information about men's and women's roles in the value chain associated with the technology. It draws from Rubin, Manfre, and Nichole Barrett (2009). It can be used with users or non-users. Gathering data about the value chain can be done using this questionnaire or alternative methods like the two Focus Group Discussion Guides highlighted in Box 7 and described in [Sebastad and Manfre \(2011\)](#).

Box 7 Gathering Data about Gender Dynamics in Agricultural Value Chains

Gendered Roles and Responsibilities in the Value Chain: Adapted from the Harvard Analytical Framework's activity profile tool, this exercise aims to gather information about the perceptions of men and women on the distribution of production, marketing, and business practices between men and women in a specific value chain. In separate groups, men and women identify the tasks associated with the production, processing, marketing of a specific animal or plant crop, and then identify who does each task. The responses from men and women can then be compared and analyzed.

Examining Value Chain Relationships: This exercise has the objective of exploring men's and women's knowledge of value chain actors and the quality of relationships between farmers and those actors in a specific value chain. The exercise should be conducted with single-sex groups so that the responses from men and women can then be compared and analyzed. The exercise can follow the Gender Roles and Responsibilities exercise or can be shortened and conducted at the end of an interview.

Source: [Sebastad and Manfre 2011](#).



Stage 2: Interpretation

Objectives of the interpretation stage:

- Organize data in a systematic way
- Identify how gender-based constraints shape technology design, use, and dissemination

The section provides a set of worksheets that can be used to organize and interpret the data collected. The data collected includes information gathered through desktop review and interviews with developers, extension officers, and clients using the technology, per Stage 1. It aims to identify gender-based constraints and understand the experiences of men, women, girls, and boys with a technology in three key areas:

- The potential consequences of the technology on men's and women's **time and labor**.
- The impact of technology on **food availability, access, quality, and safety** and the resulting consequences or opportunities for men and women.
- The extent to which the technology alters the amount or the control of the **income and assets** by men and/or women.

The analysis of the technology aims to answer the questions provided below:

Time and Labor

- What impact does the technology have on men's or women's **time**?
- In what ways does it improve or worsen **labor** conditions for men or women?
- In what ways does it **reduce drudgery** for men or women?
- Does the technology **shift labor** between men and women?

Food Availability, Access, Quality, and Safety

- How does the technology improve food **availability and access** overall, at different times of year, and for different people in the household?
- What are men's and women's different preferences for food **quality** (e.g., for taste, for processing)?
- How does the technology improve food **safety** for men and for women?

Income and Assets

- To what extent do women or men have access to and control over the **income** derived from increased sales of the targeted crop or product?
- Does the innovation have the potential to **shift income patterns** in the household?

- Does the shift in labor result in a **loss or gain of income** for different groups?
- In what ways might it create **additional employment** opportunities?

Organizing the data

The worksheets in this section provide a guiding framework for organizing the data collected in the field. They use several different organizing frameworks including the Gender Dimensions Framework⁵ and the Areas of Inquiry.⁶ There are two worksheets included here:

- Worksheet 1: Gender Dimensions Framework
- Worksheet 2: Advantages and Disadvantages

The format for the worksheets is provided in the following pages. If analysis is being conducted in a group setting, other materials may be used: flipcharts, note cards, post-its, etc. For example, with Worksheet 2 each advantage or disadvantage could be written on a single note card or post-it so that the group can cluster the different cards by the area of inquiry.

All the interview data should be organized from all interviews. Even as the process moves to analysis, new interviews and information should still be organized into these worksheets. For all worksheets in this section, record the information grouped by actor (farmers, farmer groups, input suppliers, etc.).

Worksheet 1: Gender Dimensions Framework

This worksheet is used to organize data collected by the four dimensions of the GDF. The bullets below provide tips about how to use the sheet:

- Information about men and women is separated into two different columns (green and blue) and organized by the dimension of the GDF to which it refers.
- Beliefs and perceptions are captured in a column/row. Most beliefs and perceptions intersect with some other dimension, for example beliefs about what men and women can or cannot do, should be located in the column and row for Beliefs and Perceptions-Practices and Participation.
- Different sheets should be used for different actors of the value chain. That is, information received from input suppliers should not be combined with information received from producers.
- It is useful to organize information from each interview onto different sheets. This is most helpful when producer information comes from different villages, towns, or different parts of the country.
- Within the table, different colors or fonts can be used to distinguish information that was received from men or women. This is particularly important for beliefs and perceptions.
- The dimensions of the GDF are not mutually exclusive so there may be some information that applies to more than one category. The correct dimension for information will depend on how it was expressed. For example, a description of land preparation might be categorized both in terms of access to the assets used (hoes or tractors) and the practices described (clearing stumps, cutting brush, creating furrows).

⁵ The GDF consists of the following categories: Access to assets; Practices and participation; Beliefs and Perceptions; and Laws, Policies, and Institutions.

⁶ The Areas of Inquiry are: Food availability, quality, and safety; Time and labor; and Income and assets.

Discussion questions

- Based on the information here, are there gaps?
- What additional information that you would like to collect?

Worksheet 1 (Organizing): Gender Dimensions Framework

Instructions: Group the data from each actor (farmers, input suppliers, engineers, etc.) in separate worksheets. Record the information from the interviews in the table below. Information should be organized by the dimension of the GDF (the rows). Information about beliefs and perceptions should be allocated in the appropriate column-row combination. Information about men and women should be recorded in the separate and corresponding column.

Dimension	Information about men		Information about women	
		Beliefs and perceptions		Beliefs and perceptions
Access to assets				
Practices and participation				
Laws, policies, and institutions				

Worksheet 2: Advantages and Disadvantages

This worksheet is used to identify the advantages and disadvantages stated about the technology by men and women and by different actors. The bullets below provide tips about how to use the sheet:

- Information from men and women is separated into two different columns (green and blue) and organized by the area of inquiry to which it refers.
- Information collected from the same actors can be organized onto the same sheets. That is, all the information from producers can be collected on the same sheets; a different sheet can be used for all the information collected from input suppliers, etc.
- In a first step, the information can be organized by whether the advantage/disadvantage refers to the design of the technology, how it is used (or repair and maintenance), and how it is disseminated or accessed. Following that, each advantage should be discussed in relation to one of the areas of inquiry. Not all advantages and disadvantages will link directly. Some will have indirect links. For example, a micro-irrigation scheme may directly impact productivity of crops (direct impact on food availability). A mini-tiller will have a direct impact on the time spent on land preparation, which will free up time for them to pursue income generating activities (indirect).

Discussion questions

- Do men and women identify similar advantages and disadvantages?
 - If no, where are these differences? Why might these differences exist?
- What are the links between the advantages and the areas of inquiry?
- What are the links between the disadvantages and the areas of inquiry?
- What do the disadvantages suggest could be done to improve the effectiveness of the technology? Or to link better to the areas of inquiry?

Worksheet 2: (Organizing): Advantages and Disadvantages

Instructions: Using the data from the interviews, indicate what information you received from men and women about the technology and organize it by whether it is a feature of the design, use, or the dissemination of the technology. Following that, identify what advantages or disadvantages are related to one of the areas of inquiry: food availability, quality, and safety (FAQS); time and labor (TL); and income and assets (IA).

Design – Use - Dissemination	Information from Men		Information from Women	
	Advantages	Disadvantages	Advantages	Disadvantages
Design				
Use (including repair and maintenance)				
Dissemination				

Analyzing the Data

The analytical process is represented here with one worksheet and series of discussion questions. Completing the worksheets and answering the accompanying discussion questions moves you through an iterative analytical process, where each step draws on the information organized in the previous worksheet. The worksheet provided for the analysis is:

- Worksheet 3: General to Gender-based constraints

Worksheet 3

The purpose of this worksheet is to explore and capture the relationship between the purpose of the technology and gender relations in the area being studied. Agricultural technologies are designed to increase productivity by controlling the environment, making labor more efficient, and/or improving the quantity and quality of food. They are rarely designed to specifically address gender-based constraints, except in the case of labor-saving technologies. Yet, technologies often have an impact on gender relations because of the way they shift power relations, increase income or other assets, or change time and labor allocations. This worksheet organizes information in a way that facilitates an analysis about the direct and indirect links between the technology and gender relations.

- **Step 1.** Begin filling out this worksheet by identifying the key problems that the technology is trying to solve. The information from this may come from interviews with the developers of the technology or the project staff promoting it. It may also be identified through interviews with farmers, extension officers, and other stakeholders. It is often linked to the stated purpose or objective of the technology. This information should be inserted in the first column "Step 1. General constraints." Consider how the general constraints link to areas of inquiry.
- **Step 2.** The next step is to identify the gender-based constraints that emerged during the interviews and are captured in worksheets 1 and 2. Gender-based constraints consist of conditions of disparity (measurable or observable differences between or among men and women) and the potential factors creating those conditions. To identify gender-based constraints, examine the data in worksheets 1 and 2 for differences between men and women, e.g., men participate in training and women don't; women participate in post-harvest activities but men don't. Once a difference is identified examine the data for potential factors that create that difference. It is often possible to build a problem tree with conditions of disparity and factors. For more information about gender-based constraints, consult [Promoting Gender Equitable Opportunities in Agricultural Value Chains: A Handbook](#). This goes into the third column "Step 2. Gender-based constraints."
- **Step 3.** Next the relationship between items in columns 1 and 3 can be explored using the following questions:
 - How does the technology address the identified gender-based constraints?
 - How do the problems identified in column 1 relate to those in column 3?
 - Does the technology affect men's or women's time, labor, or income? Does it have an impact on what tasks they do or how they do them (practices and participation)?
 - Note that the technology may link directly or indirectly to only a few of the gender-based constraints.
- **Step 4.** In the final column, identify the complementary inputs, services, or resources that may be required to access or use the technology. For example, this might include training on how to use or repair the technology or income to rent the technology. The worksheet also aims to identify other services or inputs that might be necessary to further enhance the impact on gender-based constraints. For example, access to irrigation technology can increase production (food availability). Fertilizer or other technical advice may further enhance the impact of the technology.

NOTE: There are two rows in worksheet 3. The first row is to discuss the initial purpose of the technology and the problems it is aiming to solve. The second row can be used to capture problems that arise once the technology has been introduced. These can be in relation to the use, repair and maintenance, or dissemination of the technology. These descriptions may reflect lessons learned. This second row can also be used to capture gender-based constraints that emerge as a result of the technology.

Discussion questions

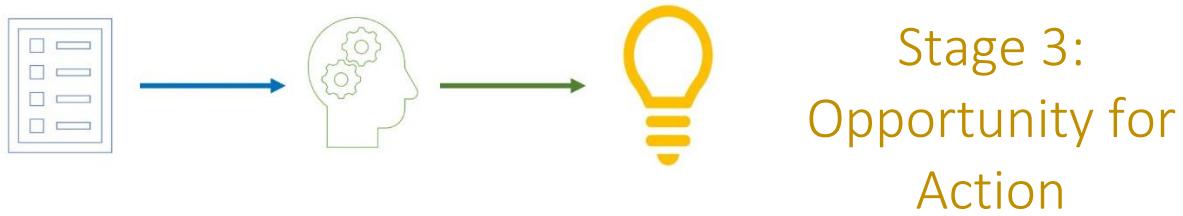
Use the following questions to explore additional issues:

- Does the technology respond to an unexpressed gender-based constraint? What additional information might be needed to understand if a gender-based constraint exists?
 - For example, if women express that the technology helps them generate an income but they did not indicate that lack of income was a problem, this should be further explored. Is there a gender-based constraint around lack of income?
- What gender-based constraints are not addressed by the technology? How might the design or the dissemination of the technology be improved to address these constraints?

Worksheet 3 (Analyzing): General to Gender-based Constraints

Instructions: This worksheet has three distinct steps. Step 1 is to identify the purpose of the technology and list the problems that the technology is meant to address. Following this, Step 2 is to identify the gender-based constraints. Gender-based constraints are identified by determining where conditions of disparity exist examining the data collected in Worksheet 1. Factors that create these conditions of disparity should also be listed. A problem tree can be constructed demonstrating how gender-based constraints are linked to each other. Step 3 consists of linking the general and the gender-based constraints by asking “How does the technology address the gender-based constraints?” An arrow can be drawn linking the general to the gender-based constraints, however it is important the rationale for how the constraints relate is captured in narrative form as well.

Step 1. General constraints	Step 2. Gender-based constraints	Step 3. How does the technology address the gender-based constraint(s)?	Step 4. What additional services, inputs, or resources are needed to increase the impact on gender-based constraints?
<i>Identify the purpose of the technology and the different problems that it is meant to address.</i>	<i>Identify conditions of disparity and the factors that cause them. Create a problem tree to link different conditions and factors.</i>	<i>Link the general constraints to gender-based constraints. Explain how the technology responds to specific gender-based constraints.</i>	<i>Identify the complementary services, inputs, and/or resources that are needed to better address the gender-based constraints.</i>
<i>If the introduction of the technology has created new constraints or challenges, these should be captured but listed separately. These are issues to be addressed.</i>	<i>If the introduction of the technology has created different gender-constraints or challenges, these should be captured but listed separately. These are issues to be addressed.</i>	<i>Link the general constraints to gender-based constraints. Explain how the technology responds to specific gender-based constraints.</i>	<i>Identify the complementary services, inputs, and/or resources that are needed to better address the gender-based constraints.</i>



Objectives of the Opportunity for Action stage:

- Identify opportunities to improve men's and women's access to and use of technologies

Stage 3 focuses on actions that can be implemented to overcome gender-based constraints, support women farmers, and improve the adoption of agricultural technologies by both men and women farmers. This is an iterative process during which practitioners, extension agents, input dealers, and others can think creatively about different opportunities to meet agricultural productivity and nutrition goals in ways that support gender equality.

There is no worksheet for this stage. Instead, you will find suggested categories possible actions to stimulate thinking about where opportunities and actions may be taken. These are described below with a set of actions that illustrate the possibilities. Additional examples are provided in Part 1 of the toolkit. Actions and opportunities should also align with Guiding Principles described in Part 1 (Box 8).

Box 8: Guiding Principles

- Expand your understanding of farmer clients.
- Understand the market system in which you are operating.
- Address the specific needs of women farmers.
- Identify and mitigate the risks of unequal benefits.
- Seek new business development opportunities for women through technology commercialization.
- Identify priorities that benefit on multiple fronts.

For the design or selection of technologies

Appropriateness. This category refers to actions that explicitly link the technology to men's and women's roles and responsibilities. The actions aim to ensure that technologies are tailored to meet the specific needs of men and women and/or remove constraints associated with time- or labor-intensive tasks.

- Identify infrastructure upgrades (e.g., small-scale irrigation) that ease women's labor and time burdens.
- Test new breeding varieties under a range of conditions, for example on women's plots that are often smaller and of poorer quality
- Design technology packages to meet women farmers' needs and asset portfolios.

Acceptability. This category refers to actions that address women's and men's preferences. While similar to the above category, actions here are considered about whether men and women subjectively approve of the technology. Social norms play an important role in defining what men and women consider to be acceptable.

- Integrate men's and women's preferences into breeding for food quality measures (e.g., cooking time, texture, and taste); nutrition (e.g., micronutrient-fortified crops); ease of processing (e.g., efficiency with low time and energy inputs); medicinal or ceremonial value; resilience (e.g., drought or flood resistance); and, production qualities (e.g., no transplanting, maturation rates, yields, low weeding requirements).
- Design equipment and machinery to accommodate women's dress and other social norms.
- Promote the design or selection of labor or time-saving technologies and improve women's knowledge of them.

Mitigate negative change. This category refers to actions to address any potential negative impacts from the introduction of new technologies. Identifying actions here requires a careful understanding of how technologies may potentially affect men's and women's income. This can happen either through the loss of income-generating opportunities, when a paid task is eliminated, or through the loss of income itself, when it is vulnerable to control by someone else.

- Enhance the skills of women to provide services related to the technology where they have been under-represented, e.g., managing a repair shop, or manufacturing or disseminating the technology.
- Enhance or support women's control over the technology's benefits.
- Create new income-generating opportunities around the delivery of new agricultural technologies.

For the dissemination of technologies

Affordability. This category refers to actions that accommodate men's and women's income and asset levels. Lack of access to cash or other financial tools places men and women farmers at a significant disadvantage. The decision to invest in agricultural technologies may compete with the need to pay school fees, medical bills, funeral expenses. Competition for women's limited income may make it difficult for them to invest in important technologies. This category also refers to actions needed to explain the value of technologies to men and women in an effort to ensure that affordability responds to both subjective and objective assessments of what men and woman can purchase.

- Identify different financing and pricing options to accommodate differing levels of income.
- Identify and communicate the direct benefits for men and women farmers.
- Create group financing schemes, e.g., using producer cooperative of village savings and loan associations, sharing costs across the membership.
- Investigate innovative manufacturing methods to reduce costs to end users, e.g., 3-D printing.
- Provide divisible technologies such as fertilizer or other inputs in a range of packaging sizes.

Accessibility. This category refers to actions that bring goods and services physically closer to men and women. Restrictions on movement and lack of time often make it difficult for women to travel great distances. Furthermore, women may lack access to the means of transportation or to cash to be able to pay for transportation. Improving the local availability of goods and services or finding ways of reducing

the distance between women and technologies can increase the probability that women will adopt technologies.

- Develop a rural sales agent model.
- Strengthen the connection between women and service providers through the use of mobile applications.
- Move collection centers and aggregation points closer to women users.

Complementary inputs and services. This category refers to actions that complement and support the adoption of technologies. Technologies do not function on their own. New varieties may require additional fertilizer, processing technologies may require gas to power motors, and increases in productivity may require better means of transportation or a closer collection point. Actions here consider complementary inputs and services that would make it easier for men or women to use and benefit from technologies.

- Design technology packages to include complementary inputs and services, e.g., a seed packet with fertilizer.
- Offer on-site or at-home trainings and demonstrations with the purchase of technologies.

Targeting and training. This category refers to actions that can increase women's and men's knowledge of and exposure to technologies by tailoring messaging and training.

- Design training that considers women's time constraints.
- Promote the design or selection of labor or time saving technologies and improve women's knowledge.
- Design messages tailored to men's and women's interests and preferences.
- Provide training in locations that are easily reached by women users.

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Annex A: Data Collection Tools for the INGENAES Technology Assessment

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Technology Overview Questionnaire

1. Please describe the [targeted technology].⁷
 - a. What is it designed to do?
2. How is it used?
3. How was the [targeted technology] developed?
 - a. How were farmers involved in the design or testing of the [targeted technology]?
 - b. How were women's preferences or needs considered in the design?
4. At what stage of development is the [targeted technology]?
5. How is the [targeted technology] being piloted/disseminated?
 - a. By whom?
 - b. Who is being targeted?
 - i. For example: sex, age, size of farm/business, place in the value chain)
 - c. In what ways: farmer groups, farmer field days, etc.?
 - d. What efforts are being made to ensure that women farmers know about the [targeted technology]?
6. What do you consider success with this technology?
7. How are you measuring success?
 - a. What indicators are you collecting about the [targeted technology]?⁸
8. In your opinion, how will the [targeted technology] affect women farmers?
9. In your opinion, how might the [targeted technology] affect the nutrition of those applying the technology or associated with its use?

⁷ Use the name of the targeted technology wherever 'targeted technology' is listed.

⁸ If the technology is being implemented in a Feed the Future project, a question about the specific adoption indicators can be included.

Extension Officer/Dissemination Agent Questionnaire

Section 1

1. How do you decide which problems to address?

Prompt:

- a. Directions from the Ministry/NGO/project
- b. Consultation with farmers
- c. Recommendations from input supplier

2. How do you decide whose problems to prioritize?

For example, if some farmers are experiencing problems with a weed and others with a virus, how do you decide whose problems to address?

Prompt:

- a. Directions from the Ministry/NGO/project
- b. Consultation with farmers
- c. Recommendations from input supplier

3. How do you decide what technologies to promote?

Prompt:

- a. Directions from the Ministry/NGO/project
- b. Consultation with farmers
- c. Recommendations from input supplier

4. How do you decide to whom you target specific technologies?

For example, if you have a new seed variety, how do you decide which farmers to inform?

Prompt:

- a. Directions from the Ministry/NGO/project
- b. Consultation with farmers
- c. Recommendations from input supplier

Section 2

1. What are the advantages of the [targeted technology]⁹?

2. Are there specific advantages for women farmers?

3. Are there specific advantages for men farmers?

4. What are the disadvantages of the [targeted technology]?

5. Are there specific disadvantages for women farmers?

6. Are there specific disadvantages for men farmers?

7. What methods do you use for training farmers on the [targeted technology]?

Prompt:

- a. Farmer Field School
- b. Face-to-face
- c. Mobile phone
- d. Demo plots

⁹ Use the name of the targeted technology wherever ‘targeted technology’ is listed.

- e. Other
8. Are you using different training methods to reach women farmers than you use to reach men farmers on the [targeted technology]?
 - a. If so, why?
 - b. If not, why not?
9. What farm or farmer characteristics do you prioritize when selecting participants for group activities (e.g., training, FFS)¹⁰ for training on the [targeted technology]?
Prompt:
 - a. Age
 - b. Sex
 - c. Size of plot
 - d. Choice of crop
 - e. Location
 - f. Degree of market-orientation

¹⁰ If the informant mentions multiple training methods under question 8, ask about the preferred farm or farmer characteristics for each type of training method. Only ask about one training method at a time.

Technology Users and Non-Users Questionnaires¹¹

Producer Questionnaire - Technology

Individual Details			
Name			
Sex		Age	
Location		Name of association (if applicable)	
Years of schooling			
Name of the technology		Targeted animal or plant crop(s) ¹²	

Section 1 (All informants)

1. Are you familiar with [targeted technology]¹³?

Prompts:

- a. How did you hear about it?
- b. Have you seen it being used?
 - i. If so, by whom?

2. What have you heard about the benefits¹⁴ of the [targeted technology]?

Prompts

- a. Reduces time spent performing the task
- b. Reduces difficulty of work
- c. Increases yield
- d. Improves quality of the product
- e. Improves sale price

3. Have you tried the [targeted technology]?

- a. If no, has anyone else in your household tried the [targeted technology]?
 - i. If yes, move to section 2.
 - ii. If no, move to section 2.
- b. If yes, are you still using it? (Move to Section 3)

Section 2 (Non-users)

1. Why have you not tried the [targeted technology]?

¹¹ The questionnaire is developed specifically for crop-based agricultural production-related technologies. It needs to be adapted for livestock, aquaculture, or processing.

¹² Some technologies may be used with multiple crops.

¹³ Use the name of the targeted technology wherever ‘targeted technology’ is listed.

¹⁴ This question is about understanding whether the respondent understands the purpose of the technology and why it might be beneficial to use it.

Prompts:

- a. Too expensive
 - b. Not within sphere of decision-making
 - c. Not convinced it will help / work
 - d. Lack of money
 - e. Not appropriate (Please elaborate for example, plot too small, inappropriate for men/women, too difficult)
 - f. Haven't learned to use it
 - g. Not available in the area
2. What would encourage you to use it?
 3. How much total cultivated land does your household have?
 4. How much land (e.g., hectares, acres) is under the cultivation of targeted crop(s)?
 - a. In your household, how much of that do you manage?¹⁵

Thank you for your time.

Section 3 (Users)

1. Please describe how to use the [targeted technology].
2. How did you learn to use the [targeted technology]?

Prompts:

- a. (Method) A training, demonstration, or farmer field school?
 - b. (From whom) Family member? Neighbor?
 - c. Self-taught?
3. How much time did it take you to learn how to use it?
 4. How long have you used the [targeted technology]?
 5. Were you involved in the decision to obtain the [targeted technology]?
 6. Who purchased the [targeted technology]?

Prompts:

- a. Purchased by self?
 - b. Purchased by other?
 - c. Received as part of a project?
7. Were you involved in the decision to use the [targeted technology]? (yes/no)
 8. Are you able to access the [targeted technology] whenever you need it? Please elaborate.

Prompts:

- a. Does someone else use it when you want it?
 - b. Do you have to ask permission to use it?
9. How has using the [targeted technology] changed your cultivation practices?

¹⁵ Clarify with interviewer what management means.

10. Has the amount of time you spend on [task] changed as a result of using the [targeted technology]?
 - a. If increased, how has the additional time affected your ability to perform other tasks? (e.g., child or elder care, leisure, other income-generating activities, food preparation)
 - b. If decreased, how are you spending your time differently?
11. Has using the [targeted technology] made the task easier (harder) to perform?
 - a. If so, in what way?
12. Was someone else responsible for this task before you started using the [targeted technology]?
 - a. If so, who?
13. What advantages have you experienced as a result of using the [targeted technology]?

Prompts

- a. Reduces time spent performing the task
 - b. Reduces difficulty of work
 - c. Increases yield (If so, by how much?)
 - d. Improves the safety of food
 - e. Improves quality of the product (in what ways?)
 - f. Improves sale price (If so, by how much?)
14. What are the disadvantages of using the [targeted technology]?
Prompts
 - a. Affordability
 - b. Skills-required to use the technology
 - c. Access to the technology
 - d. Problems with maintenance
 - e. Health problems

15. Has the food available for home consumption changed as a result of the [targeted technology]?
Prompts
 - a. Has the amount of food you store changed?
 - b. Has the amount of food you have when you need it changed (e.g. at planting time)?
16. Is your household consuming more nutritious food as a result of the [targeted technology] (e.g. more diverse foods such as dairy, meat, fruits and vegetables, nutrient-rich foods)?
17. If you are consuming more nutritious foods, where do they come from?

Prompts

- a. From own production?
 - b. From purchases?
18. Has the amount available for sale changed as a result of the [targeted technology]?
19. Has the use of the technology changed how much income is received from sale of the product?
20. Do you control the income from the sale of the product?
 - a. Is this different than before you started using the [targeted technology]?
21. Would you recommend the technology to others? And why?

22. How much total cultivated land does your household have?
23. How much land (e.g., hectares, acres) is under the cultivation of targeted crop(s)?
 - a. In your household, how much of that do you manage?¹⁶

Thank you for your time.

¹⁶ Clarify with interviewer what management means.

Producer Questionnaire – Value Chain

Individual Details			
Name			
Sex		Age	
Location		Name of association (if applicable)	
Years of schooling			
Name of the technology		Targeted animal or plant crop(s) ¹⁷	

1. Can you describe for us your activities on the last day you worked on the farm from when you woke up in the morning to when you had dinner?
2. Tell us about your decision to become a member of the association/cooperative.
 - a. What are the requirements for participating in the association?
3. What benefits do you expect to receive from your participation in the association?
4. How did you obtain your land?
 - a. Who makes decisions about the use of land?
5. How much total cultivated land does your household have?
6. How much land (e.g., hectares, acres) is under the cultivation of targeted crop(s)?
 - a. In your household, how much of that do you manage?¹⁸
7. How do you raise cash when you need it?
8. How do you find labor for your farming business?
9. How do you get reliable information on new farming practices?
 - a. Who makes decisions about the choice of crops (or varieties) to produce?
 - b. Who makes decisions about the technology used?
10. Tell us about the work that you, specifically, do in production of this crop.
11. Are there aspects of production that are hard for you because you are a woman/man?
 - a. What is an example of such a task?
12. Are there aspects of production that men/women are discouraged from doing?
 - a. What is an example of such a task?
13. How do you get your product to your buyer?
 - a. Who are your buyers?
14. How do you get reliable information on market prices?
15. Who makes marketing decisions?
 - a. Who makes the decisions about what products to sell?
 - b. Who makes the decisions about how much of each to sell?

¹⁷ Some technologies may be used with multiple crops.

¹⁸ Clarify with interviewer what management means.

- c. Who negotiates sales?
- 16. Are there aspects of selling and marketing that are hard for you because you are a woman/man?
 - a. What is an example of such a task?
- 17. Are there aspects of marketing and selling that men/women are discouraged from doing?
 - a. What is an example of such a task?
- 18. Who receives income from the sale?
- 19. What household expenses are you responsible for?

Thank you for your time.

Producer Association/Cooperative Questionnaire

Section 1 (About the Association/Cooperative)

1. Tell us about your producer association.
 - a. When did it start?
 - b. What are the main activities?
 - c. What are the benefits to members?
 - d. How much are membership fees (registration and maintenance fees)?
 - e. How often do they have to be paid?
2. What are the criteria for membership in the association?
 - a. How many members are men?
 - b. How many members are women?
3. When are meetings held?
 - a. How often are they held?
 - b. What time of day are they held?
 - c. Where are they held?
4. Tell us about the leadership positions in the association.
 - a. How many are women?
 - b. How many are men?
5. What qualifications are required to become a leader in the association?
 - a. What resources (financial, time, other) are required?
6. Do you believe that being a man or a woman helps someone to become an association leader?

Section 2 (About the Technology)

The questions in this section need to be modified and adjusted depending on how the technology is disseminated. The guide below provides a set of questions assuming that the association/cooperative owns, operates, or governs the use of the technology.

1. Please describe how to use the [targeted technology].
2. How did the association/cooperative find out about the [targeted technology]?
3. Who in the association/cooperative learned to use the [targeted technology]?
 - a. How many are women?
 - b. How many are men?
4. How did these people learn to use the [targeted technology]?

Prompts:

- a. (Method) A training, demonstration, or farmer field school?
 - b. (From whom) Family member? Neighbor?
 - c. Self-taught?
5. Who was involved in the decision to obtain the [targeted technology]?
 6. Who purchased the [targeted technology]?

Prompts:

- a. Purchased by self?
 - b. Purchased by other?
 - c. Received as part of a project?
7. How do members access the [targeted technology]?
8. What happens when members want to use the targeted technology] at the same time?
 - a. How does the association/cooperative resolve conflicts?
9. What rules govern the use of the [targeted technology]

Prompts:

- a. Who do they have to contact?
 - b. How long can they use it?
 - c. Is there a fee (if so, how much)?
10. What rules governing the use of the [targeted technology] are most commonly broken?
 - a. What are the penalties?
11. What advantages have you experienced as a result of using the [targeted technology]?

Prompts

- a. Reduces time spent performing the task
 - b. Reduces difficulty of work
 - c. Increases yield (If so, by how much?)
 - d. Improves the safety of food
 - e. Improves quality of the product (in what ways?)
 - f. Improves sale price (If so, by how much?)
12. What are the disadvantages of using the [targeted technology]?

Prompts

- a. Affordability
 - b. Skills-required to use the technology
 - c. Access to the technology
 - d. Problems with maintenance
 - e. Health problems
13. How has using the [targeted technology] changed your association/cooperative?

Prompts:

- a. More volume of produce
 - b. Better produce
 - c. New income opportunities (through use of technology)
 - d. More conflicts
14. Would you recommend the technology to others? And why?

Group Interview Questionnaire with Technology Users

1. Please describe how you use the technology.
2. What advantages have you experienced as a result of using the [targeted technology]?

Prompts

- a. Reduces time spent performing the task
 - b. Reduces difficulty of work
 - c. Increases yield (If so, by how much?)
 - d. Improves the safety of crops
 - e. Improves quality of the product (in what ways?)
 - f. Improves sale price (If so, by how much?)
3. What are the disadvantages of using the [targeted technology]?

Prompts

- a. Affordability
 - b. Skills-required to use the technology
 - c. Access to the technology
 - d. Problems with maintenance
4. Would you recommend the technology to others? And why?

Thank you for your time.

Annex B: Technology Assessment Profile Template

The information that has been gathered and analyzed using the worksheets and discussion questions can be used to create a technology assessment profile. Each profile is organized in a similar fashion and a template is provided below.

The grey-shaded section of the profile is completed using information gathered from desktop literature about the technology and from the interviews conducted with those involved in the design and dissemination of the technology. The information gathered using the technology overview questionnaire and the extension officer questionnaire are useful for these sections.

The gender analysis section of the template is organized into three sub-sections: food availability, access, quality, and safety; time and labor; and income and assets. This section should describe how the technology relates to each of the areas of inquiry and how it addresses gender-based constraints. This information emerges from Worksheet 2 and 3. The key findings can be organized to discuss the analysis of advantages, disadvantages, and gender-based constraints under each area of inquiry.

The section on issues and opportunities captures remaining questions or recommendations that emerge out of the analysis. These should remain focused on gender issues and on how to improve the design or dissemination of the technology to improve men's and women's well-being.

Name of technology		
Purpose		
Type of technology (Mark X)	Intangible (e.g., practices) <input type="checkbox"/>	
	Tangible or Physical <input type="checkbox"/>	
	Biological <input type="checkbox"/>	
Developer		
Actors involved in disseminating the technology		
Design and dissemination of the technology		
(A number of actors might be described here including agricultural researchers, extension advisory service providers, private sectors firms, farmer groups, and others.)		
(Describe how the technology was developed, including ways in which farmers, men and women, were involved in the design or testing of the technology.)		
(Describe how the dissemination is being conducted: who is involved? Who is being targeted? How are women being targeted or involved in dissemination? Include any data about adoption rates from the FTF indicators or other.)		
Gender analysis of technology		
(Describe the technology in relation to: 1. Overall food availability and access, food availability and access at different times of the year (seasonality), food quality and safety; 2. the potential consequences on men's and women's time and labor; and 3. The extent to which the technology alters the amount or the control of the income by men and/or women. Highlight the benefits and drawbacks of the technology for men and for women, and any trade-offs that may exist.		
Note: The nutritional elements should be highlighted under the food availability, access, quality, and safety, as well as the income and assets sections.)		
Issues and Opportunities		
(Identify and explain actions or modifications to the technology that could potentially improve its use by women, for example related to its design or dissemination.)		