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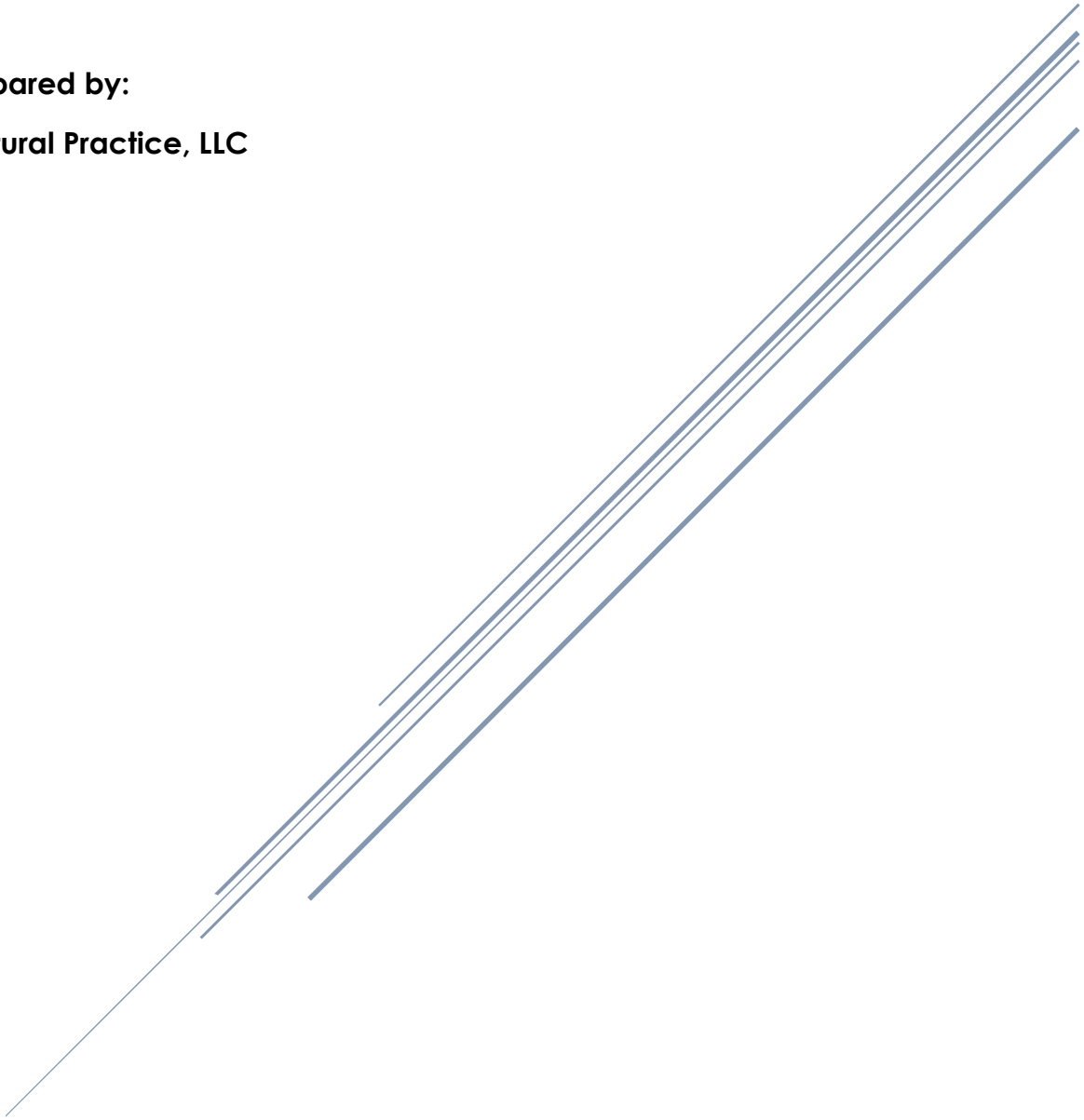
Addressing Gender Issues in Technology Design, Use, and Dissemination

Facilitator's Guide

Prepared by:

Cultural Practice, LLC



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Integrating Gender and Nutrition within Agricultural Extension Services

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Overview

Agricultural technologies are critical instruments for increasing productivity or adding value to products that are sold or consumed in the household. These are designed and disseminated by agricultural actors in the public and private sector. Technology design tends to focus largely on overcoming productivity or other similar constraints and often overlooks the importance of understanding end user needs, preferences, and constraints. Similarly dissemination efforts target the farmers most likely to adopt without considering how to reach underserved and harder-to-reach clients. Participants in this workshop will learn to use the INGENAES technology assessment tools to understand how to ensure agricultural technologies respond to the different needs of men and women farmers.

Competencies

At the end of the workshop, participants will:

- Understand key issues related to gender, extension and advisory services, and agricultural technologies
- Understand principles of integrating gender analysis into technology design, use, and dissemination
- Be able to conduct a preliminary gender analysis of agricultural technologies

Sample Agenda

This workshop is intended to include both classroom and field components. The total numbers of days for the workshop will vary depending on how the field components are designed. A minimum of 3.5 days are necessary for the classroom material, which includes time required to prepare for field visits and a short debrief and analysis session following those visits.

The number of days dedicated to the field component will be determined by how many interviews are organized and the time required to travel to the interview sites. It is recommended that the field component include interviews with at least two different actors. Where possible it should include at least one set of interviews with men farmers and with women farmers. Depending on how many participants attend the workshop, the farmer interviews can either include individual interviews, group interviews, or a focus group discussion. Other interviews can be conducted with technology developers, input suppliers, or extension officers.

The agenda can be designed to also include time for participants to examine gender issues in technology design, use, and dissemination in their own projects. In the sample design below there is time dedicated for this on Day 4.

Below is a sample agenda of a 4.5 day workshop with 1.5 days for fieldwork.

Day 1		
Time	Topics	Activities
9:00 – 10:00	**Welcome and Introduction**	Welcome from International Centre for Food Security Director Participant and Facilitator introductions and expectations Review of session goals and objectives
10:00 – 10:45	**Role of Technologies in Agricultural Development**	Review of role of technologies in agricultural development
Break (15 minutes)		
11:00 – 11:45	**Key concepts**	Activity: Draw a Farmer Review of key gender concepts
11:45 – 1:00	**Understanding the adoption process**	Activity: This is the best pen you'll ever use Discussion of adoption
Lunch (1 hour)		
2:00 – 3:00	**Gender and Nutrition Issues of Agricultural Technology Design, Use, and Dissemination**	Video: Gender Equality Now (WorldFish 2014) Discussion of gender and nutrition issues of

		agricultural technologies Group Work: Mapping the Agriculture, Gender, and Nutrition Pathway
3:00 – 3:45	**Gender Dimensions Framework**	Introduction to gender analysis and gender-based constraints Introduction to the gender dimensions framework
Break (15 minutes)		
4:00 – 5:00	**Applying the Gender Dimensions Framework**	Activity: A Case Study in Applying Gender Analysis to Technology Development and Dissemination
Day 2		
9:00 – 10:15	**What is a technology assessment?**	Discussion about the purpose and elements of a gender-responsive and nutrition-sensitive technology assessment.
10:15 – 11:30	**Food Availability, Safety, and Quality**	Discussion of gender dimensions of how agricultural technologies address food availability, safety, and quality
Break (15 minutes)		
11:45 – 1:00	**Time and Labor**	Discussion of gender dimensions of how agricultural technologies impact time and labor
Lunch (1 hour)		
2:00 – 2:45	**Facilitation techniques**	Discuss gender issues in data collection Activity: Facilitating
2:45 – 4:00	**Income and Assets**	Discussion of gender dimensions of how agricultural technologies impact time and labor
Break (15 minutes)		
4:15 – 5:00	**Knowing how you're doing**	Discussion of gender-sensitive indicators
Day 3		
9:00 – 9:45	**What you see is what you get?**	Activity
9:45 – 11:00	**Questionnaire Review**	Review of technology developer questionnaire and farmer questionnaires
Break (15 minutes)		
11:15 – 12:00	**Continuation of Questionnaire Review**	Review of technology developer questionnaire and farmer questionnaires

Lunch (1 hour)		
1:00 – 3:30	**Interviews with technology developers**	Interview technology developers. Groups can interview two developers (45 min each)
Break (15 minutes)		
4:15 – 5:00	**What do we know now that we didn't know before?**	Debrief on interviews
Day 4		
9:00 – 2:00	**Interviews with farmers**	Includes lunch
2:00 – 3:30	**What we do know now that we didn't know before?**	Debrief on interviews
Break (15 minutes)		
3:45 – 5:00	**Analyzing the gender and nutrition dimensions of a technology**	Development of key components of a technology profile Small group work
Day 5		
9:00 – 10:00	**Continue work on technology profiles and action plans**	Small group and individual work
10:00 – 10:30	**Presentations and Commitments**	Presentation of technologies and action plans
Break (15 minutes)		
10:45 – 11:30	**Presentations and Commitments**	Presentation of technologies and action plans
11:30 – 12:00	**Wrap up and concluding remarks**	Present certificates, share materials, and other concluding remarks
Lunch (1 hour)		
1:30	**Departure**	End of workshop

The rest of the Facilitator's Guide reflects a workshop conducted in Mymensingh, Bangladesh May 8 – 12, 2016 led by Cultural Practice, LLC.

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Break (15 minutes)		
4:00 – 5:00	**Applying the Gender Dimensions Framework**	Activity: A Case Study in Applying Gender Analysis to Technology Development and Dissemination

Welcome and Introduction

Objectives

- Understand purpose and agenda of the workshop
- Become familiar with participants
- Establish principles of dialogue and conduct for the workshop

Duration	1 hour
Format	Group discussion and ice-breaker activity
Equipment and supplies	Computer and projector

With this slide, the Facilitator(s) can introduce themselves.

The facilitator(s) can choose how to have participants introduce themselves. This workshop had participants provide their name, organization, and something interesting that the group wouldn't know about them, for example, a hobby.

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Workshop Objectives

At the end of the workshop, participants will:

- Understand key issues related to gender, extension and advisory services, and agricultural technologies
- Understand principles of integrating gender analysis into technology design, use, and dissemination
- Be able to conduct a preliminary gender analysis of agricultural technologies

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What we stand for

- **IN** Integrating
- **GE** Gender and
- **N** Nutrition
- **A** within Agricultural
- **E** Extension
- **S** Services

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Vision & Goal

VISION

empower women to better contribute to higher household incomes, increase agricultural productivity, and improve nutritional outcomes for family and community members.

GOAL

reduce gender gaps in agriculture, increase empowerment of women farmers, and improve the integration of and attention to gender and nutrition, both in and through agricultural extension and advisory services.

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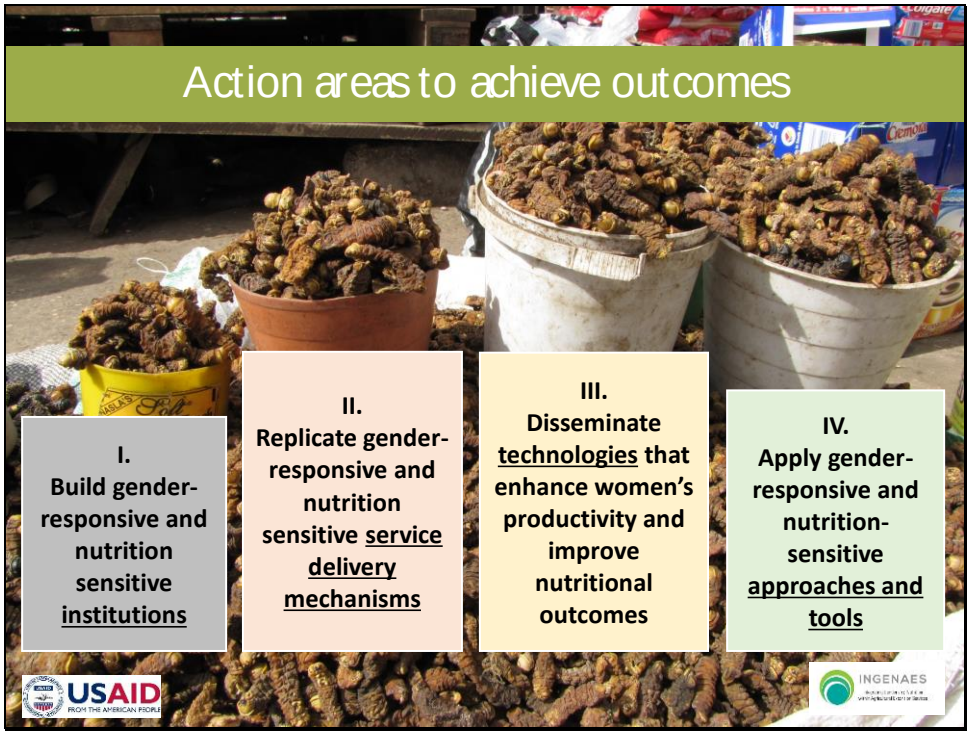
Action areas to achieve outcomes



I. Build gender-responsive and nutrition sensitive institutions

II. Replicate gender-responsive and nutrition sensitive service delivery mechanisms

III. Disseminate technologies that enhance women's productivity and improve nutritional outcomes

IV. Apply gender-responsive and nutrition-sensitive approaches and tools

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Gender integration or mainstreaming

- Involves taking account of gender implications in all programs, policies, and resource allocations, as well as addressing inequalities in organizational procedures and administrative and financial operations
- These terms tend to be used interchangeably
- They both designate methods and institutional arrangements necessary for achieving **gender equality**

Nutrition sensitive approaches

These address the underlying and systemic causes of malnutrition and development. These can be integrated into a range of programs addressing:

- food security;
- adequate caregiving resources at the maternal, household and community levels; and
- access to health services and a safe and hygienic environment

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Nutrition-specific interventions

- Nutrition-sensitive programs can serve as delivery platforms for **nutrition-specific interventions**.
- These are programs that address the immediate determinants of fetal and child nutrition and development—adequate food and nutrient intake, feeding, caregiving and parenting practices, and low burden of infectious diseases.

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Review of agenda

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Ask participants to share ground rules for the workshop. For example, no side conversations, turn off cell phones, etc. Facilitators can also offer rules to follow, for example, "play the game," to insist participants follow the instructions in various activities throughout the workshop. Post the rules in a visible place for the duration of the workshop.

Role of Technologies in Agricultural Development

Objectives

- Understand the role of technologies in agricultural development
- Become familiar with different types of agricultural technologies
- Be able to describe relationship between agricultural technologies and extension and advisory services

Duration	45 minutes
Format	Lecture and group discussion
Equipment and supplies	Computer and projector

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Session Objectives

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Technology defined

Technologies are defined as

"'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)

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S&T for agricultural development

- Science and technology are the foundation of increased agricultural productivity
  - They offer the possibility of greater control of the environment
  - They can reduce drudgery, making labor more efficient
  - They improve the quality and quantity of food, feed, fiber, and fuel

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How technologies are used in agriculture

- **Plant productivity, quality improvement, and plant protection**, *e.g., improved varieties, pesticides & sprayers, harvesters, threshers*
- **Animal health and production improvement**, *e.g., improved varieties, AI*
- **Soil improvement**, *e.g., NRM practices (no or low tillage), plows & tractors, soil amendments and fertilizer, inoculants*
- **Water availability**, *e.g., irrigation, pumps, rain harvesters*
- **Energy sources and efficiency**, *e.g., solar cells, biogas*
- **Post-harvest drying, storage, and processing** *e.g., dryers, coolers, cartons and crates, bags, mills, stoves*
- **Transport**
- **Communication**, *e.g., ICT, radio, mobile phones*

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Priority Technologies and Applications for Improving Agriculture

Focus of Technology	Tier I High Priority for Development	Tier II High Priority for Additional Exploration
Natural Resources Management	• Soil management techniques • Integrated water management • Climate and weather prediction	• Soil-related nanomaterials • Manipulation of the rhizosphere • Remote sensing of plant physiology
Improving Genetics of Crops and Animals	• Annotated crop genomes • Genome-based animal breeding	• Site-specific gene integration • Spermatogonial stem cell transplantation • Microbial genomics of the rumen
Overcoming Biotic Constraints	• Plant-mediated gene silencing • Biocontrol and biopesticides • Disease-suppressive soils • Animal vaccines	
Energy Production		• Solar energy technologies • Photosynthetic microbe-based biofuels • Energy storage technology

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Source: National Academy of Sciences 2009. Emerging Technologies to Benefit Farmers in SubSaharan Africa and South Asia. http://nap.edu/12455.

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Investments in S&T have many benefits

TIME

- Technology
- Inputs
- Markets
- Extension & Advisory Services

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Supportive policies and institutions

Policies channel resources to scientific exploration and technological innovation

Policies support S&T work, setting priorities, e.g., for raising productivity or addressing labor constraints

Policies encourage investments in ag infrastructure (e.g., fuel, fertilizers, roads, railways, and communication

Policies and institutions promote attention to gender

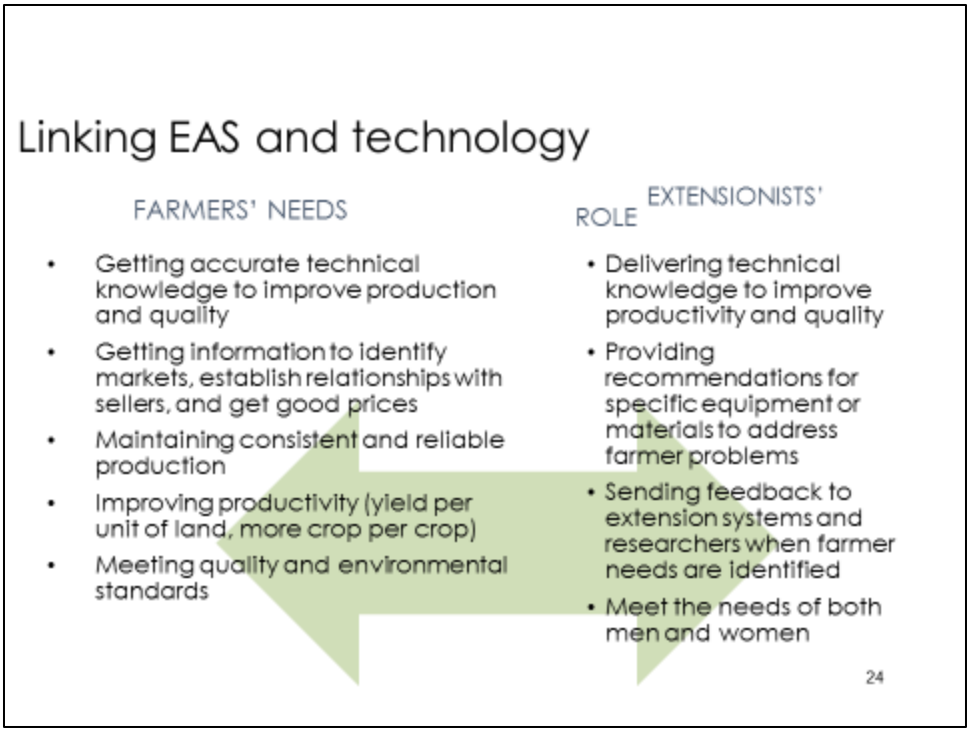
Institutions create or facilitate links between communities and external actors:

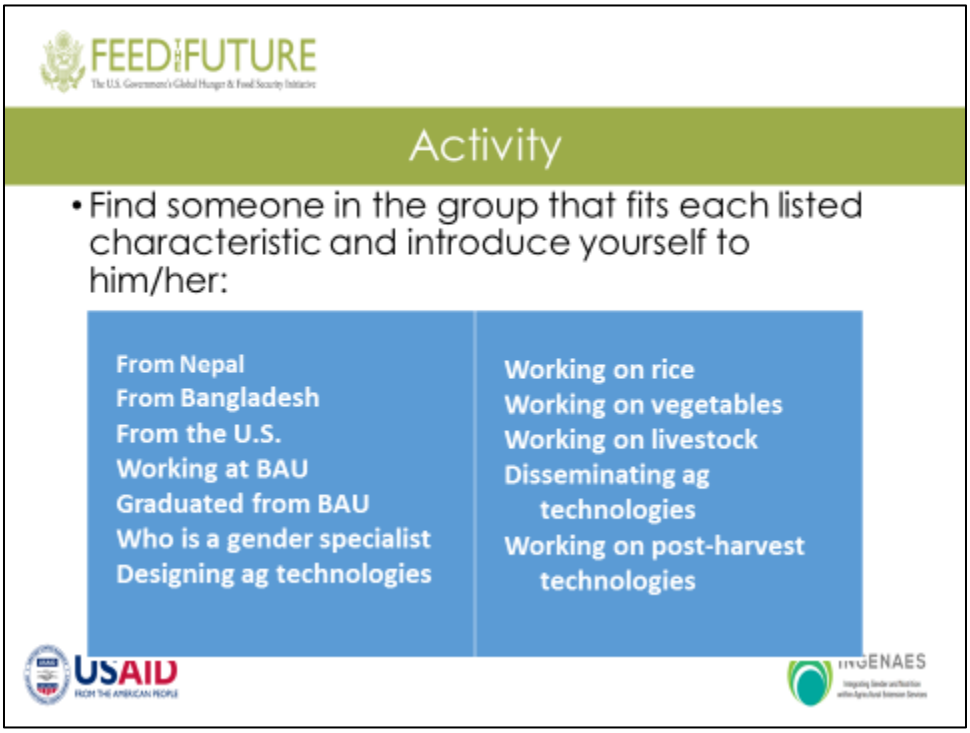
- Associations are vehicles for disseminating information
- Microfinance and other credit institutions support adoption of improved technologies

Extension and advisory services (EAS) defined

"Rural advisory services, also called extension, are all the different activities that provide the information and services needed and demanded by farmers and other actors in rural settings to assist them in developing their own technical, organisational, and management skills and practices so as to improve their livelihoods and well-being."

(Christoplos 2010)





This slide includes characteristics of participants from this workshop.

Key concepts

Objectives

- Be able to identify key gender concepts
- Be able to identify gender-related challenges and opportunities in agricultural development

Duration	45 minutes
Format	Lecture and group discussion
Equipment and Supplies	Computer and projector

Activity: Drawing a Farmer

Purpose	To reflect upon stereotypes and ideas about who is a farmer
Format	Individual and small group
Timing	15 minutes including report out
Instructions	1. Ask participants to draw a picture of a farmer (5 minutes). 2. Have participants share their pictures with each other in small groups. 3. In plenary, invite participants to share key aspects of their pictures, drawing out elements that relate to sex and gender.

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Session Objectives

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Concepts

Sex

- Biologically defined and genetically acquired differences between males and females
- Defines "males" and "females" independently of each other
- Is the same around the world

Gender

- Socially defined and culturally learned differences between men or women
- Defines "men" and "women" with reference to the socio-cultural relationships between them
- Varies from place to place and over time

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Gender roles

Gender roles are the behaviors, tasks, and responsibilities that are considered appropriate for women and men as a result of socio-cultural norms and beliefs.

- Gender roles are usually learned in childhood.
- Gender roles change over time as a result of social and/or political changes

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Gender relations

Gender relations are the social relationships between men and women shaped by beliefs and social institutions

- Often **perceived** as "natural" and related to sex and reproduction, but are conceptually distinct
- They are socially determined, culturally based, and historically specific
- Sanctioned and reinforced by cultural, political, and economic institutions, including the household, legal and governance structures, markets, and religion
- Gender relations are mediated by other identities (ethnicity, class, age)
- Relations may be unequal
- Change over time

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What does it mean to engage men?

- Understand how attributes, behaviors and roles generally associated with boys and men impact gender relations
- Recognize gender-based constraints that effect men
- Actively seek to work with men to support gender-related activities

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Gender equality and gender equity

Gender equality is the **GOAL**. It refers to the ability of men and women to have equal opportunities and life chances.

- **It does NOT mean that resources or benefits must be split evenly between men and women**

Gender equity refers to fairness in representation, participation and benefits. The goal is that both women and men have a fair chance of having their needs met and each has equal access to opportunities for realizing their full potential.

- **It refers to the processes used to achieve gender equality.**

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Understanding the adoption process

Objectives

- Understand the social dimensions of adoption
- Understand drivers of adoption

Duration	75 minutes (30 minute exercise, 45 minute presentation)
Format	Lecture and group discussion
Equipment and supplies	Computer and projector

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Activity: This is the best pen you'll ever use

- Divide into two groups: Group A and Group B
- Individuals in Group A will choose an object that they will use to describe in a convincing manner to an individual in Group B. Individuals in Group A will have 1 minute to make a compelling argument.
- At the end of the minute, individuals in Group B will be able to ask questions.
- Repeat with two more people.

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Activity: This is the best pen you'll ever use!

Purpose To reflect upon the incentives and drivers of adoption

Format Pairs

Timing 30 minutes including report out

Instructions

1. Have participants divide into two groups: Group A and B.
2. Group A will take 1 minute to pick an object that they will use to describe in a convincing manner to another participant. The aim is to convince the other participant to want to use the object.
3. Individuals in Group A will pair up with one person in Group B and take 1 minute to describe the object to the other person. At the end of the minute, Group B can ask questions (30 seconds). Group A can repeat this process three times with different Group B individuals.

4. Report out by asking Group A and B participants to share what happened. Use the questions below:

For the Group A:
- What types of things did you say about your object?
- How did you appeal to your audience?
- Did it change when you moved from one person to another?

For the Group B:
- Of all the objects you were introduced to, what did you perceive as being the most interesting to you? Why?
- What was convincing about different people's pitch?

5. Then reverse the positions. Group B individuals should pick an object and describe it to Group A participants.

6. Report out by asking Group B participants
   - What types of things did you say about your object?
   - How did you appeal to your audience?
   - Did it change when you moved from one person to another?

7. To close the activity, the facilitator should draw out the following elements of the conversation, highlighting that the exercise is meant to have the participants consider:
   - The different kinds of ways objects were described or the different appeals that were made. Did the descriptions of the technology appeal to the object's usefulness? Were the appeals emotive? Were they sensory?
   - Differences in the perceptions about the same object - for example, did the three people perceive the object in the same way?

Session Objectives

- Understand innovation, adoption, and diffusion
- Become familiar with some drivers of adoption
- Understand the role of extension in adoption

Innovation

- **Innovation:** "an idea, practice or object that is perceived as new by an individual or other unit of adoption" (Rogers 1995)
  - Does not need to be new
  - It just needs to be perceived as new

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Diffusion

- **Diffusion (of innovations)**: How an innovation (ideas, technologies, practices spreads through a population.
  - Considers time and social pressures
  - Communication and influence
- Extension is a form of diffusion

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Adoption

- **Adoption:** The process individuals follow to decide to accept or reject a particular innovation
  - Decision-making does not take place in a vacuum and is influenced by information, beliefs, attitudes and other factors

- The process can be emotional
- It needs to address cognitive elements like perception and knowledge
- And is contextual

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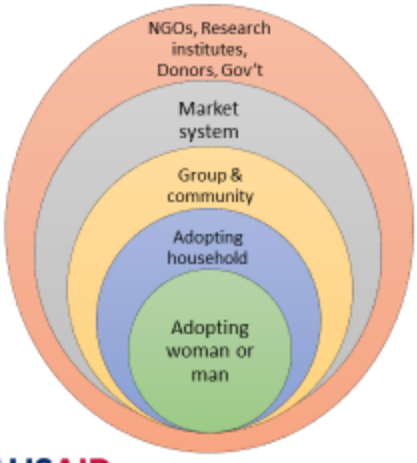
Adoption as a social process



- Men and women exist in a social context – they are not isolated individuals
- This context consists of different institutions – households, communities, associations, markets, research organizations
- Individuals and institutions are influenced by and influence each other
  - We shape institutions
  - They shape us

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Characteristics that influence adoption

Individuals

- Who is the potential adopter?
- How does this person **perceive** the technology?
  - Ease of use
  - Usefulness
- Is this person able or willing to pay for technology or using the technology?
- Do the benefits outweigh the individual's costs?

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Technology

- Ease of use
- Usefulness
- Compatibility with needs and preferences
- Availability
- Affordability
- Effectiveness

Additional factors

- What other factors are necessary for individuals to be able to access or make use of the technology?

- Complementary inputs
- Accessibility
- Capital and infrastructure investments
- Supportive social norms

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In agriculture…

Agricultural technologies are intended to increase yields or agricultural outputs.

Even those that successfully achieve this, are not always adopted.

- Differences in agro-ecological zones, land size and quality
- High initial fixed costs
  - E.g., irrigation
- Capital and credit constraints
- Preferences related to taste, texture, color, cooking
- Government policies that distort prices
  - E.g., tariffs, subsidies, quantity restrictions
- What else?

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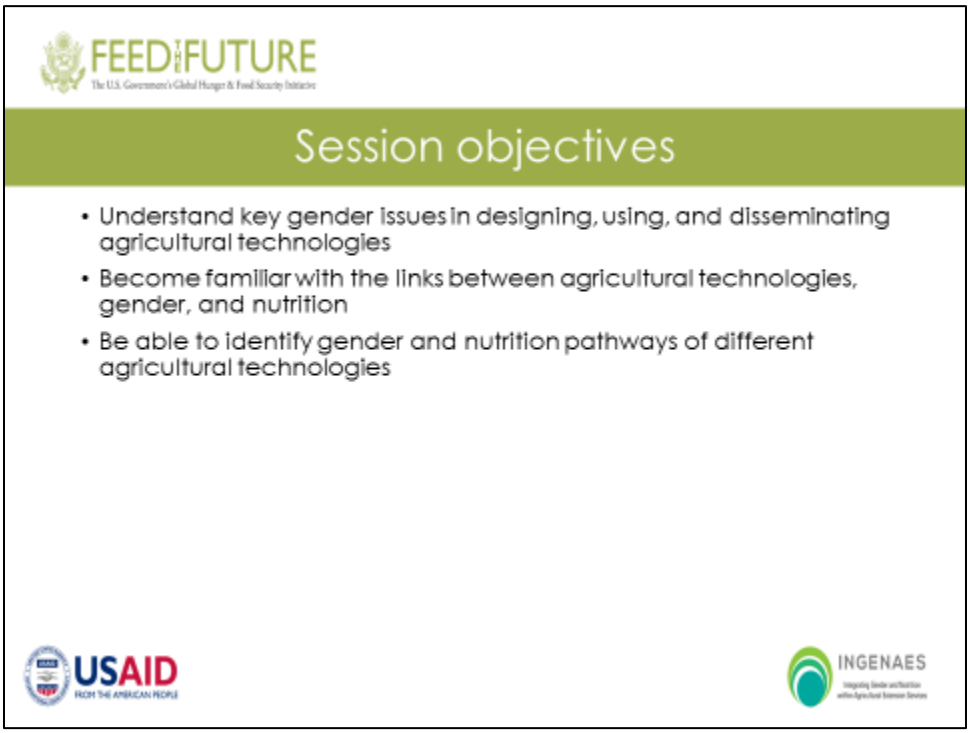
Gender and Nutrition Issues of Technology Design, Use, and Dissemination

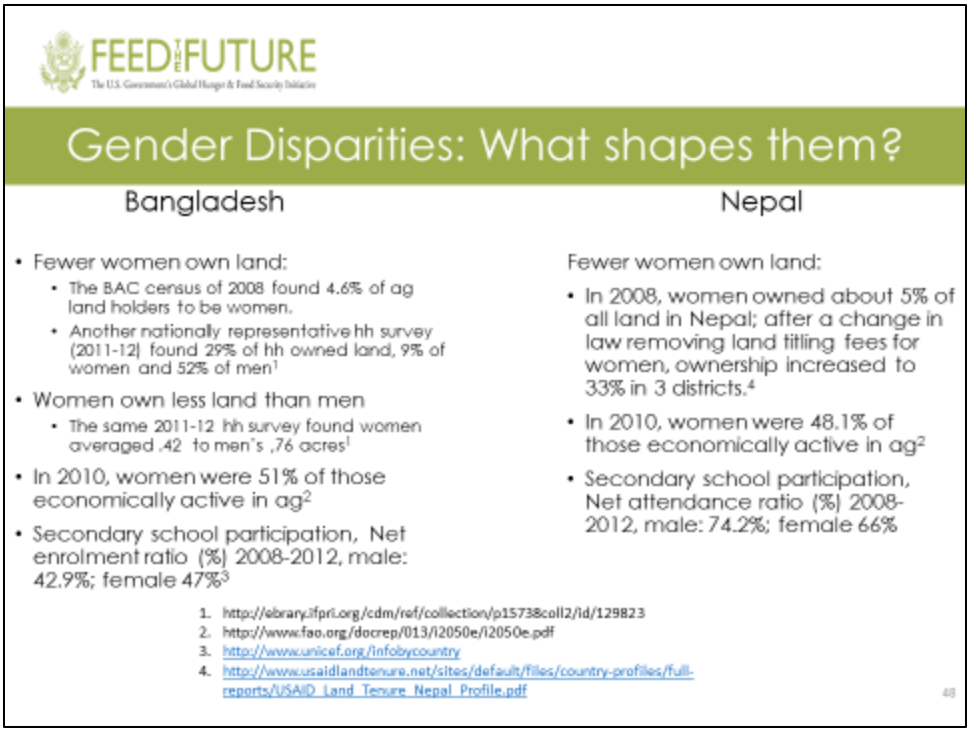
Objectives

- Understand key gender issues in designing, using, and disseminating agricultural technologies
- Become familiar with the links between agricultural technologies and nutrition
- Be able to identify gender and nutrition pathway of different agricultural technologies

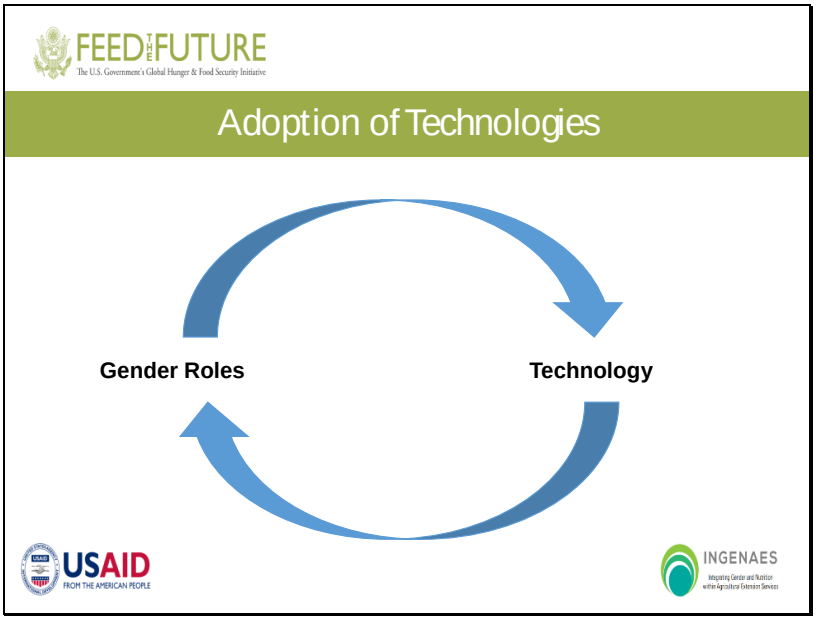
Duration	1 hour
Format	Lecture with plenary and small group activity
Equipment and supplies	Computer and projector Projector screen Flipcharts and markers



Deconstruct the video with the participants about the gender disparities mentioned in the video.



The presented data can be updated for individual's country of origin. For example, if this were held in Honduras then the data should include examples of gender disparities in Honduras.



This slide sets up the discussion about how (1) gender roles and relations influence men's and women's adoption of technologies and (2) how the design and dissemination of the technologies influence men's and women's adoption of technologies based on their different gender roles and relations.

Adoption of agricultural technologies

- Important factors of adoption:
  - Education or literacy level
  - Access to and use of fertilizer
  - Access to extension services and credit
  - Size of plot
- Sex of the farmer is not statistically significant
- HOWEVER, men and women have differential access to these factors which account for differences in their adoption rate

Opportunities to increase adoption

- Participatory approaches
- Disseminate information through ICT
- Knowledge and capacity strengthening
- Design training to meet women's needs

Impacts of Technology on Men and Women

- Who is doing what
- How long it takes men or women to do particular tasks
- Who accesses resources
- Who benefits from the introduction of the technology

Gender-responsive Technology Design and Dissemination

- Designed to meet both women's and men's needs
- Ensures that both women and men will benefit and neither will be harmed by research, programs, and policy

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Links between agricultural technologies, gender, and nutrition

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Food Security

Food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life. (World Food Summit, 1996)

- Availability
- Access
- Utilization
- Stability

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Nutrition

Nutrition is the intake of food, considered in relation to the body's dietary needs. Good nutrition – an adequate, well balanced diet combined with regular physical activity – is a cornerstone of good health. (World Health Organization 2016)

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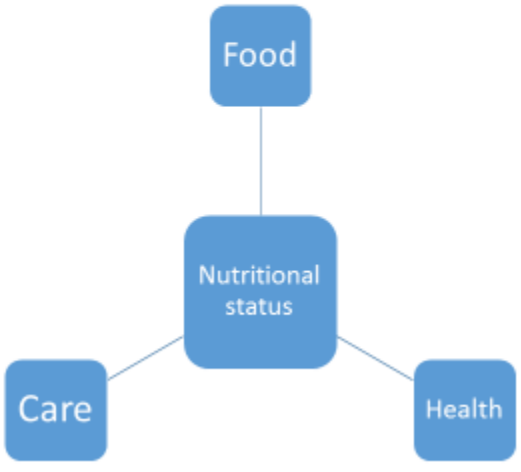
Factors of Nutritional Status



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Key Points: Food Security and Nutrition

- Food availability/consumption does not always result in positive nutrition outcomes
- Food insecurity can be seasonal and nutritional status can change by season
- Nutritional status is a function of nutrient intake and health status (e.g. water and sanitation; health expenditures)
- Macro and micro nutrients are both critical inputs for good nutritional status *(it's not just calories)*
- Nutritional status of individuals within a household can vary significantly
- Young children (< 5 years and particularly < 2 years), and pregnant and lactating women have special nutritional needs

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Nutrition-Sensitive Approaches

Interventions or programs that address the under-lying determinants of fetal and child nutrition and development—food security; adequate caregiving resources at the maternal, household and community levels; and access to health services and a safe and hygienic environment—and incorporate specific nutrition goals and actions. Nutrition-sensitive programmes can serve as delivery platforms for nutrition-specific interventions, potentially increasing their scale, coverage, and effectiveness.

(Ruel and Alderman) (SPRING)

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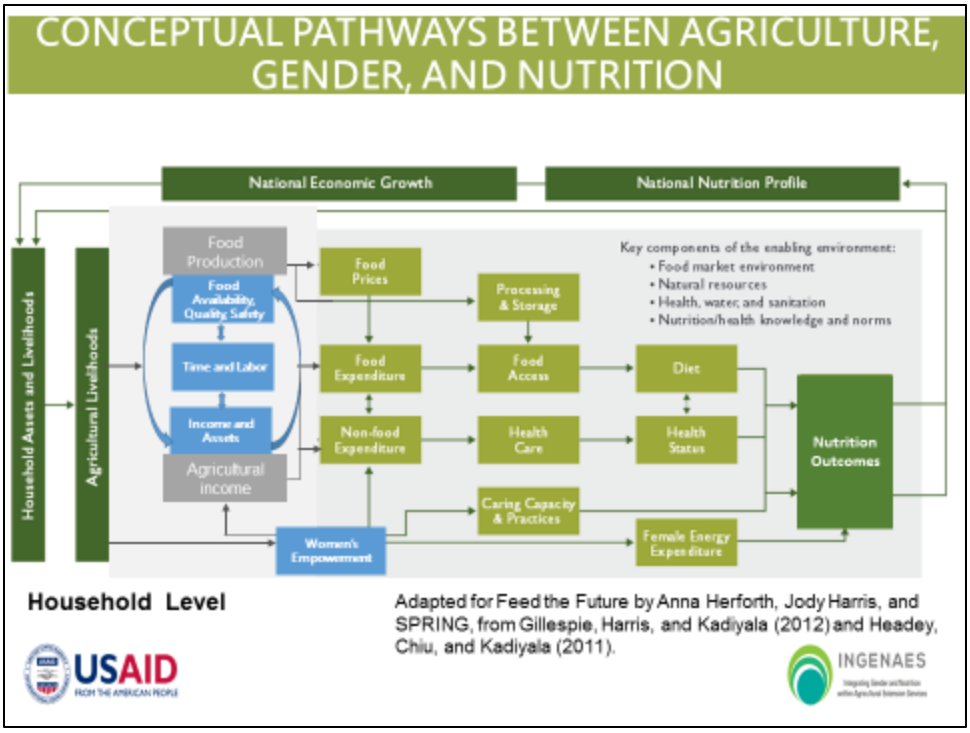
Technology and Nutrition Linkages

Some technologies are designed to improve nutrition and safety of food.

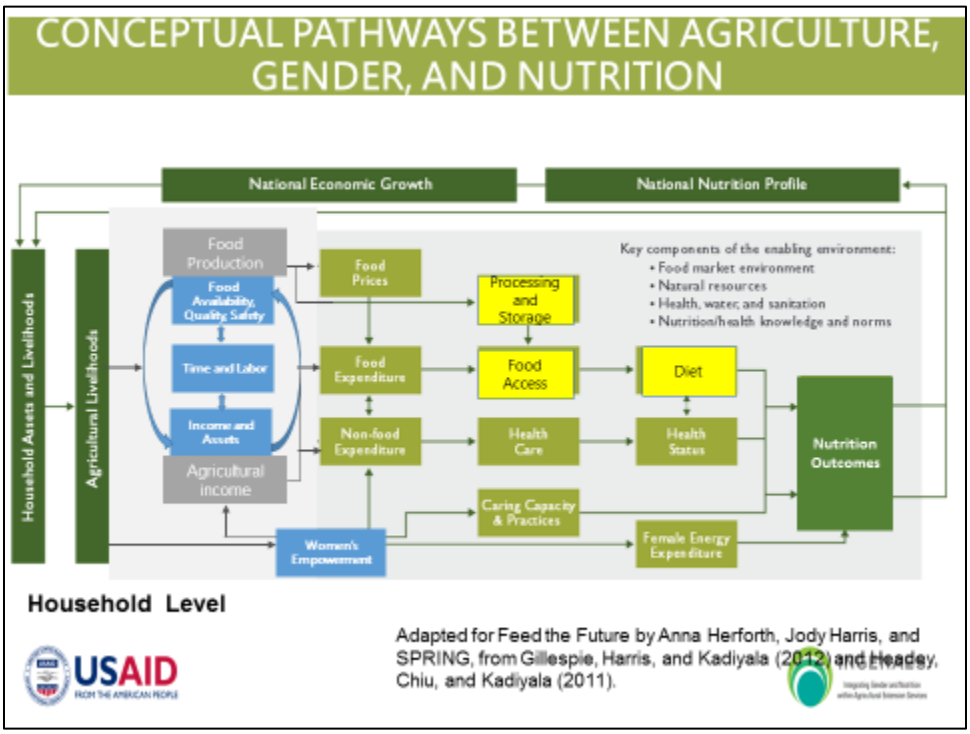
- E.g., Orange flesh sweet potato, Aflasafe

Technology and Nutrition Linkages

- The impact some technologies have on nutrition outcomes is less clear.
  - High-yielding varieties
  - Storage technologies

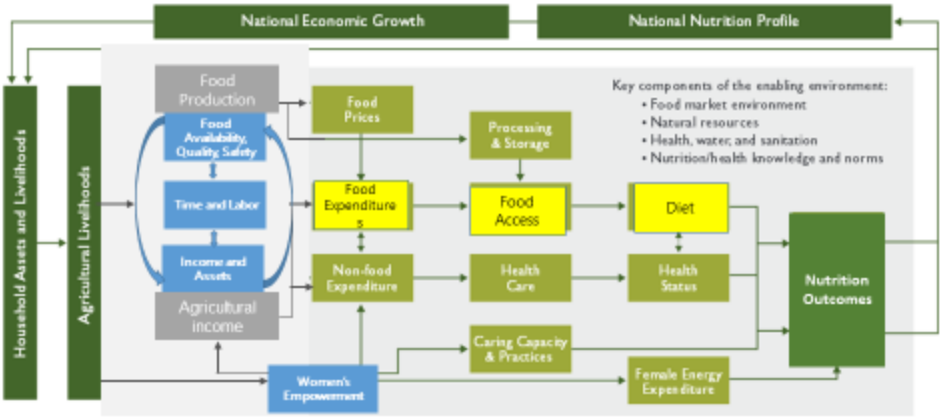


Talk through an example of a technology which follows the highlighted pathway.



Talk through an example of a technology which follows the highlighted pathway.

CONCEPTUAL PATHWAYS BETWEEN AGRICULTURE, GENDER, AND NUTRITION



Household Level

Adapted for Feed the Future by Anna Herforth, Jody Harris, and SPRING, from Gillespie, Harris, and Kadiyala (2012) and Headey, Chiu, and Kadiyala (2011).

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Group work: Mapping the Agriculture, Gender, and Nutrition Pathway

- Divide into 4 groups
- Select one of the following technologies:
  - Irrigation pump for vegetables
  - Deep-placement fertilizer for rice
- Trace pathways from the technology to nutrition outcomes
- Identify 2 to 3 gender issues along this pathway
- What additional information would you want to know?

Activity: Mapping the Agriculture, Gender, and Nutrition Pathway

Purpose

To become familiar with how agricultural technologies can have gender and nutrition impacts

Format

Small group

Timing

15 minutes including report out

Instructions

1) Divide participants into 4 groups
2) Each group should trace the nutrition pathways for one of the following technologies:
    a) Irrigation pump for vegetables
    b) Deep-placement fertilizer for rice

   The Facilitator(s) should identify technologies that are common in the country where the workshop is taking place and use those if the pump or fertilizer technologies are not well-known.
3) The group should also identify 2 to 3 gender issues along this pathway, as well as additional information that might be useful to understanding either the gender or the nutrition pathways.
4) Select one or two groups to do a report out, preferably different technologies.

Gender Dimensions Framework

Objectives

- Understand key gender concepts
- Be able to define gender analysis
- Become familiar with key analytical components of gender dimensions framework
- Be able to apply gender dimensions framework to case study

Duration	1 hour and 45 minutes
Format	Lecture and small group activity
Equipment and supplies	Computer and projector Blank sheets Handout: Case study Handout: Worksheet 1

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Session objectives

- Define gender analysis
- Review key analytical components of the Gender Dimensions Framework
- Apply the Gender Dimensions Framework to a case study

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Gender analysis

Gender analysis is a methodology that both:

1. Describes existing gender relations in a particular environment, ranging from within households or firms to a larger scale of community, ethnic group, or nation, and
2. Organizes and interprets, in a systematic way, information about gender relations to identify gender-based constraints and make clear the importance of gender differences for achieving development objectives.

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Gender-based constraints

Refer to restrictions on men's or women's access to resources or opportunities that are based on their gender roles or responsibilities. The term includes:

1. Measurable disparities that are revealed by sex-disaggregated data collection and gender analysis and
2. Identification of the factors that cause the conditions of disparity.

Outcomes of a gender analysis

Information for the design of a gender-responsive agricultural project:

- Description of men's and women's roles
- Identification of factors that shape men's and women's opportunities
- Understanding of gender-based constraints
- Areas of action to ensure the men and women have equal opportunities to participate in and benefit from program activities

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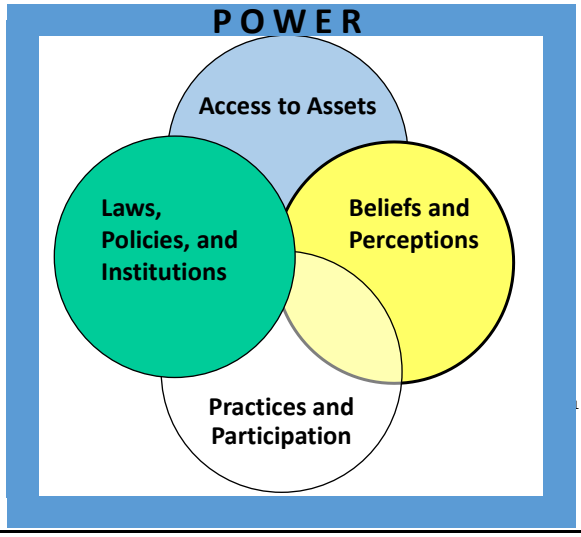
The Gender Dimensions Framework



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Note that the four gender dimensions purposefully overlap.

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How is the GDF useful?

The GDF is a tool that can help you:

- Organize and analyze information about gender-related gaps or gender-based constraints
- Understand gender-related information (e.g., for background research)
- Develop questions for interviews
- Reflect on challenges and successes of meeting project targets, objectives, and goals

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Access to assets

Men and women often have different levels of access to tangible and intangible assets.

Tangible	Intangible
Land	Information
Labor	Social networks:
Capital	Church groups, producer
Technologies	associations, self-help
Credit	groups, kinship relations

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Why does access to assets matter?

- Access to assets may be required to obtain technologies.
- Access to assets like land or labor are needed to gain from use of technologies.
- Access to technologies can improve the quality of crops.
- Access to improved technologies can lead to increased income.

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Practices and Participation

Men's and women's economic participation often differs. Men and women are often:

- Responsible for different tasks on the farm and within the household
- Hired for different tasks within firms
- Segregated into different sectors

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Why do practices and participation matter?

- Men and women do different tasks in agricultural production and processing and within the household.
- Men's and women's productivity can be improved through use of technology.
- Being a man or a woman influences participation in trainings.

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Beliefs and perceptions

Social beliefs and perceptions shape expectations about "appropriate" roles for boys and girls and men and women.

These norms affect:

- Who goes to school and for how long
- Who goes to work and what type
- How much money you earn
- What kinds of assets you can inherit
- Where you can go and for how long

Why do beliefs and perceptions matter?

- Beliefs about the appropriateness of women to perform types of work affects their use of technologies.
- Social norms affect where women can travel to access extension services.
- Perceptions that women are not farmers limits their access to extension services.

Laws, policies, and institutions

Institutions mediate women's and men's access to assets and economic opportunities. Men and women are often treated differently by formal and informal laws, policies, and regulations including issues surrounding:

- Ownership and inheritance rights
- Due process
- Employment opportunities
- Wages
- Access to state resources (e.g. health, education, basic infrastructure, and public goods)
- Access to agricultural services, information and credit

NOTE: Laws can provide the framework for equality but in practice inequality may persist.

Why do laws, policies, and institutions matter?

- Laws can restrict which jobs men and women have and when men and women can work.
- Government policies can promote dissemination of technologies to women farmers.
- Laws restricting women's credit options limit purchase of technologies.

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Activity: Worksheet One

Instructions:

Working in groups,

1. Read the case study
2. Identify what you know about each dimension listed in column for men and for women ,using the information presented in the case study.
3. Brainstorm about what additional information you might want to know and make notes of that.

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Dimension	Information about men		Information about women	
		Beliefs & Perceptions		Beliefs & Perceptions
Access (use, control, ownership) to assets				
Practices & participation				
Laws, policies, & institutions				

Activity: Understanding the gender dimensions framework

Purpose

To learn to use the gender dimensions framework

Format

Small group

Timing

1 hour including report out

Instructions

1. Divide the participants into small groups.
2. Individually participants should read the case study, highlighting information that pertains to each of the dimensions of the framework.
3. Together, they should fill out Worksheet 1 and discuss challenges or questions about the case study (see below) and the data. Have a few groups present findings.
4. In plenary, the facilitator will ask for information related to each dimension. The facilitator should be sure to ask the group:
    a. If all groups categorized the information in the same way
    b. If there was information that was difficult to organize by dimension.

The plenary discussion should be sure to emphasize the definition of each dimension. It should also highlight how the dimensions are not mutually exclusive but interrelated, highlighting for example the role of the Beliefs & Perceptions column in relation to the other rows.

It may be necessary to explain that the table is only used for gender-related data. Data that is "general" or is not disaggregated does not have to go into the table. However, some data may require further analysis to understand if there may be gender differences and these should be noted for further exploration and clarification.

A Case Study in Applying Gender Analysis to Technology Development and Dissemination[1]

DEVELOPING GENDER-EQUITABLE AGRICULTURAL TECHNOLOGIES TO IMPROVE POST-HARVEST PROCESSING

Country background

"Agownia" is a fictitious nation of approximately 64 million people. Classified as a "low-income" country by the World Bank, it has a primarily semi-tropical climate and adequate water sources as well as sufficient rainfall to support a productive agricultural sector, and cereal production is particularly important (maize and wheat). Agriculture provides over two-thirds of the country's gross domestic product (GDP), and over half of that is from smallholder production. However, agricultural productivity is hampered by a limited supply of key inputs, significant losses from pests and disease, weak producer and marketing associations, and a poor transport infrastructure.

The government of Agownia has recently passed several policies to strengthen the economic and social status of women. For example, a new policy establishes new goals for girls' participation in secondary schools, since literacy is low: only 39% of women 15 and over are literate, compared to 62% of men. In agriculture, the government has announced a program to promote the adoption of labor-saving technologies that can ease the types of work that women typically perform. And new credit facilities are being put in place to allow loan payments to be disbursed and repaid through mobile phone services.

Project Information

The Assisting Processing Technologies (APT) project is designed to improve cereal processing in Agownia. The program components include:

- Design of new or modified agricultural processing technologies
- Dissemination of the new technologies through farmer associations
- Capacity development (training) for users of the new technologies

The project's goals are to:

1. Improve the efficiency of grain drying and/or milling for staple cereals, including Maize and wheat.
2. Maintain the nutritional quality of cereals through use of post-harvest storage and processing technologies.
3. Increase the use of drying and milling technologies by community members, both men and women.

[1] The methodology, case study, and worksheets have been developed by C. Manfre, C. Nordehn, K. Cook, and D. Rubin from Cultural Practice, LLC under the USAID-funded Integrating Gender and Nutrition within Agricultural Extension Advisory Services (INGENAES) project, implemented by University of Illinois at Urbana-Champaign, in partnership with University of California Davis, University of Florida, and Cultural Practice, LLC.

The project has been operating for 18 months and has piloted a new type of Maize mill in a local community. This mill grinds 10 kgs of maize in 10 minutes. 10 kgs was the minimum amount that could be processed at one time. This was a significant savings over doing it manually (1 kg in one hour) and better than the other powered machines (1 kg in 10 minutes). It was expected to help women farmers by eliminating the need to process the maize manually, while retaining the texture and taste they prefer. This process also retains more of the nutritional properties of the maize.

The mill was introduced through the farmer association. The machine was supplied free of charge to the group, but the association was expected to pay for its maintenance and repairs. Training was provided to the registered members of the association and a written manual was left with the group to help them address maintenance issues. To cover the costs, the association charged the equivalent of 1 Agownia dollar to process 1 kg of grain. Anyone processing over 100 kgs received a discount of 5%, so that the price of processing 110 kgs was reduced to 105 Agownia dollars. The machine operator was to be paid 1% of the total proceeds generated. For example, if the operator processes 100 kgs, he or she would earn 10 Agownia dollars.

GENDER RELATIONS IN SMALLHOLDER AGRICULTURE IN AGOWNIA

Maize is a staple crop, produced for home consumption and the market. Both men and women work in land preparation: men cut down trees or remove stumps and plow the fields with animal plows. Women clear brush, crop residues, and stones from the fields. Women do the sowing, transplanting, and weeding of maize. Both men and women help in the harvesting if it is done manually; while men harvest if they have access to machinery and women clean the fields after the machines have finished. Family members provide the majority of labor required on smallholder farms, but landless women also work as agricultural laborers to perform these tasks in their own and neighboring communities. After the maize is milled, any surplus not needed for home consumption is sold in the market by men. Other sources of income for men and women are shown below:

Source of income	Men	Women
Livestock	Cattle	Poultry and goats
Equipment rental	Plows, tractors	No
Grain processing	Only a few large regional processors	Yes – the majority in the community
Casual labor	All aspects of farming, carpentry, transport	Maize: sowing, transplanting, weeding
Migrant labor	Yes	No
Other crop sales	Yes-varies by crop	Yes-varies by crop

Producer Associations

Smallholder farmers receive inputs, market information, and training services through producer associations. Single men who meet the membership requirements may join an association, for example, by showing title to agricultural land, by owning livestock, or by paying dues and registration fees. Among married couples in rural Agownia, women

and their adult children may sit in on meetings, but each household is allowed only one vote, which is given 90% of the time to the man as head of the household. In some cases the family may be able to name another the person as the registered member. It is commonplace for only the registered member (individual or household) to be permitted to establish an account or to receive training or other services. Women's participation in producer associations thus varies greatly throughout the country, depending on the specific requirements for membership, their interest in the crops targeted, and other issues related to scheduling and location of meetings.

Processing

In Agownia, women play a large role in grain processing. In the past, women processed their maize by hand at home. Over the past 10 years, the introduction of small powered maize mills created the opportunity for some women to open their own milling enterprises. Women own and operate all of community level maize milling enterprises. These include two types of business: a few who still use hand-operated grinders and those who own and operate small powered mills. Fees are charged based on the weight of the produce prior to processing. Both men and women have increasingly used the small-scale women processors to mill their maize because they are spending their time in other income-earning activities such as vegetable gardening and livestock rearing. Only very few continue to grind their maize at home. Women are interested in finding a mill that will be more efficient and operate without needing frequent repairs like their current ones, but thus far, individual women business owners have been unable to find a machine that is both efficient and affordable.

There are also larger mills owned by men in urban areas that are able to process large quantities, but most rural people cannot afford to transport their grains to these sites. Many women also find that the texture of the processed maize makes it too soft when cooked, and prefer the local processing techniques. Women are perceived to be adept at postharvest handling. It is considered appropriate for women to do this work as they can stay closer to home and the task itself is seen as directly related to cooking, also thought to be a women's job.

APT Project Pilot Test

The study of the piloting of the new maize mill showed that the machine was not being used. Women farmers having only a small quantity to mill do not meet the minimum threshold. Few men were using the mill; they have begun to aggregate their maize and send it to the regional mills. As a result, the number of users was not sufficient to generate the income needed to maintain the mill and it soon fell into disrepair.

Worksheet 1				
	Information about men		Information about women	
		Beliefs and perceptions		Beliefs and perceptions
Access to assets				
Related Power Issues				
Practices and participation				
Related Power Issues				

Laws, policies, and institutions				
Related Power Issues				

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Reflections Day 1

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Integrating Gender and Nutrition within Agricultural Extension Services

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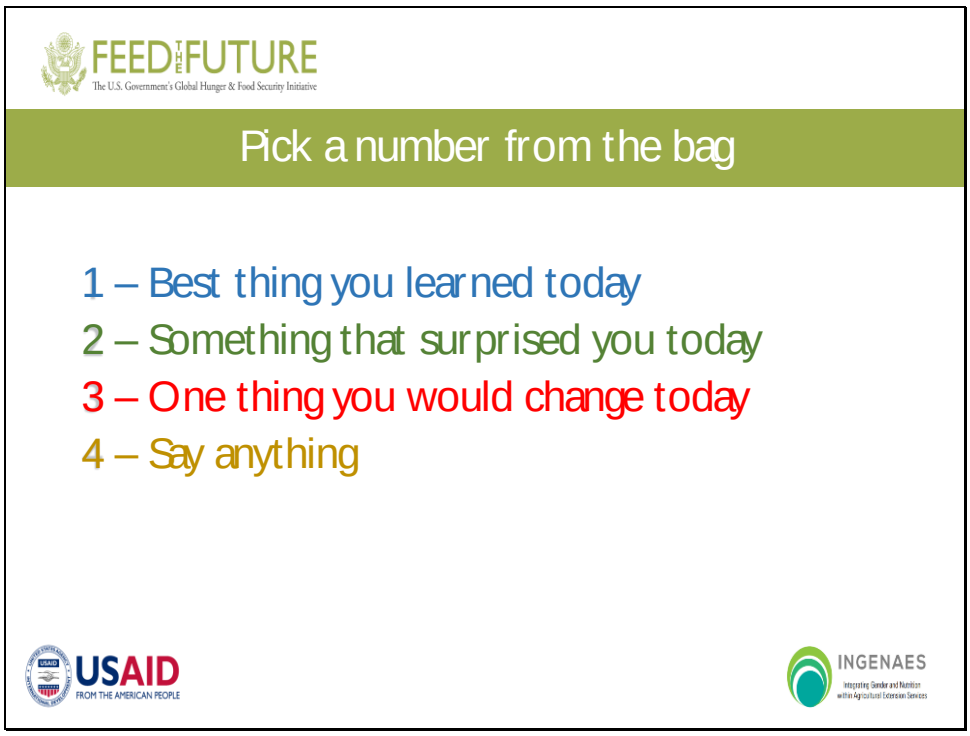

Write each number on a separate small piece of paper. Ask for volunteers to draw the numbers from a bag. Each volunteer comments on one thing related to the number he or she draws.

Day 2		
Time	Topics	Activities
9:00 – 10:15	**What is a technology assessment?**	Discussion about the purpose and elements of a gender-responsive and nutrition-sensitive technology assessment.
10:15 – 11:30	**Food Availability, Safety, and Quality**	Discussion of gender dimensions of how agricultural technologies address food availability, safety, and quality
Break (15 minutes)		
11:45 – 1:00	**Time and Labor**	Discussion of gender dimensions of how agricultural technologies impact time and labor
Lunch (1 hour)		
2:00 – 2:45	**Facilitation techniques**	Discuss gender issues in data collection Activity: Facilitating
2:45 – 4:00	**Income and Assets**	Discussion of gender dimensions of how agricultural technologies impact time and labor
Break (15 minutes)		
4:15 – 5:00	**Knowing how you're doing**	Discussion of gender-sensitive indicators

What is a technology assessment?

Objectives

- Understand the purpose of a gender-responsive and nutrition-sensitive technology assessment
- Understand the elements of a gender-responsive and nutrition-sensitive technology assessment

Duration	75 minutes
Format	Lecture
Equipment and supplies	Computer and projector Technology Profiles[2]

[2] The Facilitator(s) can distribute INGENAES technology profiles, which can be accessed here: http://ingenaes.illinois.edu/apply/technology-profiles/

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Session Objectives

- Understand the purpose of a gender-responsive and nutrition-sensitive technology assessment
- Understand the elements of a gender-responsive and nutrition-sensitive technology assessment

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What is a G&N technology assessment?

- An analytical process to understand the potential gender-related and nutritional impacts of specific agricultural technologies on men and women

- Uses gender analysis
- Intended to highlight issues related to
  - Food availability, quality, and safety
  - Time and labor
  - Income and assets
- Used to identify how gender-based constraints shape adoption process and dissemination efforts
- Used to identify specific actions to improve design, use, or dissemination of technologies

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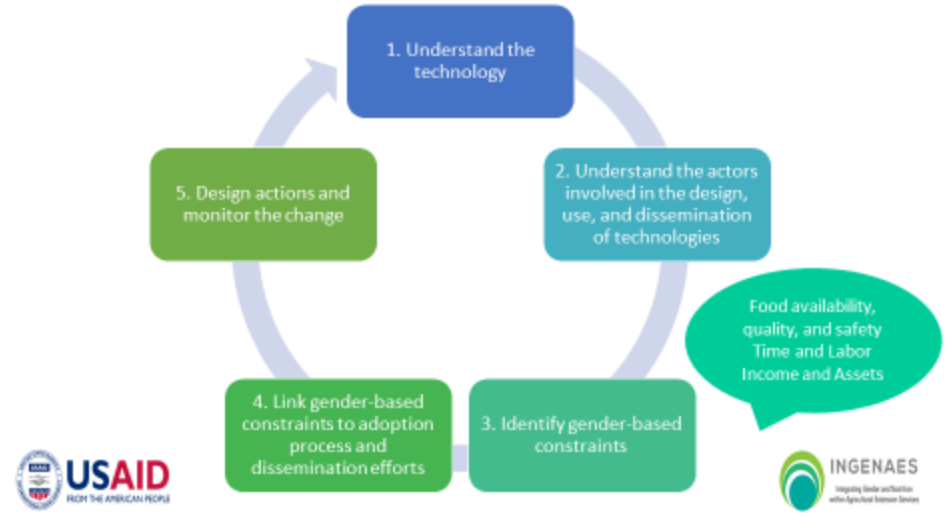
Process of the assessment



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Understand the technology

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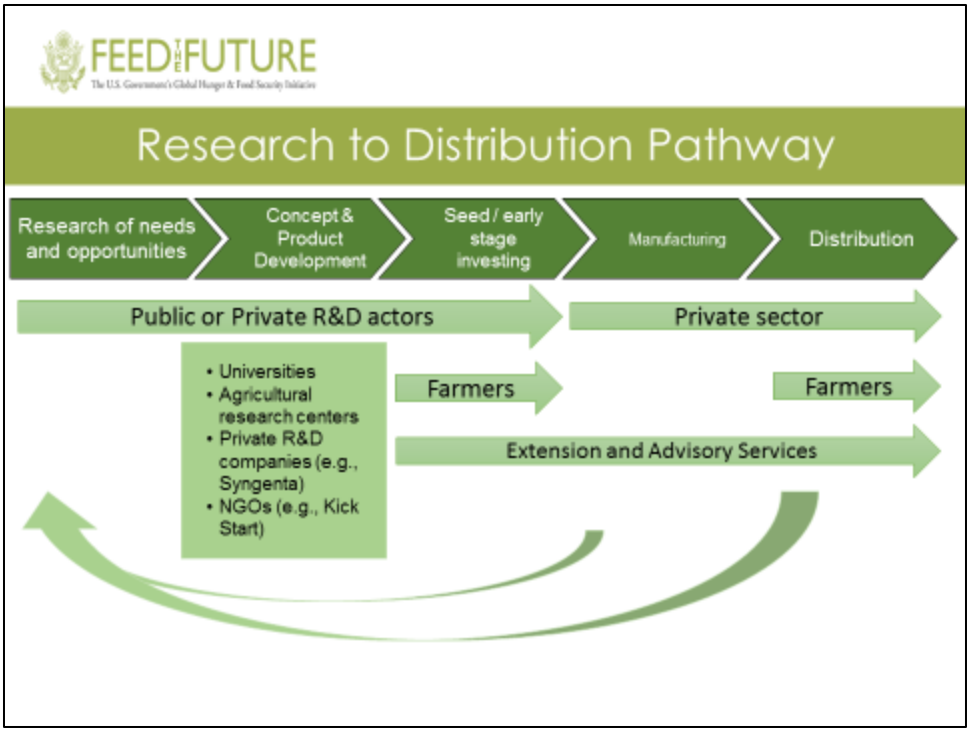
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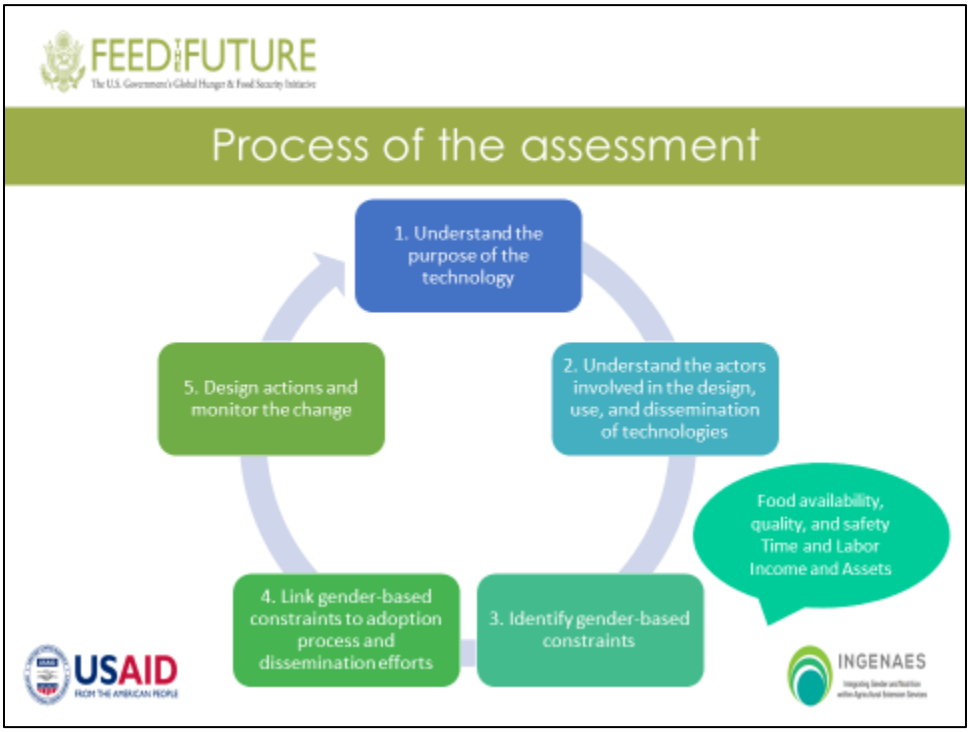
Research to Distribution Pathway
Research of needs and opportunities
Concept & Product Development
Seed / early stage investing
Manufacturing
Distribution
Public or Private R&D actors
Private sector
• Universities
• Agricultural research centers
• Private R&D companies (e.g., Syngenta)
• NGOs (e.g., Kick Start)
Farmers
Farmers
Extension and Advisory Services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Process of the assessment
1. Understand the purpose of the technology
2. Understand the actors involved in the design, use, and dissemination of technologies
3. Identify gender-based constraints
4. Link gender-based constraints to adoption process and dissemination efforts
5. Design actions and monitor the change
Food availability, quality, and safety
Time and Labor
Income and Assets
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What is the context?

- Description of the technology and adoption data
  - Purpose – what are you aiming to achieve?
  - Type of technology
  - Actors involved in disseminating the technology
  - Development of the technology
  - Dissemination and adoption of the technology

Identify the potential consequences of the technology

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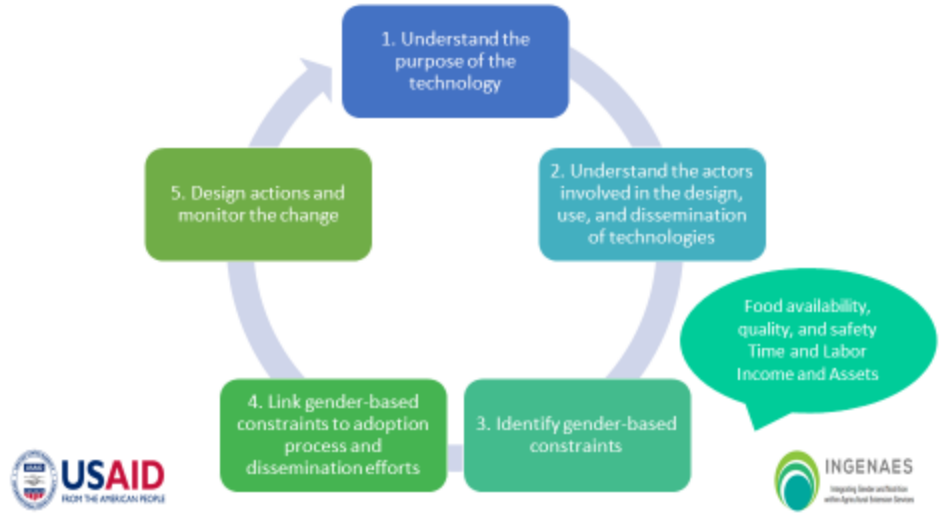
Process of the assessment



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Data Collection

- How the technology is disseminated and used
- Users' knowledge of, experiences with or perceptions about the technology
- Interviews with range of stakeholders:
  - Extension agents, men and women technology users ad non-users, input suppliers

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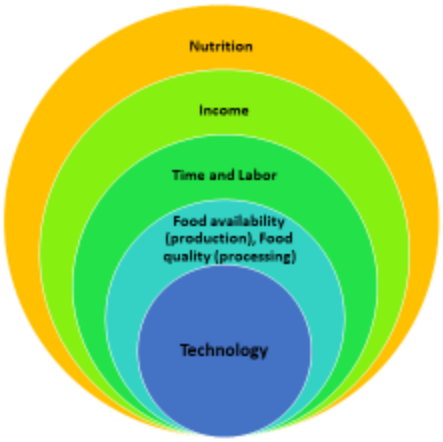
Key areas of analysis

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



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Putting it all together

- How does your analysis inform the design of the technology?
- How does your analysis influence the adoption process?
- How does your analysis inform dissemination?

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Design actions and monitor change
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Food Availability, Quality, and Safety

Objectives

- Understand how technologies address food availability, quality, and safety
- Understand how gender differences influence design, use, and dissemination of technologies related to food availability, quality, and safety
- Understand the potential for technologies related to food availability, quality, and safety to reduce gender-based constraints

Duration	75 minutes
Format	Group Activity Lecture
Equipment and supplies	Computer and projector

Video: Woman in a man's world

Click to view:
https://www.youtube.com/watch?v=nCN8vrVS4gg

Vote with Your Feet

Whether there is meat in the kitchen is not decided in the kitchen.

If you agree with the statement, move to your left

If you disagree with the statement, move to your right

Activity: Vote with your feet

Purpose Reflect upon how personal experiences and values impact views related to gender and nutrition.

Format Group

Timing 15 minutes

Instructions

1. Ask participants to stand in the middle of the room. Explain you are going to read a series of statements. Tell participants to move to the left of the room if they agree and the right of the room if they disagree.
2. Voice the first statement. Ask a couple of people why they agree and a couple people why they disagree. In plenary, facilitate a discussion about their reasons for agreeing or disagreeing.
3. Repeat step 2 for the subsequent statements.

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Session Objectives

- Understand food availability, quality, and safety and how they are addressed by technology
- Understand how gender differences influence design, use, and dissemination of technologies related to food availability, quality, and safety
- Understand the potential for technologies related to food availability, quality, and safety to reduce gender-based constraints

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Food availability defined

Food availability: Sufficient quantities of food of appropriate quality, supplied through domestic production (home consumption or purchase) or imports, including food aid (FAO).

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Technologies for food availability

- Most agricultural technologies are intended to increase food availability, e.g.,
- ✓ improved seeds, varieties of plants & animals (genetic gains)
- ✓Fertilizers, pesticides, vaccines
- ✓Farm equipment
- ✓Irrigation and water capture

Who benefits **most** from these technologies?

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Food safety and quality defined

Food safety: The absence of hazards that make food injurious to the consumer health, e.g., harmful microorganisms; pesticide residues; misuse of food additives; chemical contaminants, and adulteration

Food quality: Food that is acceptable to consumers, based on factors such as appearance (size, shape, color, gloss, and consistency), texture, and flavor; ***nutritional characteristics***. grade standards, and chemical, physical, and microbial properties.

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Technologies for food quality and safety

- Biofortified varieties (vitA sweet potato, zinc wheat, iron beans, orange maize)
- Equipment for harvesting, threshing, cleaning, sorting & grading, drying (solar dryers), milling
- Food storage methods: Sealable bags, cold storage, metal silos
- Other processing: cooking, packaging for market

Who benefits **most** from these technologies?

How do gender differences influence design, use, and dissemination of technologies?

Men's and women's different:

- **assets** and initial endowments (e.g., education) structure their different capabilities to access, control, and own agricultural technologies
- **crop choices and production practices** require or benefit from different technologies
- **beliefs** about appropriate work or appropriate locations for work may limit their choice of technologies
- status **under the law** or positions **in institutions** shape their rights to benefits (education, credit, political power, and resources) that influence the technologies they use

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Gender dimensions: Case study

Instructions (ten minutes):

- Choose a partner.
- With your partner, review the case study and for each of the four dimensions list one example of how men's and women's different situations affect their relationship to technologies.
- For example, for access to assets:

"women's lower literacy levels constrain their ability to read the maintenance manual for the milling machine."

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Time and Labor

Objectives

- Understand the relevance of time and labor to the design, use, and dissemination of agricultural technologies
- Understand how gender differences impact technology design, use, and dissemination
- Be able to assess the impact of technology on different groups of men's and women's time and labor

Duration	75 minutes
Format	Lecture and two group activities/discussion
Equipment and supplies	Computer and projector Flip chart paper Handout: Time and Labor - Scenarios

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Session Objectives

- Understand the relevance of time and labor to the design, use, and dissemination of agricultural technologies.
- Understand how gender differences impact technology design, use, and dissemination.
- Be able to assess the impact of technology on different groups of men's and women's time and labor.

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Time

- Conceptualized in different ways
- Measured
- Lost, spent and gained (shifts)

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Labor

- Physical or mental effort
- Input in the production of goods and services

Characteristics

- Takes time and energy
- Used to perform specific tasks
- Paid and unpaid
- Organized in groups
- Requires different types of knowledge and skills

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Activity: Daily Activity Clocks

1. Divide into five groups
2. Discuss a typical day for a woman or a man farmer in the communities you work with.
3. Draw a circle on the piece of paper representing a clock.
4. Draw what a man or woman farmer does each hour of the day over 24 hours.
5. Indicate which technologies the man or woman uses to perform agricultural tasks.
6. Review each other's Daily Activity Clocks
7. Discussion

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Activity: Daily Activity Clocks

Purpose To become familiar with differences in men's and women's use of time throughout a day.

Format Small group

Timing 20 minutes

Instructions

1) Separate the participants into small groups.
2) Ask participants to discuss a typical day for a woman or a man in the communities they work with.
   a) What does a man do from the moment he wakes up until he goes to sleep? What does a woman do from the moment she wakes up until she goes to sleep?
   b) Using the Daily Clocks ask participants to draw the activities onto the clock hour by hour. Simultaneous tasks can be listed in the same hour block.
3) Ask them to indicate which technologies the man or woman uses to perform agricultural tasks.
   a) Which technologies are they using on the farm?
4) Once everyone has completed their clocks in groups, participants review other groups' daily activity clocks. The Facilitator should prompt participants to take note of similarities and differences between the different activity clocks.
5) Facilitator leads a discussion with everyone about what they observed about the women's and men's daily workloads.
6) Write observations on a flip chart.

Discussion Questions:

General differences:

- What did you notice that was different about women's daily schedules and men's schedules?
- What was different or similar about men's and women's daily activity clocks:
  - Agricultural tasks (time spent and types)?
  - Caregiving/ household tasks (time spent and types)?
  - Leisure time, and sleep (time)?
- What influence does technology have on men's and women's time and labor:
  - What kinds of technologies were men using? Were women using?
  - How could the technology effect men's and women's time differently?

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Discussion Questions

1. What did you notice that was different about men's daily schedules and women's schedules?
2. What was different or similar about men's and women's:
   - Agricultural tasks (time spent and types)?
   - Caregiving/ household tasks (time spent and types)?
   - Leisure time, and sleep (time)?
3. What kinds of technologies were men using? Were women using?
4. How could the technology affect men's and women's time differently?

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Division of Labor between Men and Women

- Socially constructed
- Effected by individual's asset endowment
- Changes over time

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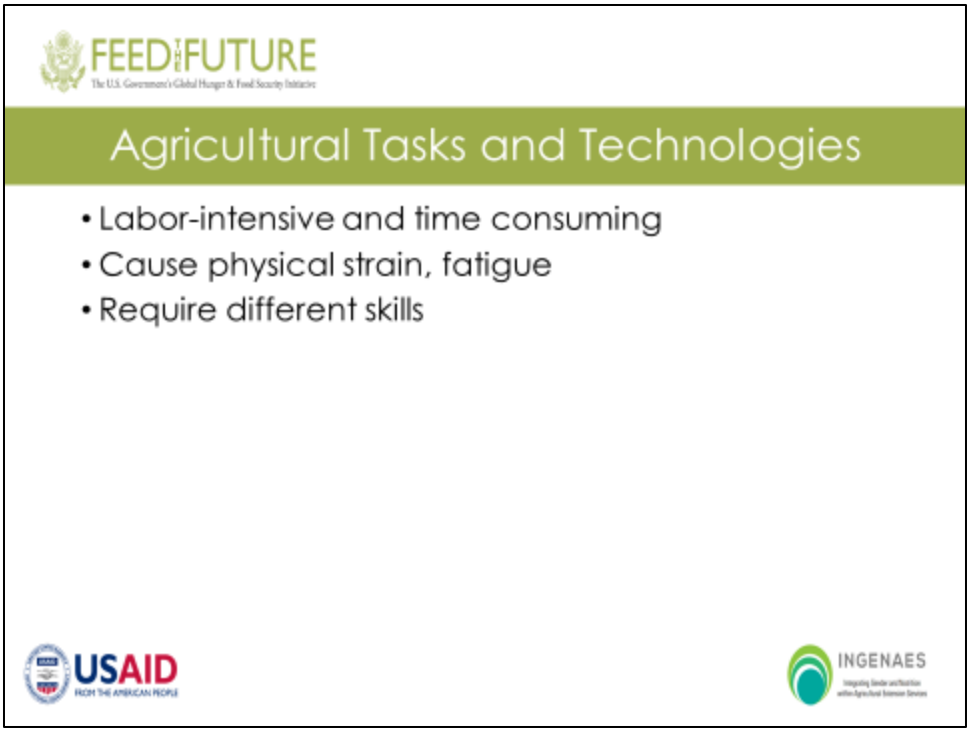
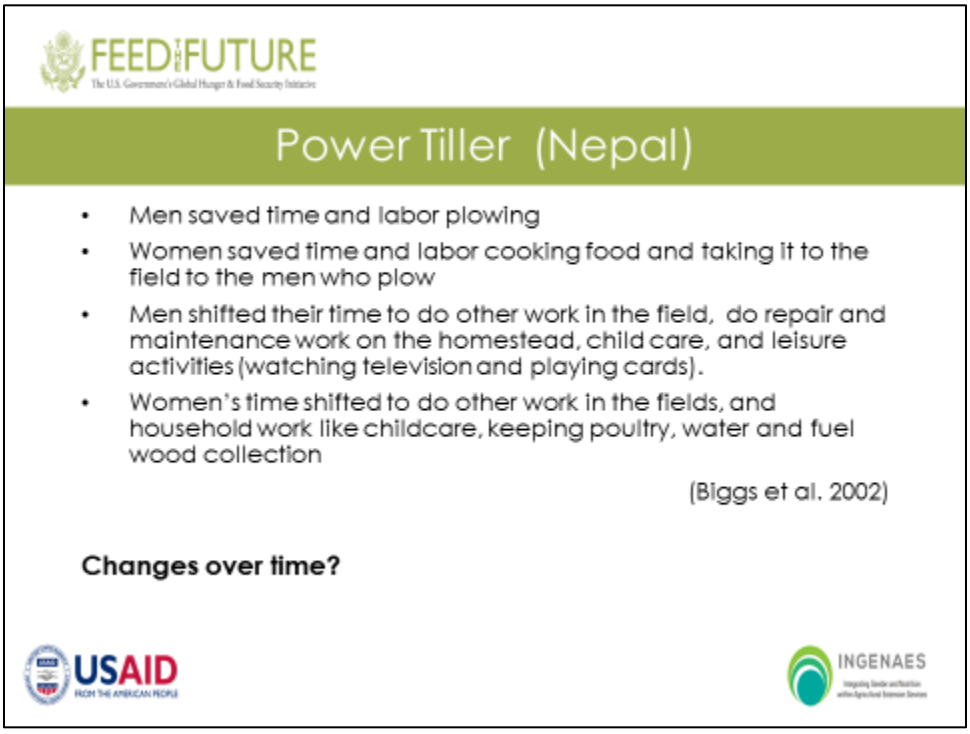


Labor input into rice crop production in Vietnam (person days/hectare)		
Broadcast Method		
Task	Women	Men
Land preparation	3.67	6.53
Seedbed preparation	.57	.70
Sowing	.57	1.73
Gap-filling	14.17	10.03
Hand weeding	13.83	6.90
Fertilizer application	4.70	3.10
Pesticide application	.63	5.40
Irrigation	1.17	3.67
Harvesting	19.03	26.40
Threshing and drying	13.80	14.97
TOTAL	72.14	79.43

Can, M and M. Harti. 2010. Lightening the load. Labor saving technologies and practices for rural women. IFAD and Practical Applications Publishing. Adapted from adapted from Paris and Chi (2005)

Discuss how men spend more time on tasks highlighted in green and women those in yellow. Emphasize that men and women perform similar tasks. Discuss the difference in total person days/hectare between men and women considering differences in men's and women's daily activities.



Explain that while increasingly because of men's migration women are using the power tiller. Discuss what kinds of changes the introduction of a technology can have over time.

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Treadle Pump (Kenya and Tanzania)

- Women made up 10 percent pump buyers.
- Women could easily gain access to pumps through men who owned the pumps.
- Women used pump on irrigated crops like leafy vegetables while men irrigated cash crops sold in bulk .
- After adopting the area irrigated increased and the quantity of crops produced increased.
- Increased time spent on targeted crops.
- Men began marketing crops.

(Njuki et al. 2014)

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Treadle Pump (Kenya and Tanzania)

Changes for Men's and Women's Time and Labor

- Increased sharing of the workload between men and women (two people to operate). Although, men sold crops more than women.
- Reduced drudgery from women fetching water
- Less time for leisure for men and women
- Men stopped selling their labor to other farms and began focusing on
- Men focused on horticulture because it gave them higher income which they used to establish businesses
- Women's time to spend on social activities such as group meetings or choir practice in church reduced
- Children participated in irrigation activities. Play time decreased.

(Njuki et al. 2014)

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Activity: How can technologies affect different types of farmers' time and labor?

Purpose

To consider how technologies affect men's and women's time and labor

Format

Small group

Timing

20 minutes

Instructions

1) Divide into three groups
2) Each group gets one of the three scenarios.
   a) Scenario 1: Poor landless farmers
   b) Scenario 2: Farmers with small landholdings
   c) Scenario 3: Better-off farmers
3) Individuals read the scenarios and then in the group discuss the following questions:
   a) What impact does the technology have on men's time and labor?
   b) What impact does the technology have on women's time and labor?
   c) What information is missing that would be helpful to understand the impact on men's and women's time and labor?
4) Have each group report out on their discussion. They should describe the men and women in their scenario and the effects on men's and women's time and labor after the introduction of the row/drum seeder.

Handout: Time and Labor - Scenarios for Data Analysis Exercise[3]

Scenario 1

Rice is the most important crop of the Mekong Delta farmers in southern Vietnam. The Mekong produces half of the total national rice production. Vietnam has become a major rice exporter with the introduction of high-yielding and short-duration varieties, machinery for land preparation and threshing as well as expansion of irrigation schemes. The plastic row/drum seeder has been promoted in recent years in the region to reduce the seed rate and production costs. The row seeder reduces the seed rate from 200 kg to 80-120 kg/ha. In the region, women and men work together in most rice operations, including land preparation, irrigation, fertilizer application, pesticide spraying and paddy drying. However, women exclusively do gap-filling, hand-weeding and harvesting.

Chi, her husband An and their two sons ages 10 and 12 live a village in the Mekong Delta. They are landless. Recently, many farmers in the village have been using the row seeder for their rice production. Before the introduction of row seeders, Chi worked as a hired laborer gap-filling and hand-weeding. After the introduction of the row seeder the rice plants are growing better and there are fewer gaps to be filled or replanted. Farmers are also using machinery to level the land, which suppresses the weeds and therefore less hand-weeding is needed. Chi is no longer able to find work as a hired laborer. She now goes to villages 100 km from her house to work as a hired laborer weeding fruit trees. She also does the majority of the household work and childcare. Recently, An has found new employment in a factory near Can Tho. Chi has considered working in a factory, but they are too far away from her home and children.

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[3] Adapted from Field Survey data from farmers in Vietnam collected by Paris and Chi. Referenced in Impact of Row Seeder Technology on Women Labor: A Case Study in the Mekong Delta, Vietnam (Paris and Chi 2005).

Scenario 2

Rice is the most important crop of the Mekong Delta farmers in southern Vietnam. The Mekong produces half of the total national rice production. Vietnam has become a major rice exporter with the introduction of high-yielding and short-duration varieties, machinery for land preparation and threshing as well as expansion of irrigation schemes. The plastic row/drum seeder has been promoted in recent years in the region to reduce the seed rate and production costs. The row seeder reduces the seed rate from 200 kg to 80-120 kg/ha. In the region, women and men work together in most rice operations, including land preparation, irrigation, fertilizer application, pesticide spraying and paddy drying. However, women exclusively do gap-filling, hand-weeding and harvesting.

In a poor farming household, Kim and her husband Minh produce rice on 0.4 ha. They have two girls and one boy who are under five years old. In a village in the Mekong Delta region many farmers are applying the row seeder technology which reduces weeds and dead plants. However, they have not adopted the new row seeder technology. Both Kim and Minh supplement their income as hired laborers. Kim used to earn .94 million dong from gap-filling and hand weeding jobs per year. Now, there are fewer opportunities to earn income gap-filling and hand weeding because the rice plants grow better and there are fewer gaps to be filled or to be replanted. Now she earns less money as a hired laborer harvesting rice in another district 70 km away from her village. She also collects field snails from rice plants for income. Both Minh and Kim fish. The fish is primarily used for home consumption. When Kim and Minh are working Kim sends her children to her mother. Minh wants to raise animals at home but does not have sufficient capital.

Scenario 3

Rice is the most important crop of the Mekong Delta farmers in southern Vietnam. The Mekong produces half of the total national rice production. Vietnam has become a major rice exporter with the introduction of high-yielding and short-duration varieties, machinery for land preparation and threshing as well as expansion of irrigation schemes. The plastic row/drum seeder has been promoted in recent years in the region to reduce the seed rate and production costs. The row seeder reduces the seed rate from 200 kg to 80-120 kg/ha. In the region, women and men work together in most rice operations, including land preparation, irrigation, fertilizer application, pesticide spraying and paddy drying. However, women exclusively do gap-filling, hand-weeding and harvesting.

Thi and her husband Lan cultivate rice on their 1.5 ha of land in the Mekong Delta region. Thi and Lan are using the row seeder technology for their rice production. Lan is the only one in the household who operates the row seeder. Row seeders ensure uniformity in seed distribution in rows and therefore lead to uniform rice populations, which makes it easier to control weeds. Before using the row seeder, Thi did hand-weeding in the rice fields twice a season. It took her eight days each time for 1.3 hectares. Now she only has to do it once for six days. After the introduction of the row seeder the rice plants are growing better and there are fewer gaps to be filled or replanted. Now Thi only needs to use 15 days for gap-filling. Before it took twice as much time. Thi now spends more time cooking, taking care of her children and watching television. She also socializes and attends meetings in her village. She also feels healthier and has less back pain from fieldwork. The introduction of the row seeder has reduced overall rice production costs. Lan spends the money saved from reduced production costs to hire labor to prepare the land.

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Linking Time and Labor to the GDF

Access to Assets

- Men's and women's roles influence access, use, and control of technologies.
- Use of technology can shift who is doing what which affects different groups' access to resources.

Practices and Participation

- Technologies can change the amount of time and labor men and women spend on particular tasks.
- Introduction of technologies can change employment opportunities for certain groups.

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Links to GDF

Beliefs and Perceptions

- Beliefs about what is appropriate for men and women to do influence men's and women's access to technologies.
- Social norms can restrict women's time and mobility which may limit their access to shared technologies located far from the home.
- Social norms influence who can access and use technologies which can change time and labor spent on particular tasks for different groups.

Laws Policies and Institutions

- Laws restrict the times women can work.
- Policies may promote women's use of technologies which may change who performs certain tasks.

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Facilitation Techniques

Objectives

- Understand the gender issues of facilitation
- Become familiar with tips for gender-sensitive facilitation

Duration	45 minutes
Format	Discussion and Activity
Equipment and supplies	Computer and projector

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Activity:

- Divide into 4 groups.
- Each group should have a "talking stick."
- The group will discuss each of the questions on the next slide. Each discussion will last for 2 minutes.
- Only the person who has the "talking stick" should speak and everyone should have a chance to speak during the 2 minutes.

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Discussion Questions

- What advice would give to an extension officer about how to conduct a good interview with women farmers?
- What advice would give to an extension officer about how to conduct a good interview with a mixed group of men and women farmers?

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Activity: Conducting Interviews

Purpose	To discuss good interview techniques through a participatory method. To practice good listening skills through the use of a "talking stick."
Format	Small groups
Timing	15 minutes
Instructions	• Divide into 4 groups. • Each group should have a "talking stick." • The group will discuss each of the questions on the "Discussion Questions" slide above. Each discussion will last for 2 minutes. • Only the person who has the "talking stick" should speak and everyone should have a chance to speak during the 2 minutes.

In plenary ask the group each of these questions. Use the subsequent slide to reiterate or clarify key points related to each question.

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Mixed or single sex?
• Are women able to speak openly in front of men?
• Would it be beneficial to understand how men and women interact with each other in public?
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Income and Assets

Objectives

- Understand the relevance of income and assets to the design, use, and dissemination of agricultural technologies
- Understand how gender differences in economic lives impact technology design, use, and dissemination
- Understand how agricultural technologies can contribute to strengthening men's and women's accumulation and control of income and assets
- Be able to identify gender-based constraints related to income and assets that influence technology design, use, and dissemination

Duration	1 hour and 15 minutes
Format	Lecture and small group activity
Equipment and supplies	Computer and projector Handout: Money Management Scenarios

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Session Objectives

- Understand the relevance of income and assets to the design, use, and dissemination of agricultural technologies
- Understand how gender differences impact technology design, use, and dissemination
- Be able to identify gender-based constraints related to income and assets that influence technology design, use, and dissemination

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Income & Assets

- Income: Money received, sometimes on a regular basis, for work or through investments
- Assets: Multi-dimensional stocks of wealth

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Technology – Assets - Income

- Technologies can lead to increases in income and assets
  - Higher productivity – increased income – investments in assets
  - Renting your technological assets – increased income
- Technologies are assets
  - Tractors, pumps, livestock
- Income and assets may be required to acquire or use technologies
  - Direct purchase of technologies
  - As collateral for loans
  - Necessary for using or gaining from technologies (e.g., land, labor, or livestock)

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Key Gender Issues related to Income & Assets

- Gendered patterns of asset accumulation
- Differences in men's and women's income-generating opportunities
- Differences in men's and women's financial responsibilities
- Gender issues in financial management and cooperation

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Gendered patterns of asset accumulation

- Men and women often accumulate different kinds of tangible and intangible assets – Examples?
  - Land
  - Capital and credit
  - New technologies
  - Information and networks
  - Jewelry/livestock
- Men and women accumulate assets in different ways – Examples?
  - Purchase
  - Inheritance
  - Gifts

Gendered patterns of asset accumulation

- Men's and women's asset endowments enable different livelihood strategies
  - E.g., land, credit, networks
- Lack of access to one asset may affect access to other assets
- Men and women value assets differently
  - Jewelry versus land
- Use, control over, and ownership of assets differs by men and women

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Differences in men's and women's income-generating opportunities

Income is generated in different ways depending on an individual's or household's asset portfolio and local norms

- At the production level, men and women produce:
  - Different crops
  - Different volumes of the same crops
  - Crops that are either sold or consumed or both
- These crops generate:
  - Different amounts of income
  - Income at different frequencies

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Differences in men's and women's financial responsibilities

Men and women are often responsible for different kinds of household and investment expenditures

- Agricultural investments
  - New seeds
  - Farm technologies
- Household expenditures
  - School fees
  - Medical

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Gender issues in access to, control over, and use of income & assets

- Access to, control over, and use of income and assets varies
  - Men and women can have different rights to the same asset
  - Men and women can have different rights to different assets
- The person who generates the income is not always able to use or control that income

Control over women's cash earnings, Bangladesh 2011

Percent distribution of currently married women age 15-49 who received cash earnings for employment in the 12 months preceding the survey by person who decides how wife's cash earnings are used

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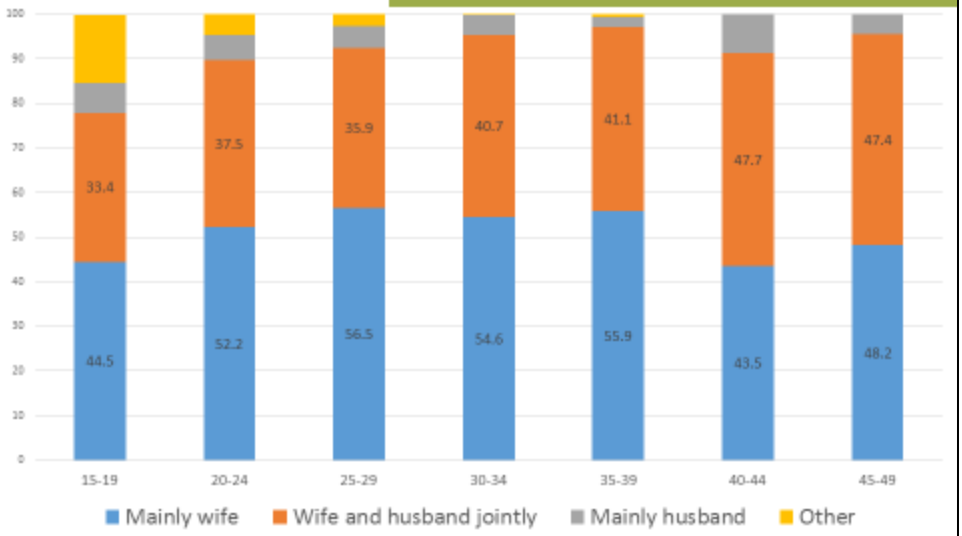
Control over women's cash earnings, Nepal 2011



Percent distribution of currently married women age 15-49 who received cash earnings for employment in the 12 months preceding the survey by person who decides how wife's cash earnings are used

ICF International. 2011. Bangladesh Demographic and health Survey 2011. Rockville, MD: ICF International.

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Gender issues in financial management and cooperation

- Men and women in the same household may be generating income in different ways
- A household may pursue multiple financial management strategies:
  - Pooling income
  - Independently managing income
- Relative strength of cooperation is important to understand how to engage individuals and households in financial and investment decision-making

Johnson, S. Forthcoming. "We don't have this is mine and this is his": managing money and the character of conjugality in Kenya. *Journal of Development Studies.*

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Why do income and assets matter for agricultural technologies?

- Who is the consumer? What do you know about their financial profile?
  - Type of income, when, size
  - Control over that income or other income
  - Same for assets
- How can technologies be designed and disseminated to meet preferences and profiles of different consumer segments?
  - Affordability
  - Suitability
    - How do you package technologies? Does it match the size of people's assets (e.g., land)?
- Whose will benefit financially from the use of the agricultural technologies?

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How do I&A relate to other areas of inquiry?

- Lack of income can reduce women's ability to pay for the use of labor and time-saving technologies
  - E.g., In West Africa there is evidence that women continue to mill or dehull by hand because they can't afford to pay for the services
- Saving time creates new opportunities to generate income
  - Evidence for this is weak
- Access to income can be used to purchase food not produced by the household

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How is the GDF useful for understanding I&A

- How do men's and women's **roles and responsibilities** structure to access to and control over income and assets?
- How do **beliefs and perceptions** shape patterns of access to and control over income and assets?
- How do **laws policies and institutions** structure men's and women's access to and control over income and assets?
  - Access to property
- What **dimension** is missing?

Activity: Money management

- This activity consists of 3 role playing scenarios
- Six volunteers are needed for the activity
- Each pair will be given a husband-wife scenario
- The context for the scenarios is provided on the next slide.

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The context

The rice harvest has just ended and husbands and wives are meeting to discuss how to use the income they will receive after the rice goes to market.

All the women in the scenario produce vegetables for home consumption and sell whatever surplus they have.

You are going to watch three different couples negotiate how to spend the money.

Women's priorities

1. New varieties of vegetable seeds, so that she can increase her homestead production and income
2. School fees for both their daughter and son
3. Jewelry for their 10-year old daughter

Men's priorities

1. New irrigation pump, the old one is broken
2. New power tiller
3. Schools fees for both their daughter and son

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Activity: Money Management

Purpose To understand gender issues in financial management and cooperation.

Format Small groups

Timing 45 minutes

Instructions

- This activity consists of 3 role playing scenarios
- Six volunteers are needed for the activity
- Each pair will be given a husband-wife scenario

Context for the scenarios: The rice harvest has just ended and husbands and wives are meeting to discuss how to use the income they will receive after the rice goes to market. All the women in the scenario produce vegetables for home consumption and sell whatever surplus they have. You are going to watch three different couples negotiate how to spend the money.

Women's priorities

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2. School fees for both their daughter and son
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Men's priorities

1. New irrigation pump, the old one is broken
2. New power tiller
3. Schools fees for both their daughter and son

Handout: Money Management Scenarios

Couple #1

Amrita and Ahmed are a couple with high levels of trust and cooperate around most decisions. They share the details of how much they earned from rice or any surplus of vegetables. They will argue about their priorities but when Amrita and Ahmed take the time to explain their priorities they often come to a solution that works for both of them.

Couple #2

There is very unequal power between husband and wife, Mostafa and Rokeya. Mostafa always decides how the income from rice is going to be used even though Rokeya contributes significantly to post-harvesting activities. When Mostafa and Rokeya come together to discuss the rice income, Mostafa often dominates the conversation. Rokeya tries to explain her needs but gets frustrated and eventually stops talking altogether.

Couple #3

Mahmuda and Shamim have a difficult time coming to agreement about how to spend their income. They do not trust each other and do not reveal to each other how much income each of them has earned. Mahmuda earns very little from her vegetables and hides this from Shamim, and he suspects this. Similarly, Mahmuda knows that Shamim does not tell her the truth about how much income was earned from the rice harvest. They will come to an agreement about how to spend their money but both are often unsatisfied by the outcome.

Knowing how you're doing

Objectives

- Understand the gender issues in designing indicators
- Understand gender-sensitive monitoring

Duration	45 minutes
Format	Lecture and small group activity
Equipment and supplies	Computer and projector

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Session Objectives

- Understand the gender issues in designing indicators
- Understand gender-sensitive monitoring

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"SMART" Indicators

Specific	The indicator clearly and directly measures a specific result for the objective it is measuring.
Measurable	The indicator is unambiguously specified so that all parties agree on what it covers and there are practical ways to measure the indicator.
Achievable	The measurement of the indicator is feasible and realistic, within the resources and capacity of the project/program, and the data are available.
Relevant	The indicator provides appropriate information that is best suited to measuring the intended result or change expressed in the objective.
Time-bound	The indicator specifies the specific timeframe at which it is to be measured.

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Gender-Sensitive Indicators tell us ….

- ***If*** projects are affecting men and women differently
  - Are both men and women participating in project activities?
  - Are both men and women able to implement the recommendations provides or access the services offered?
  - Are both men and women receiving benefits from their participation?
- ***If*** projects are reducing gender disparities
  - Are women's incomes rising? Are they rising relative to men's?
- ***If*** projects are exacerbating existing or creating new disparities
  - Are women's workloads rising? Are they rising relative to men's?

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Gender-"SMART" indicators

Sex-disaggregated	Any indicator about people is sex-disaggregated (M/F).
Mixed methods	Use both qualitative and quantitative methods (including participatory monitoring to collect monitoring data to measure change and elicit explanations of what change means to participants (men and women).
Accurate	Compare like with like. Use appropriate units of analysis. Don't compare households headed by men to those headed by women! The results do not translate to all men and all women.
Reduce gender-based constraints	Measure changes in an identified gender-based constraint, e.g., in access to credit, use of inputs, participation, income, etc.
Time-sensitive	Develop indicators that do not add a large extra time burden to the women from whom data is collected.

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Are your project indicators doing this already?

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Some tips and guidance for creating gender-sensitive indicators

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1. Choose the appropriate unit of analysis

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2. Indicate that individual (or people) - level indicators will be sex-disaggregated

Aim also to disaggregate other indicators by age, caste, ethnicity, and other variables.

3. Collect numbers and narrative

Use a mixture of quantitative and qualitative indicators

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4. Look for opportunities to disaggregate by sex

- Number of improved technologies adopted
- Volume of sales
- Increase in crop productivity

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5. Establish realistic targets

✓Don't be risk-averse and be too cautious
✓Don't be overly ambitious
✓Look for the "just right"

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Gender and technology indicators should measure change in:

- Productivity
- Dietary diversity
- Energy Expenditure
- Time
- Income
- Assets

Activity: Indicator Identification

1. Each group will identify 2 – 3 indicators related to one of the following analytical areas:
   - Food availability, quality, and safety
   - Time and labor
   - Income and assets

2. At least one indicator should be qualitative.

Activity: Indicator Identification

Purpose	To demonstrate understanding of the gender-smart indicators.
Format	Small groups
Timing	20 minutes
Instructions	1) Divide participants into small groups. 2) Each group will identify 2 – 3 indicators related to one of the following analytical areas: a) Food availability, quality, and safety b) Time and labor c) Income and assets 3) At least one indicator should be qualitative.

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Reflection

Divide into two groups and make two circles. One circle should all have their backs to each other, the other should create a larger circle facing them.

The inner circle individuals will take 1.5 minutes to share their reflections about the questions below. When the chime rings, the inner circle individual can ask the person questions.

Reverse roles. Repeat by having the inner circle move one space to the right.

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Reflection Questions

- What did you enjoy about today?
- What did you find useful today?
- What questions emerged for you today?

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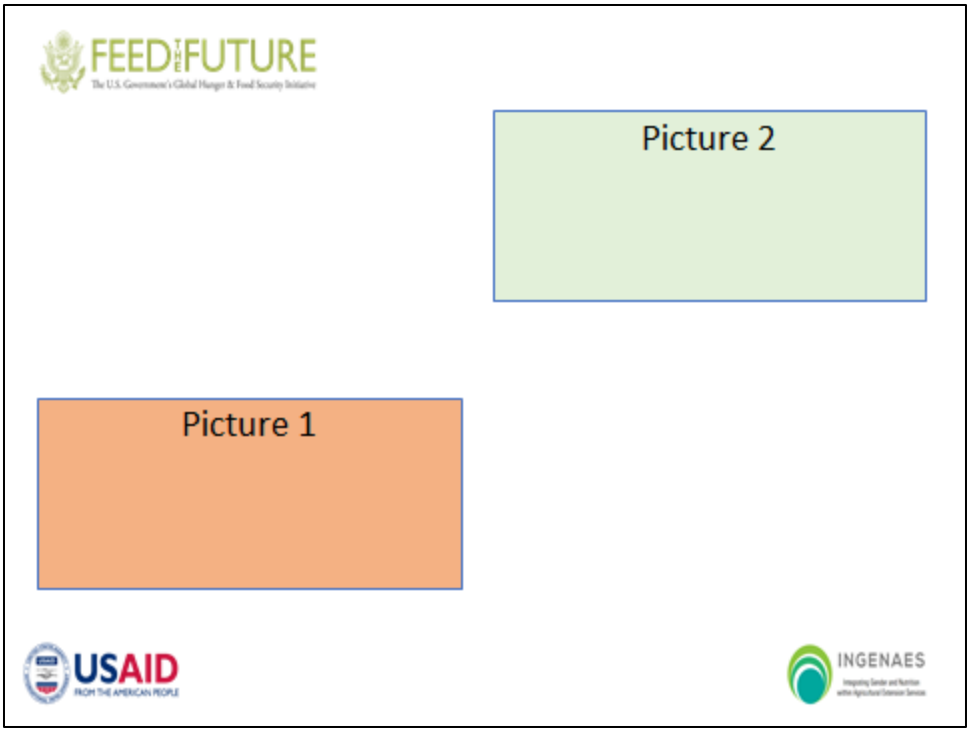
Day 3		
Time	Topics	Activities
9:00 – 9:45	**What you see is what you get?**	Activity: What you see is what you get?
9:45 – 11:00	**Questionnaire Review**	Review of technology developer questionnaire and farmer questionnaires
Break (15 minutes)		
11:15 – 12:00	**Understanding the gender dimensions of questions**	Review of technology developer questionnaire and farmer questionnaires by gender dimension
Lunch (1 hour)		
1:00 – 3:30	**Collecting data about gender relations in technology design, use, and dissemination**	Interview technology developers. Groups can interview two developers (45 min each)
Break (15 minutes)		
4:15 – 5:00	**What do we know now that we didn't know before?**	Debrief on interviews

What you see is what you get?

Objectives

- Become aware of our perceptions and biases in data collection
- Understand the importance of data collection and analysis for understanding gender roles and relations

Duration	45 minutes
Format	Small group activity with plenary discussion
Equipment and supplies	Computer and projector Two flipcharts with markers



Activity: What you see is what you get?

Purpose To reflect upon challenges related to data collection and analysis

Format Small groups

Timing 45 minutes

Instructions

1. Divide the participants into two groups. Have each group select an Artist. The flipcharts should be positioned so that when the Artists stand in front of them their backs are to the screen and they cannot see what's on it. The rest of the group should stand facing the screen, but on the other side of the flipchart, so that they cannot see what the Artist is drawing.
2. There will be two different images on the screen. Each group will be assigned to draw different images. Each group will need to describe the picture that appears on the screen. The Artist will draw what he/she hears. The Facilitator will review the rules below making sure that everyone is clear about what they can and cannot do. Ask the participants to repeat the rules.
    a) Rule #1: The Artist is only allowed to draw and is not allowed to speak.
    b) Rule #2: The Artist cannot turn around and look at the screen.
    c) Rule #3: The rest of the group cannot look at what the Artist is drawing.
3. The Artist and his/her group will have five (5) minutes to describe

and draw what they see.

4. When the time is up, ask the Artists and the group the questions below. The Facilitator can ask the questions first and then have the participants look at the picture or have everyone come and look at the pictures right away.

   a) What was difficult about drawing (or describing) the picture?

   b) What do you notice about the drawings?

   The Artist may have difficulty drawing objects to scale or correctly positioning them in relation to other objects in the painting. You may select one image which is more abstract than the other making one of the pictures more difficult to draw than the other.

Questionnaire Review

Objectives

- Understand the intent of questions in the interview guide
- Revise and adapt interview guides

Duration	1 hour 15 minutes
Format	Small group activity and discussion
Equipment and supplies	Computer and projector Handout: Interview guides[4]

Activity: Understanding the gender dimensions of questions

Purpose

To understand how each question in the interview guide relates to the gender dimensions framework and the three areas of inquiry.

Format

Small group

Timing

15 minutes in small group activity (30 minutes report out for each questionnaire)

Instructions

1. Divide into four groups. Distribute the Handout: Interview Guides. .
2. For each question, two groups will identify how each question relates to one of the dimensions of the Gender Dimensions Framework (GDF). The other two groups will identify how each question relates to the three areas of inquiry. You may choose to assign each group a different questionnaire in the guide or have each group work on the same questionnaire.
3. During the report out, review most of the questions in each of the questionnaires. If the groups were divided in a way that each group reviewed only one questionnaire, it is important to dedicate the time to review all of the questions in plenary. This is to ensure that all participants become familiar with the questionnaires.
4. The Facilitator can design alternative strategies for reviewing the questions. The main purpose of the exercise is to ensure that participants are able to make the connection between the questions and the GDF and the three areas of inquiry which are used to both structure the questions and for data analysis.

[4] The interview guides used here are taken from Rubin, D., C. Nordehn, C. Manfre, and K. Cook. Forthcoming. Assessing whether agricultural technologies are gender-responsive and/or nutrition-sensitive: A guide. Washington, DC: USAID.

Activity: Collecting data about gender relations in technology design, use, and dissemination

Purpose	To practice data collection for a gender and agricultural technology assessment
Duration	Depends on the number of actors to be interviewed. Schedule 1 hour for individual interviews and between 90 minutes and 2 ours for group interviews.
Format	Interviews with technology developers
Equipment and supplies	Handout: Interview guides
Instructions	The design of this activity will depend on a number of variables. Ideally interviews can be scheduled where the actors live or work. This means scheduling sufficient time to travel to the interview site and conduct the interview. Interviewees can be brought into the workshop but the experience is enriched, and the participants also enjoy, the opportunity to leave the classroom setting and travel to the field. Participants need to be organized into groups prior to traveling to the field. Each group needs 10 -15 minutes to organize itself. Groups need to identify who will be asking questions, who will be the note taker, and other logistics.

What do we know now that we didn't know before?

Objectives

- To reflect upon the gender-related content of information coming from interviews
- To reflect upon the opportunities and limitations of the data collected

Duration	75 minutes
Format	Small group activity and discussion
Equipment and supplies	Flip charts

Day 4		
Time	Topics	Activities
9:00 – 2:00	**Interviews with farmers**	Includes lunch
2:00 – 3:30	**What we do know now that we didn't know before?**	Debrief on interviews
Break (15 minutes)		
3:45 – 5:00	**Analyzing the gender and nutrition dimensions of a technology**	Development of key components of a technology profile Small group work

Activity: Collecting data about gender relations in technology design, use, and dissemination

Purpose	To practice data collection methods for a gender and agricultural technology assessment
Duration	Depends on the number of actors to be interviewed. Schedule 1 hour for individual interviews and between 90 minutes and 2 ours for group interviews.
Format	Interviews with technology users
Equipment and supplies	Handout: Interview guides
Instructions	The design of this activity will depend on a number of variables. Ideally interviews can be scheduled where the actors live or work. This means scheduling sufficient time to travel to the interview site and conduct the interview. Interviewees can be brought into the workshop but the experience is enriched, and the participants also enjoy, the opportunity to leave the classroom setting and travel to the field. Participants need to be organized into groups prior to traveling to the field. Each group needs 10 -15 minutes to organize itself. Groups need to identify who will be asking questions, who will be the note taker, and other logistics.

What do we know now that we didn't know before?

Objectives

- To reflect upon the gender-related content of information coming from interviews
- To reflect upon the opportunities and limitations of the data collected

Duration	1 hour 30 minutes
Format	Small group activity and discussion
Equipment and supplies	Flip charts

Activity: Analyzing the gender and nutrition dimensions of a technology

Purpose	To develop a technology profile considering the Gender Dimensions Framework and three areas of inquiry
Duration	75 minutes
Format	Small group activity
Equipment and supplies	Computers for small groups
Instructions	1. Divide participants into small groups. Groups should be divided into small groups based on the types of technology their organizations disseminate. 2. Each group will develop a Technology Profile using the Template: Technology Profile. The profile include: a) Name of the technology b) Purpose of the technology c) Assumptions a project has about women using the technology d) Assumptions a project has about men using the technology e) Strategy for testing those assumptions 3. Time for discussion will be allowed on Day 5.

Template: Technology Profile

Purpose of the technology(ies)

Project Assumptions about Women

Project Assumptions about Men

How we are going to test our assumptions

Day 5		
Time	Topics	Activities
9:00 – 10:00	**Finalize work on technology profiles and begin Action Planning**	Small and individual group work
10:00 – 10:30	**Technology Profiles Presentations and Action Plan Commitments**	Presentation of technologies and action plans
Break (15 minutes)		
10:45 – 11:30	**Technology Profiles Presentations and Action Plan Commitments**	Presentation of technologies and action plans
11:30 – 12:00	**Wrap up and concluding remarks**	Present certificates, share materials, and other concluding remarks
Lunch (1 hour)		
1:30	**Departure for Dhaka**	End of workshop

Activity: Analyzing the gender and nutrition dimensions of a technology

Purpose

To develop a technology profile considering the Gender Dimensions Framework and three areas of inquiry

Duration

30 minutes

Format

Small group activity

Equipment and supplies

Computers for small groups

Instructions

1. Continue small group work to develop a Technology Profile using the Template: Technology Profile. The profile include:
   a) Name of the technology
   b) Purpose of the technology
   c) Assumptions a project has about women using the technology.
   d) Assumptions a project has about men using the technology
   e) Strategy for testing those assumptions.
2. Presentation of the technology profiles

Note: Presentation of Technology Profiles and Action Plans may be done at the same time at the end of the workshop. 90 minutes is allocated for these presentations.

Activity: Action Planning

Purpose

Develop an action plan for applying knowledge and skills learned during the workshop to individuals' institutions and projects

Duration

30 minutes

Format

Individual

Equipment and supplies

Computers

Instructions

1. Participants outline concrete actions they will take to apply knowledge and skills from the workshop to better address gender issues in their institutions and projects.
2. Presentation of Action Plans

Note: Presentation of Technology Profiles and Action Plans may be done at the same time at the end of the workshop. 90 minutes is allocated for these presentations.

Self-Assessment Questions for Addressing Gender Issues in Technology Design, Use, and Dissemination

Pre-test: Addressing Gender Issues in Technologies Design, Use, and Dissemination

Questions	Related Learning Objective	Scoring (10 points total)
1. Read the following statement(s) and circle whether they are true or false: Technology adoption is a social process. **True** or False Improving women's land ownership is the most important strategy for closing the gender gap in agricultural productivity. True or **False** Men farmers are more inclined to adopt technologies than women farmers. True or **False**	Be able to identify drivers of technology adoption. Be able to identify gender issues in technology adoption.	1 point for each correct answer (3 points total)
2. Which of the following is NOT a strategy for reducing the gender gap in agricultural productivity? a) Increasing women's access to extension and advisory services **b) Improving men's knowledge of nutrition** c) Ensuring women are able to take advantage of agricultural credit opportunities d) Adapting technologies to meet women's needs and preferences	Be able to identify gender-related challenges and opportunities in agricultural development.	1 point

<table>
<tr><td>e) All of the above

f) None of the above</td><td></td><td></td></tr>
<tr><td>3. Read the following statements and indicate whether they refer to “sex” or “gender.” Mark an X in the appropriate column.

<table><tr><th>Statements</th><th>Sex</th><th>Gender</th></tr><tr><td>a. Women give birth to children, men do not.</td><td>X</td><td></td></tr><tr><td>b. Men are more responsible for generating income for the household than woman.</td><td></td><td>X</td></tr><tr><td>c. Women are better at negotiating prices than men.</td><td></td><td>X</td></tr><tr><td>d. Men’s voices change with puberty.</td><td>X</td><td></td></tr></table></td><td>Understands key gender concepts</td><td>1 point for every correct answer (4 points total)</td></tr>
<tr><td>4. Name three challenges women face in acquiring agricultural technologies.</td><td>Be able to identify gender issues in technology adoption.</td><td>Unscored</td></tr>
<tr><td>5. Name three challenges men face in acquiring agricultural technologies.</td><td>Be able to identify gender issues in technology adoption.</td><td>Unscored</td></tr>
<tr><td>6. Read the following statement and circle whether it is true or false:
Disaggregating indicators by the sex of the head of the household is appropriate for understanding gender differences.

True or False</td><td>Understands gender issues in designing indicators.</td><td>1 point</td></tr>
<tr><td>7. Mary Smith is an engineer at Agownia Agricultural and Mechanical University and is developing a mill to be introduced to women’s groups in three communities. She has successfully engineered a mill that will reduce the time required to mill by 50%. Six months after the mills were introduced to the communities, Dr. Smith conducted a field visit and</td><td>Understands gender-based constraints related to technology use and adoption.</td><td>1 point</td></tr>
</table>

found that the mills had not been used at all. What are the possible reasons that the technology was not adopted? a. Women were unable to pay for the cost of use. b. Women found it physically difficult to operate. c. Women complained that the milled grain was too coarse. d. Men were taught to operate and maintain the mill. e. None of the above. **f. All of the above.**		

Post-test: Addressing Gender Issues in Technologies Design, Use, and Dissemination

Questions	**Related Learning Objective**	Scoring (10 points total)
1. Name two (2) ways extension and advisory services support the design and dissemination of agricultural technologies. a. b.	Be able to describe relationships between agricultural technologies and EAS.	1 point (1/2 point each)
2. Name the four (4) dimensions of the Gender Dimensions Framework: **a. Access to Assets** **b. Practices and Participation** **c. Beliefs and Perceptions** **d. Laws, Policies, and Institutions** 3. Name the three (3) analytical areas that are part of the technology assessment: **a. Food availability, quality, and safety** **b. Time and Labor**	Be able to identify key analytical components of the GDF. Be able to identify key analytical components of the technology assessment.	1 point (.25 point for each correct dimension)

c. **Income and Assets**		
4. In the country of Agownia, women are heavily involved in dairy activities. Relative to men, women have less access to veterinary services and information and this has impacts on the health and productivity of the cows for which they care. These services are often available at milk collection points. Women also have greater difficulty selling milk because milk collection points are often too far from their homes. This is likely because social norms limit both their mobility and time. What information in the paragraph above is about access to assets? What information in the paragraph above is about practices and participation?	Be able to apply the GDF.	1 point (1/2 point for each answer)
5. Read the following statement and circle whether it is true or false: *Disaggregating indicators by the sex of the head of the household is appropriate for understanding gender differences.* True or **False**	Understands gender issues in designing indicators.	1 point
6. Draw a line from the concept to its corresponding definition: Gender equality Sex Gender • Fairness in men's and women's representation, participation in and benefits to opportunities • Biologically defined and genetically acquired differences between males and females • The ability of men and women to have equal	Be able to define key concepts.	1 point (.25 point for each correct answer)

Gender equity opportunities and life chances • Socially defined and culturally learned differences between men or women		
7. Mary Smith is an engineer at Agownia Agricultural and Mechanical University and is developing a mill to be introduced to women's groups in three communities. She has successfully engineered a mill that will reduce the time required to mill by 50%. Six months after the mills were introduced to the communities, Dr. Smith conducted a field visit and found that the mills had not been used at all. Circle all the possible reasons for why the technology was not adopted. **i. Women were unable to pay for the cost of use.** **ii. Women found it physically difficult to operate.** **iii. Women complained that the milled grain was too coarse.** **iv. Men were taught to operate and maintain the mill.** v. None of the above.	Understands gender-based constraints related to technology use and adoption.	1 point (.25 point for each correct answer)
8. Draw a line from statement about why women did not adopt the mill in Agownia in the left column, to the corresponding area of inquiry in the right column. • Women are unable to pay for the cost of use. • Women complained that the milled grain was too coarse and too soft • Laws, policies, and institutions • Time and Labor • Income and Assets • Food availability,	Be able to associate key areas of inquiry with barriers to adoption of a technology.	3 points (1 for each correct associate)

when cooked. • Women found it physically difficult to operate.	quality, and safety		

Annex A: Data Collection Tools for Technology Assessment[5]

Technology Overview Questionnaire

Introduction

•We are conducting research about new agricultural technologies to improve men and women's farming businesses.

•We would like to talk to you about the [targeted technology]. [6]

Individual Details			
Name:			
Sex:		Position:	
Organization:		Project:	
Name of technology:			

1. Please describe the [targeted technology].
    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 indicators are you collecting about the [targeted technology]?[7]
    a. Reference the FTF indicators.
7. In your opinion, how will the [targeted technology] affect women farmers?

[5] The interview guides used here are taken from Rubin, D., C. Nordehn, C. Manfre, and K. Cook. Forthcoming. Assessing whether agricultural technologies are gender-responsive and/or nutrition-sensitive: A guide. Washington, DC: USAID.
[6] Use the name of the targeted technology wherever 'targeted technology' is listed.
[7] Alternative phrasing for this question can be: What do you consider success with this technology?

8. In your opinion, how might the [targeted technology] affect the nutrition of those applying the technology or associated with its use?

Extension Officer/Dissemination Agent Questionnaire

•We are conducting research about how men and women farmers use new technologies to improve their farms and farming businesses.

•We would like to talk to you about your experiences disseminating technologies to farmers.

Name of interviewer:

Date:

Individual Details			
Name			
Sex		Age	
Location			
Years of schooling		Number of contact farmers responsible for	
Name of the technology		Targeted crop(s)[8]	

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

[8] Some technologies may be used with multiple crops.

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:

   d. Directions from the Ministry/NGO/project
   e. Consultation with farmers
   f. 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
   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

[9] Use the name of the targeted technology wherever 'targeted technology' is listed.

[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 Questionnaire[11]

•We are conducting research about how men and women farmers use new technologies to improve their farms and farming businesses

•We would like to talk to you about your farming business and have a set of questions for you.

Name of interviewer:

Date:

Individual Details			
Name			
Sex		Age	
Location		Name of association (if applicable)	
Years of schooling			
Name of the technology		Targeted 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 benefits[14] of the [targeted technology]?
   Prompts
   a. Reduces time spent performing the task
   b. Reduces difficulty of work
   c. Increases yield

[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.

    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]?
   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 to 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:

[15] Clarify with interviewer what management means.

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?
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. Are you consuming more nutritious food as a result of the [targeted technology] (e.g. more diverse foods such as dairy, meat, vitamin-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.

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.