

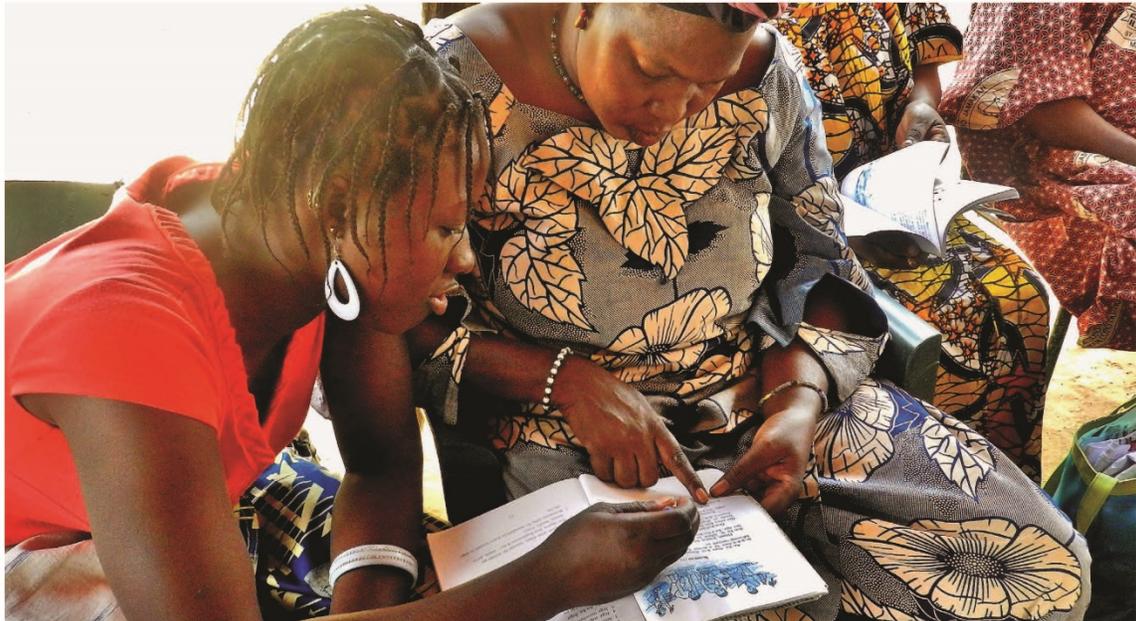


**FEED THE FUTURE**

The U.S. Government's Global Hunger & Food Security Initiative

# PERFORMANCE MONITORING

PARTICIPANT MANUAL



**USAID**  
FROM THE AMERICAN PEOPLE





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August 2016



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- Collect performance monitoring data
- Verify performance monitoring data
- Report and use performance monitoring data
- Submit open data

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Sincerely,

*Anne Swindale*  
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*Salik Farooqi*  
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# Agenda



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## Agenda

Day	Monday	Tuesday	Wednesday	Thursday	Friday
<b>Morning</b> 	<b>Understanding FTF Monitoring and Evaluation Framework</b>	<b>Standard Indicators Custom Indicators</b>	<b>Collecting Performance Monitoring Data</b>	<b>Verifying Performance Monitoring Data</b>	<b>Submitting Open Data</b>
<b>Afternoon</b> 	<b>Developing Your Activity Theory of Change and Results Framework</b>	<b>Beneficiaries, Baselines and Targets</b>	<b>(continued)</b>	<b>Reporting and Using Performance Monitoring Data</b>	<b>Application Back on the Job</b>



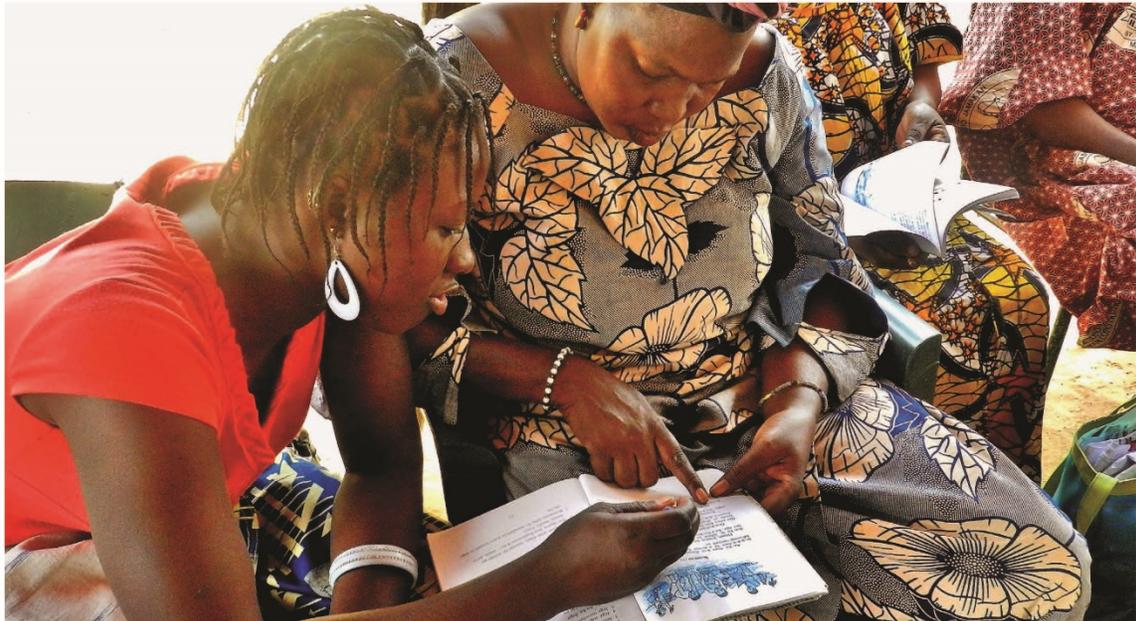


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SESSION I:

## **Understanding FTF Monitoring and Evaluation Framework**



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## Using Monitoring and Evaluation for Adaptive Strategic Management

### First Monitoring Assignment



Candy	Blue	Orange	Green	Yellow	Red	Brown	Total
Milk Chocolate	24%	20%	16%	14%	13%	13%	100%
Peanut	23%	23%	15%	15%	12%	12%	100%
Kids Minis	25%	25%	12%	13%	12%	13%	100%
M&M Dark	17%	16%	16%	17%	17%	17%	100%
Peanut Butter	20%	20%	20%	20%	10%	10%	100%
Almond	20%	20%	20%	20%	10%	10%	100%

With your team:

- Calculate the % of colors in your bag (Note: Participants should not eat any M&M's until you have completed this part of the exercise.)
- Create a visual of your data
- Explain if Mars hit its targets
- Prepare a 2 minute report to share in plenary

**Notes:**

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## First Evaluation Assignment

Looking at all the monitoring data the teams collected, is Mars meeting its targets?  
Write a short report to Mars summarizing your team's conclusions.

**Notes:**

## First Theory of Change Assignment:

Why do you think the different candies have different percentages of each color? What is your Theory of Change?

With your group, prepare a 2-minute presentation.

**Notes:**



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## First Collecting Beneficiary Data Assignment

What is your favorite M&M color?  
Circle your preferred color.

Red 	Blue 	Orange 
Yellow 	Brown 	Green 



## Individual Application



Individual  
Exercise

Think about one of the FTF initiatives you are working on. How could you use monitoring and evaluation to more strategically manage the initiative?

**Notes:**

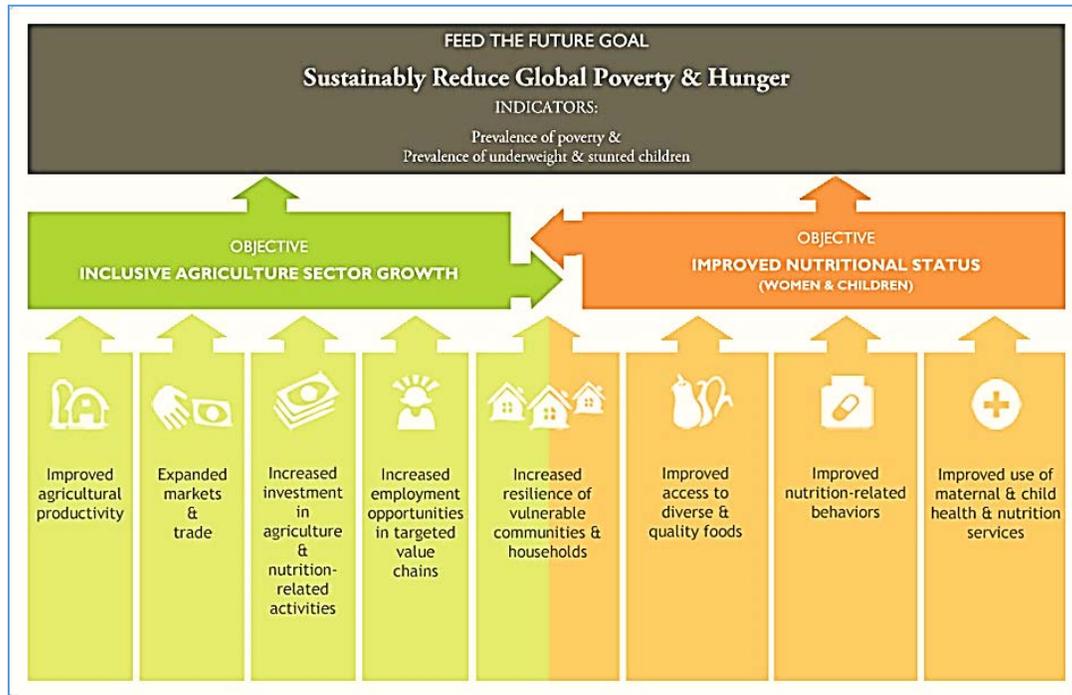
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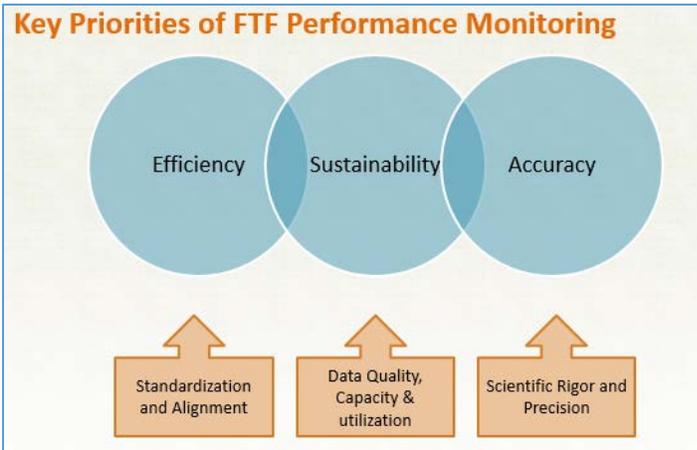
## Feed the Future Monitoring and Results Framework

### FTF Monitoring, Evaluation and Learning Framework



**Notes:**

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### Three Classes of Monitoring Indicators

Indicator Type	Population	Collection Method	Collection Frequency	Example
ZOI	Population of the ZOI	Population-Based Survey	Baseline, mid-term, final	Prevalence of Poverty
NTL	National/Regional Conditions	Secondary Data Sources	Annually	Percent change in Ag GDP
IM	USG Direct Beneficiaries	Implementing Partners	Annually	Gross margin

*\* See indicator handbook for which indicators fall into each class*

---

### Performance Indicators

**16** population level in FTF Zone of Influence  
(population- based survey)

**4** national/regional level (existing sources)

**33** project level (implementers)

**53** total FTF Indicators

### Learning Agenda Themes

Ag  
Productivity

Ag Research  
and  
Development

Markets and  
Trade

Nutrition and  
Dietary  
Diversity

Gender and  
Women's  
Empowerment

Resilience of  
Vulnerable  
Populations

---

## PFS MEL Technical Advisors:

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**Monitoring, Evaluation and Learning**

**Bureau of Food Security**

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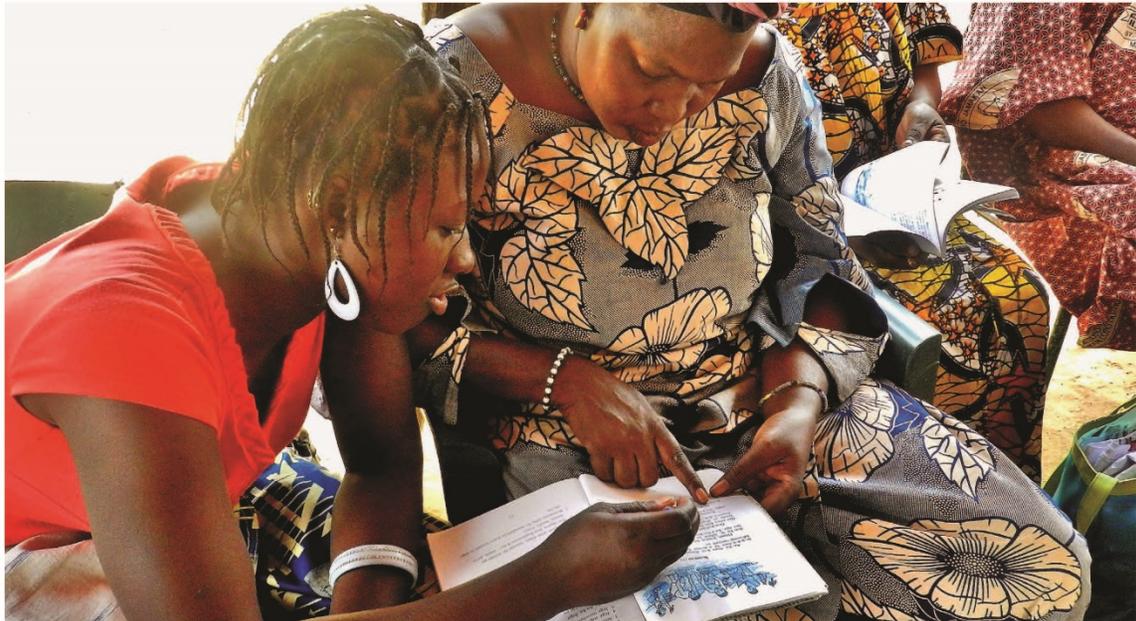


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## SESSION 2:

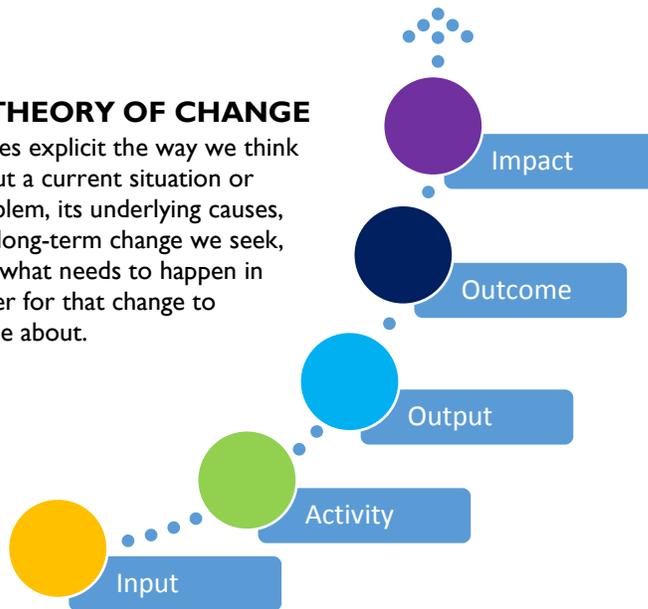
# Developing Your Activity Theory of Change and Results Framework



## Theory Change

### A THEORY OF CHANGE

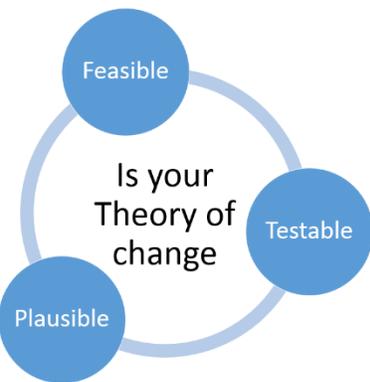
Makes explicit the way we think about a current situation or problem, its underlying causes, the long-term change we seek, and what needs to happen in order for that change to come about.



### Notes:

#### 7 Elements of a Theory of Change:

1. Problem statement
2. Causal analysis
3. Long-term goal
4. Pathways of change
5. Assumptions
6. Stakeholder analysis
7. Interventions



**Plausible:** the hypotheses of change, the pathway of change, assumptions, stakeholder analysis, and chosen interventions are based on evidence that supports the definition of the problem, its diagnosis, and the likelihood of success of the identified solution

**Feasible:** the identified solutions and interventions are those that are within your manageable interest within a specified time period, taking into account all assumptions and stakeholder interests

**Testable:** The hypothesis that supports the theory of change, and the assumptions underlying it, can be verified and validated through application or experimentation (e.g. with a pilot intervention)

## Case Study: Feed the Future Aredonia Nutrition-Sensitive Value Chain Activity (NUTSENAG)



**Objectives.** NUTSENAG’s goal is to advance food security and nutrition in farming households while reducing rural poverty through an agriculture-led, integrated economic growth, nutrition, and natural resource management strategy. The activity targets three primary value chains: groundnuts, soybeans and maize. The first two value chains were selected because they promise high economic and nutritional return on investment. Groundnuts are commonly consumed and predominantly cultivated by women. Soy is also predominantly cultivated by women. While soy consumption is not currently widespread, significant growth through soy processed products (soy “meat”, flour and milk, especially) is possible. Maize is the primary staple crop, yet few small- and medium-sized landholders produce sufficient quantity to assure household food security and supplemental income through its sale. Without increases in maize yields, farmers are less likely to divert land to cultivate soy or groundnuts.

NUTSENAG’s objectives are to:

1. Improve productivity (land, water, labor) through application of improved technologies and soil and water management practices
2. Increase competitiveness of the legumes (i.e., groundnuts and soybeans) and maize value chains to mitigate food insecurity and increase incomes of the rural poor
3. Increase access to effective community-based nutrition-specific interventions
4. Increase access to health and nutrition services
5. Enhance capacity of local organizations and institutions to promote sustainability

---

**Target Population.** NUTSENAG targets “the poor with assets” for value chain interventions.

These are households that theoretically have sufficient agricultural assets to benefit economically from expanding and diversifying production yet remain vulnerable to external shocks, such as climatic or economic turbulence. Specifically, the NUTSENAG value chain activities target households that:

- Cultivate between 1.25 to 3 acres (0.5 to 1.2 hectares) of land;
- Have the potential to increase maize productivity and to free up land for crop diversification to legume production; and
- Have the potential for linking to markets.

NUTSENAG nutrition interventions target the entire community in all communities where value chain interventions are being implemented, with an emphasis on women and children in the 1,000 day window from conception through two years of age (i.e. pregnant and lactating women and children under two years of age). NUTSENAG’s health interventions target women and children under five.

**Theory of Change.** NUTSENAG assumes that value chain activities targeting nutrient-rich products will improve household nutrition. The focus on groundnuts and soybeans will contribute to a diversified diet, improve protein in the diet, and reduce stunting. Moreover, the increased availability of nutritious foods resulting from value chain interventions is expected to reinforce nutrition efforts. Increased use of inputs such as a range of improved land preparation and management practices, improved seed varieties, inoculants (for soy), and integrated pest management will increase legume and maize productivity. Higher maize productivity will decrease land needed for maize production and increase land made available for soy and groundnut cultivation. Higher production of the nutrient-rich legume commodities will lead to increased home consumption among producer households. Improved harvesting and drying technologies and post-harvest handling and storage practices, increased processing, and better marketing strategies targeting the major cities and the local communities will lead to higher farm income, which will lead to increased household consumption and increased supply of safe, high-quality nutritious foods. Expanded community-level processing and greater availability of legumes and legume products in the market will lead to greater access to and consumption of these products to all households at community-level. Increased food production and income for farmers, and greater availability of safe nutritious food products in the market for everyone should lead to greater household food security, enhanced dietary diversity, and, to some extent, improved nutrition.

The value chain interventions will help address the underlying causes of malnutrition, such as scarcity of assets including food and income, but they are often not sufficient by themselves to improve nutrition. Improvements in pregnant and lactating women and infant and young child feeding and health-seeking behaviors and in access to health and nutrition services including treatment for severe acute malnutrition, will address barriers to improved utilization that are needed to translate improvements in household access to more and better quality food into improvements in nutritional status of women and children.

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**Interventions.** NUTSENAG aims to strengthen local implementing partner capacity to provide both agriculture and nutrition support to its members and member communities. At a community level, NUTSENAG works through their main implementing partner, Aredonia National Smallholder Farmer Association (ANSFA). ANSFA provides training and support to Lead Farmers of commodity-specific farmer’s clubs for soy, groundnut, and maize. ANSFA also links its Lead Farmers to public and private sources of agricultural extension for example, Ministry of Agriculture extensionists or agriculture input dealers. ANSFA promotes a range of agricultural technologies and practices for groundnut, soybean and maize value chains. These include the introduction of land preparation practices, improved seed varieties, cultivation practices, harvesting and drying practices, post-harvest practices and processing, storage, and marketing. ANSFA-supported farmers are offered free groundnut and soybean seeds via a Seed Recovery System. After harvest, farmers “repay” this loan with 2 kg for every kilogram they receive. Along with distributing soybean seeds, ANSFA promotes the use of and distributes soybean inoculum that should boost production by approximately 20 percent.

NUTSENAG supports improved off-farm storage and collective marketing predominantly through its partner the Aredonia Commodity Exchange (ACE). ACE is an agricultural commodity platform that operates in the spot and forward markets. It gives small-scale farmers leverage in negotiating for their crops by providing them with reliable market information. ACE also offers three services to NUTSENAG beneficiaries: the warehouse receipt system (WRS) allows farmers to store and sell grain at their convenience with a receipt that can be used as a collateral for short-term loans; auctions to sell; and an option whereby buyers and sellers trade during a live electronic auction. ACE relies on ANSFA to advertise its marketing and warehousing services to its farmers. Farmers can access ACE directly or via ANSFAMKT, the commercial branch of ANSFA, which aggregates and purchases farmers’ crops and sells them through ACE.

NUTSENAG integrates nutrition education and outreach and water and sanitation interventions with value chain interventions to improve household nutrition, health and hygiene practices, with the goal of improving maternal and child nutrition. The primary mechanism for nutrition advocacy, education and mentoring is social and behavior change peer education through Community Care Groups (CCG). The CCG is a group of 10-12 Lead Caregivers, the so-called Care Group Volunteers. Each CGV provides an array of nutrition and health education activities through group meetings and household visits to a locally formed group of 10 mothers/caregivers. Twice monthly nutrition activities include promotion of healthy habits and practices, consumption of fortified and diverse foods, cooking demonstrations, growth monitoring of children, and referral to health/nutritional facilities.



At a community level, NUTSENAG promotes increased consumption of locally adapted, diverse sources of nutrient-dense foods through support for backyard gardens based on locally available commodities, improved post-harvest handling and storage practices to reduce loss and aflatoxin, soy and groundnut processing, nutrition education through drama and other approaches, child health days,

and screening and referrals for therapeutic feeding for children suffering from severe acute malnutrition.

The value chain interventions serve as a platform on which to build nutrition activities. The primary point of integration between the nutrition and value chain activities is at the level of ANSFA's Group Action Committees (GACs). ANSFA's Gender and Nutrition group at the GAC level receives capacity building support from NUTSENAG's nutrition technical partner GOODNUT. Each ANSFA farmer's club assigns one representative to ANSFA's Gender and Nutrition group. The farmers' club representative receives training from the Gender and Nutrition Group to work with the Village Development and Health Committees, in collaboration with Ministry of Agriculture extensionists and Ministry of Health Surveillance Assistants, to 1) organize a series of activities aimed at improving access to diverse and quality diets and to key nutrition and health services and improving knowledge and norms to support better nutrition for all community members, and 2) create and support the CCG that provide a focus for implementing the Essential Nutrition Actions targeted at the 1,000 day period. The CCGs and community organizations are also linked with Ministry of Health Surveillance Assistants to support community sensitization, outreach and active case finding of acute malnutrition, and to support child health days, deworming, etc.

**Coverage.** Throughout the life of the project, NUTSENAG seeks to reach at least 275,000 rural households through agriculture-based or nutrition interventions or both and at least 175,000 children under 5 through targeted nutrition-specific and nutrition-sensitive interventions. ANSFA will initially target 50,000 farmers already participating in one of their farmer's clubs, and then expand membership in existing clubs as well as establish new clubs in communities in years two and three of the five year activity.

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**Table 1. ANSFA focus technologies and practices for soy and groundnut**

<b>Table 1. ANSFA focus technologies and practices for soy and groundnut</b>	
<b>Groundnut Technologies</b>	<b>Soybean Technologies</b>
<ol style="list-style-type: none"> <li>1. Use of CG7 seeds</li> <li>2. Post-harvest processing</li> <li>3. Grading and packaging</li> </ol>	<ol style="list-style-type: none"> <li>1. Use of SoyG1 or SoyG2 seeds</li> <li>2. Use of inoculant</li> <li>3. Post-harvest handling and processing</li> <li>4. Grading and packaging</li> </ol>
<b>Practices</b>	<b>Practices</b>
<ol style="list-style-type: none"> <li>1. Source of seeds among farmers</li> <li>2. Ridge spacing</li> <li>3. Plant spacing</li> <li>4. Double row planting</li> <li>5. Doubled-up legumes (inter-cropping with pigeon pea)</li> <li>6. Crop rotation practices</li> <li>7. Application of herbicides or pesticides</li> <li>8. Weeding practices</li> <li>9. Knowledge of harvest time</li> <li>10. Harvesting and drying practices</li> <li>11. Marketing among farmers</li> <li>12. Implementation of safety standards</li> <li>13. Implementation of quality standards</li> <li>14. Storage</li> <li>15. Marketing practices</li> <li>16. Selling in the shell</li> </ol>	<ol style="list-style-type: none"> <li>1. Source of seeds among farmers</li> <li>2. Ridge spacing</li> <li>3. Plant spacing</li> <li>4. Double-row planting</li> <li>5. Doubled-up legumes (inter-cropping with pigeon pea)</li> <li>6. Crop rotation practices</li> <li>7. Application of herbicides or pesticides</li> <li>8. Weeding practices</li> <li>9. Knowledge of harvest time</li> <li>10. Harvesting and drying practices</li> <li>11. Marketing among farmers</li> </ol>

---

## Draw the NUTSENAG Theory of Change



Small Group  
Exercise  
20 minutes

Draw the NUTSENAG Theory of Change illustrating:

- The Problem Statement
- Causal Stream
- Long-term Goal
- Pathway(s) of Change
- Assumptions
- Stakeholder(s)
- Interventions

*Make sure it is plausible, feasible, and measurable.*

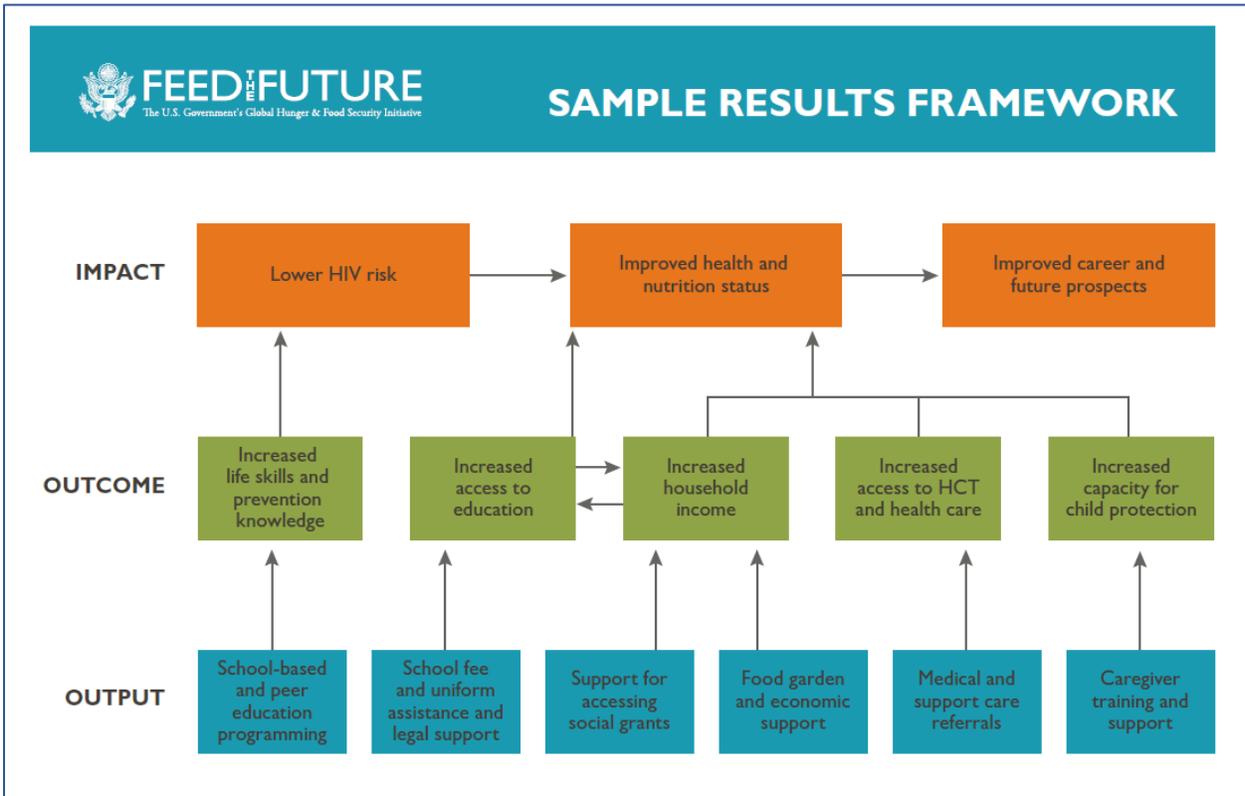
**Notes:**

## Results Framework

Theory of Change	Results Framework
<ul style="list-style-type: none"><li>• Broad</li><li>• Non-linear and adaptive</li><li>• Conditions, problems, pathways of change</li><li>• Big picture</li></ul>	<ul style="list-style-type: none"><li>• Specific</li><li>• Linear and structured</li><li>• Outputs, outcomes and impacts with metrics and indicators</li><li>• Focused and specific</li></ul>

**Notes:**

## SAMPLE RESULTS FRAMEWORK



**Notes:**

## Draw the NUTSENAG Results Framework



Small Group  
Exercise  
20 minutes

Identify the key pathway(s) of change and how they are linked to the NUTSENAG activity outputs, outcomes and impacts.

Draw your Results Framework.

### Notes:

---

## Individual Application



Individual  
Exercise

Think about an FTF activity you are working on:

- What is your Theory of Change?
- What is your Results Framework?
- How does your activity Results Framework relate to the FTF Results Framework?

**Notes:**

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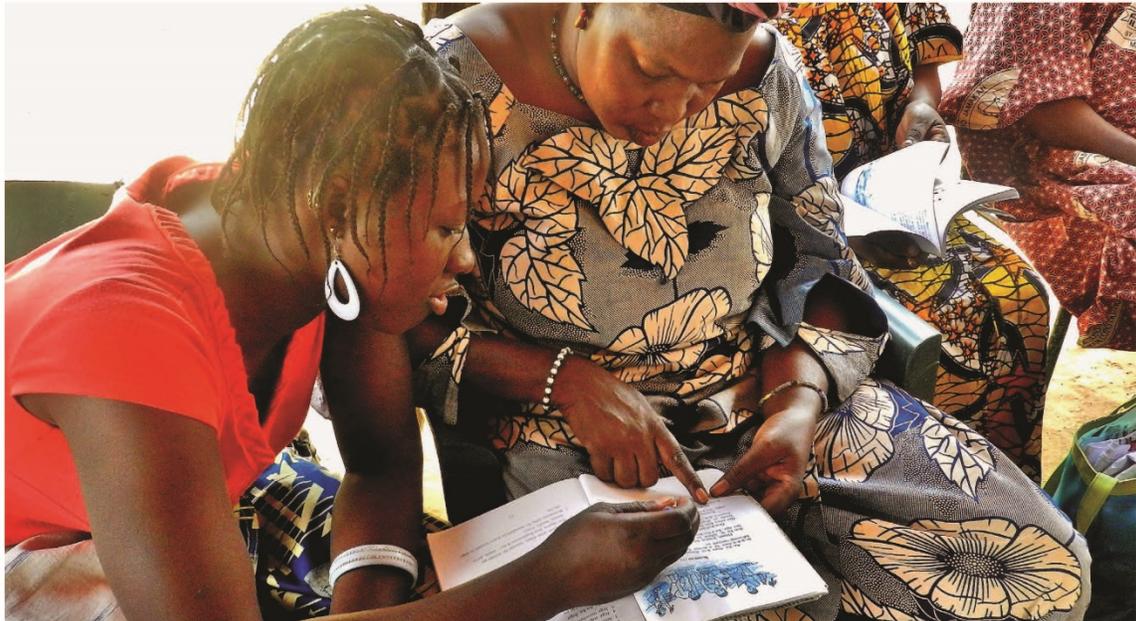


**FEED THE FUTURE**

The U.S. Government's Global Hunger & Food Security Initiative

# PERFORMANCE MONITORING

PARTICIPANT MANUAL



**USAID**  
FROM THE AMERICAN PEOPLE



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August 2016

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Sincerely,

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Senior Program Advisor  
Monitoring, Evaluation and Learning  
Feed the Future, USAID

*Salik Farooqi*  
Salik Farooqi, Course Owner  
Technical Advisor  
Monitoring, Evaluation and Learning  
Feed the Future, USAID





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<b>Session 3: Selecting Standard Indicators for your Activity Results Framework</b>	<b>7</b>
• Feed the Future Required-if-Applicable Indicators	
• Additional Feed the Future Indicators	

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### SESSION 3:

## Selecting Required if Applicable Indicators for Your Activity Results



## FTF Required-If-Applicable Indicators

 Improved agricultural productivity	 Expanded markets & trade	 Increased investment in agriculture & nutrition-related activities	 Increased employment opportunities in targeted value chains	 Increased resilience of vulnerable communities & households	 Improved access to diverse & quality foods	 Improved nutrition-related behaviors	 Improved use of maternal & child health & nutrition services
-------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------------------------------------------------

**Notes:**

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## Identify the RiA Indicators that apply to NUTSENAG:



Small Group  
Exercise  
20 minutes

Directions:

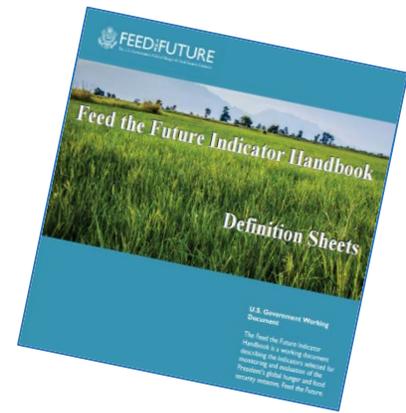
1. Using the FTF Handbook, identify which RiA indicators apply to NUTSENAG
2. Write each indicator number and a short indicator title on a sticky note
3. Place each indicator where it belongs on the NUTSENAG RF
4. Identify indicator gaps where additional information is needed to appropriately manage and adapt NUTSENAG implementation

**Notes:**

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## More Indicators

Notes:



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## Individual Application



Individual  
Exercise  
10 minutes

Think about the information received in this presentation:

- Did any of the explanations provided make you wonder whether you or a partner may be reporting incorrectly under any of the indicators?
- If so, write down what steps you will take upon your return to follow up
- If you have conducted a data quality assessment (DQA) and think you may have missed this, why? How would you change what you ask or look at in the DQA?

**Notes:**



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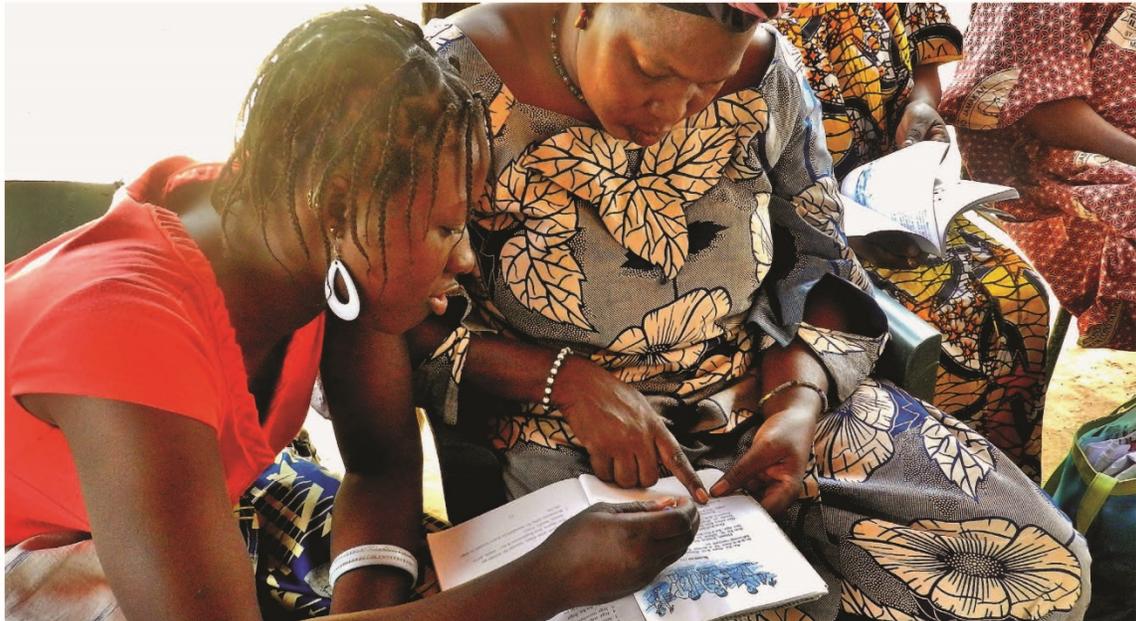


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### **Session 4: Creating Custom Indicators**

**7**

- Creating Measurable Custom Indicators
  - Writing a Performance Indicator Reference Sheet (PIRS)
-



SESSION 4:

## **Creating Measurable Custom Indicators**

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## *Creating Measurable Custom Indicators*

### **Notes:**

Answer the questions: what, why, how, by whom, and when.



**REMEMBER:** Make sure your indicator is specific and measurable and that you can collect the data cost effectively.

---

## Identify Custom Indicators for NUTSENAG:



Small Group  
Exercise  
15 minutes

- Identify custom indicators that fill gaps in your NUTSENAG Results Framework
- Your rationale for creating the indicator
- How the indicator addresses
  - Specificity
  - Measurability
  - Cost

**Notes:**

## *Writing a Performance Indicator Reference Sheet (PIRS)*

### **Individual Activity: Write a PIRS**



Individual  
Exercise  
15 minutes

- Chose a NUTSENAG custom indicator
- Complete the PIRS template for the indicator (on the following page)

SPS LOCATION:	
INITIATIVE AFFILIATION:	
INDICATOR TITLE:	
DEFINITION:	
RATIONALE:	
UNIT:	DISAGGREGATE BY: <u>Technology type:</u> <u>Sex:</u> <u>FTFMS-only disaggregate:</u>
TYPE:	DIRECTION OF CHANGE:
DATA SOURCE:	
MEASUREMENT NOTES: <ul style="list-style-type: none"> <li>➤ LEVEL OF COLLECTION:</li> <li>➤ WHO COLLECTS DATA FOR THIS INDICATOR:</li> <li>➤ HOW SHOULD IT BE COLLECTED:</li> <li>➤ FREQUENCY OF COLLECTION:</li> </ul>	

## Individual Application



Individual  
Exercise  
15 minutes

Think about an FTF activity you are working on:

- Do you need to create any custom indicators?
- Draft a PIRS for the indicator (on the following page)

**Notes:**

SPS LOCATION:	
INITIATIVE AFFILIATION:	
INDICATOR TITLE:	
DEFINITION:	
RATIONALE:	
UNIT:	DISAGGREGATE BY: <u>Technology type:</u> <u>Sex:</u> <u>FTFMS-only disaggregate:</u>
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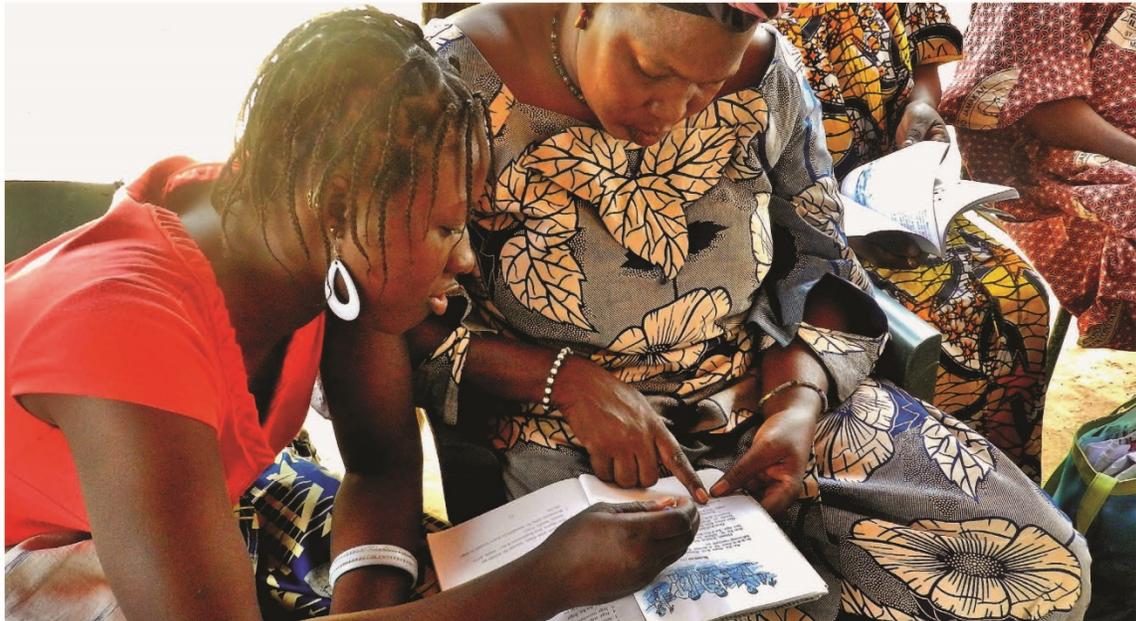


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### **Session 5: Defining Beneficiaries, Baselines and Targets**

**7**

- Identifying Direct and Indirect Beneficiaries
  - Establishing Baselines
  - Setting Targets
- 
-

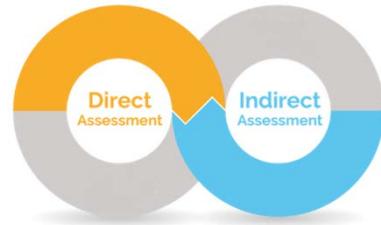


SESSION 5:  
**Defining Beneficiaries, Baselines and Targets**



## Identifying Direct and Indirect Beneficiaries

**Notes:**



## Individual Application



Individual  
Exercise  
10 minutes

Think about an FTF activity you are working on:

- List the direct beneficiaries
- List the indirect beneficiaries

Notes:

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---

## Establishing Baseline

Notes:



Calculate Reporting Year

1. **Unadjusted Incremental Sales** = reporting year sales – baseline sales
2. **Adjusted baseline sales** = baseline sales / baseline beneficiaries X reporting year number of beneficiaries
3. **Adjusted Incremental Sales** = reporting year sales – adjusted baseline sales

	Sales	# Beneficiaries
Baseline	120,000	4,000
Reporting Year	1,250,000	25,000

Graph the results in a stacked bar chart with two bars: unadjusted and adjusted. Total height of bar = reporting year sales; divide each bar into two sections: baseline sales and incremental sales. Label each section with the associated value.



## Baseline Challenge



Small Group  
Exercise  
20 minutes

For your assigned challenge, brainstorm the pros and cons for:

- Topic #1 - Replace incremental sales baseline?
- Topic #2 - Compute rolling baselines?

On a flipchart summarize your arguments.

*Think about implications for implementing partner information systems, previous year's results already reported publicly, and audits.*

**Notes:**

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## Setting Targets



Reasonable • Meaningful • Useful

### Notes:

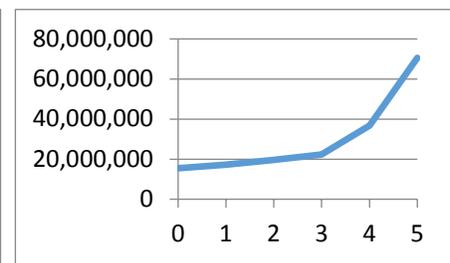
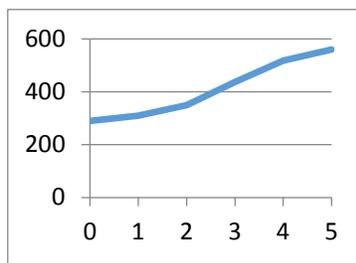
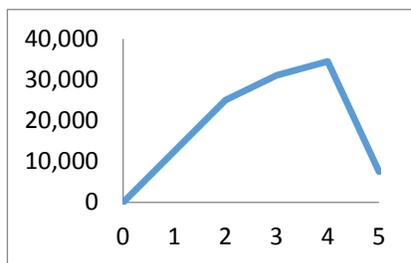
A target is the specific, planned level of result to be achieved by an indicator within an explicit timeframe with a given level of resources.

#### USAID Policy on Performance Targets (ADS 203.3.9)

- Required for performance indicators, but not context indicators
- They should be **ambitious**, yet **achievable**
- Document the **rationale** behind your target setting
- Targets should be expressed in the **same unit as the baseline and actuals**.

*FTF requirements for disaggregate for  
Sex and Technology type*

What do these indicators show?



Tools for setting targets:

- Historical data - Trend analysis
- Min/Max analysis
- Benchmarking
- Disaggregation Analysis
- CBA



## Setting Targets Challenge



Small Group  
Exercise  
45 minutes

ANSFA, the NUTSENAG implementer, needs to set annual targets for their FTF indicators and hires you to help. You are provided with the design documents that set some overall goals and the baseline survey results. You set up a team of 5-6 ensuring that you have a mix of Excel proficiency levels within your team.

Using the baseline results and a set of overall objectives and assumptions for the implementation of NUTSENAG, set annual targets for the 5 years of implementation for:

- 4.5.2.7 Number of individuals who have received short-term training
  - 4.5.2.5 Number of farmers and others who have applied improved technologies
  - 4.5.2.2 Number of hectares under improved technologies
- 
- Complete the tab “FTFMS Data” for the 3 indicators, including baseline and annual targets
  - Document any additional assumptions you need to make to set the targets
  - Note how assumptions should be monitored and how these might affect the targets.

Use Excel Spreadsheets for:

- NUTENAG Baseline Survey: Population Level Results
- FTFMS Data

**Notes:**

### NUTSENAG baseline Survey: Population Level Results

	Number of farmers	Number of farmers using improved techniques	Number of farmers using improved seeds	Number of farmers using improved cultural practices	Number of farmers using improved post-harvest practices	Area cultivated (ha)
Total farmers - males	4,873	1,048	536	791	0	5,862
Total farmers - female	43,860	5,789	2,474	4,684	0	40,439
Total farmers	48,733	6,837	3,009	5,475	0	46,300
Males cultivating groundnuts	487	97	58	78	0	10
Females cultivating groundnuts	17,544	1,754	702	1,404	0	877
Total cultivating groundnuts	18,031	1,852	760	1,481	0	887
Males cultivating maize	4,873	975	487	731	0	5,848
Females cultivating maize	43,860	4,386	1,754	3,509	0	39,474
Total cultivating maize	48,733	5,361	2,242	4,240	0	45,322
Males cultivating soy	97	29	26	26	0	4
Females cultivating soy	4,386	877	746	833	0	88
Total cultivating soy	4,483	906	772	860	0	92

#### **Assumptions**

1. The implementer (ANSFA) plans on training 220,500 individuals by FY5, of which 210,000 producers and 10,500 entrepreneurs
2. The activity will target women farmers at a ratio of 90% to 10%, but for private sector agents, the implementer does not expect to be able to target women at more than 40%
3. Through training, demonstration sites, and one-on-one advice to farmers, ANSFA will promote improved seed varieties, land preparation practices, cultivation practices, harvesting and drying practices, post-harvest practices and processing, storage and marketing for all 3 value-chains
4. Some of these practices are already being applied by a small percentage of farmers sampled at baseline, but ANSFA expects that its careful mix of interventions will lead to a 90% take up overall of improved practices across all value chains.

5. The use of improved seeds faces constraints that will be dealt with, although the implementer still expect that the take up of this particular technique will be less than the other ones. ANSFA cautiously predicts that 90% of farmers who will be applying new techniques, will be actually using improved seeds. However, it expects that all the other techniques will be fully applied.

6. Every farmer, both male and female cultivate maize, but not all of them cultivate legumes and nobody cultivates both legumes. ANSFA expects to increase the proportion of farmers cultivating legumes from less than 50% to almost 95%, as follows:

	Baseline	Target
Males cultivating groundnuts	10%	30%
Females cultivating groundnuts	40%	70%
Total cultivating groundnuts	37%	66%
Males cultivating soy	2%	10%
Females cultivating soy	10%	30%
Total cultivating soy	9%	28%
Total cultivating legumes	46%	94%

7. The activity aims at improving productivity of maize, which every household grows, so as to reduce the land needed for maize and increase land available to grow legumes. ANSFA aims at changing the distribution of land area from baseline to FY5 as follows:

	Baseline	Target
Males cultivating groundnuts	0.02	0.20
Females cultivating groundnuts	0.05	0.20
Total cultivating groundnuts		
Males cultivating maize	1.20	1.00
Females cultivating maize	0.90	0.70
Total cultivating maize		
Males cultivating soy	0.04	0.20
Females cultivating soy	0.02	0.20
Total cultivating soy		

Indicator / Disaggregation	Baseline Value	FY1 target	FY2 target	FY3 target	FY4 target	FY5 target
<b>4.5.2(7): Number of individuals who have received USG supported short-term agricultural sector productivity or food security training</b>						220,500
Producers						210,000
Sex						210,000
Male						21,000
Female						189,000
People in private sector firms						10,500
Sex						10,500
Male						6,300
Female						4,200
<b>4.5.2(5): Number of farmers and others who have applied improved technologies or management practices as a result of USG assistance</b>						
Producers						
Sex						
Male						
Female						
Disaggregates Not Available						
Technology type						
crop genetics						
cultural practices						
livestock management						
wild fishing technique/gear						
aquaculture management						
pest management						
disease management						
soil-related fertility and conservation						

irrigation						
water management (non-irrigation)						
climate mitigation or adaptation						
marketing and distribution						
post-harvest - handling and storage						
value-added processing						
other						
total w/one or more improved						
technology						
Commodity						
Groundnut						
Maize						
Soy						
Others (rest of data not included)						
<b>4.5.2(2): Number of hectares under improved technologies or management practices as a result of USG assistance</b>						
Sex						
Male						
Female						
Disaggregates Not Available						
Technology type						
crop genetics						
cultural practices						
livestock management						
wild fishing technique/gear						
aquaculture management						
pest management						
disease management						
soil-related fertility and conservation						
irrigation						
water management (non-irrigation)						

climate mitigation or adaptation						
marketing and distribution						
post-harvest - handling and storage						
value-added processing						
other						
total w/one or more improved						
technology						
Commodity						
Groundnut						
Maize						
Soy						

## Individual Application



Individual  
Exercise  
15 minutes

- What are your key learnings from this session?
- Think about an FTF Activity you are working on:
  - Who are the direct beneficiaries?
  - The indirect beneficiaries?
  - How will you determine your baselines?
  - What targets will you set?

**Notes:**

**Additional Resources:**



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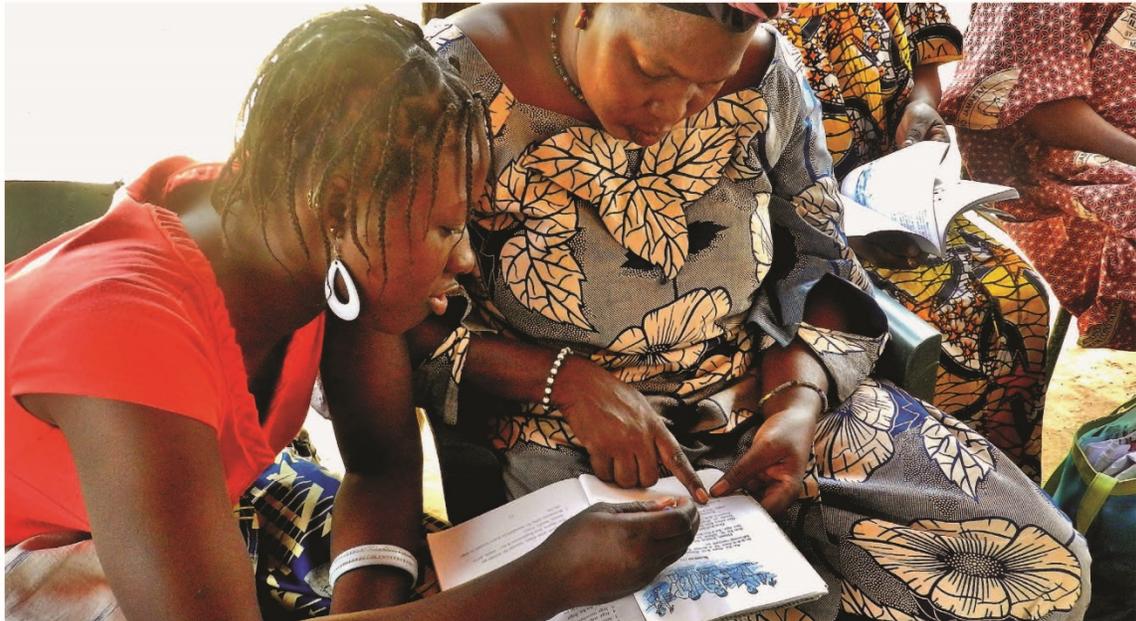


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### **Session 6: Collecting Performance Monitoring Data**

**6**

- Best Practices in Data Collection – Using Gantt Charts
  - Diagraming Indicators
  - Questionnaire Design
  - Measuring Area
- 
-



SESSION 6:

## Collecting Performance Monitoring Data

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# Best Practices in Data Collection Using Gantt Charts



Notes:



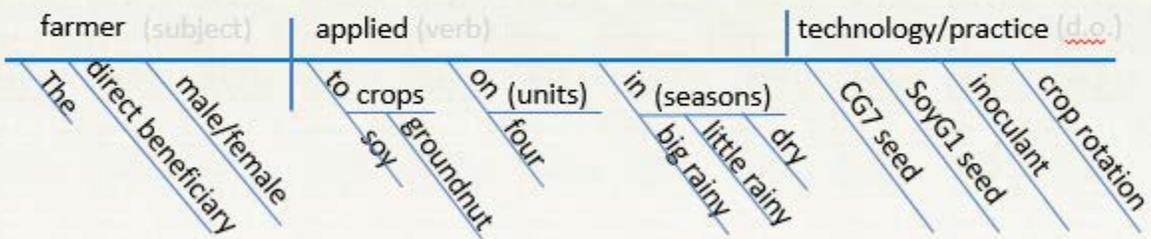
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## Diagramming an Indicator Notes

### INDICATOR EG.3.2-18:

### Number of hectares under improved technologies or management practices

(answer to independent exercise)



"The farmer applied the technology/practice to crops on [x] hectares of land."

---

INDICATOR TITLE: EG.3.3-10 Percentage of female direct beneficiaries of USG nutrition-sensitive agriculture activities consuming a diet of minimum diversity

*DEFINITION:*

A female direct beneficiary of a nutrition-sensitive agriculture activity is defined as a female of any age who is directly reached by the activity with agriculture-related intervention(s) (e.g. training, technical assistance, input access). Her interaction with the activity should be significant, meaning that a woman reached by an agriculture activity solely through brief attendance at a meeting or gathering should not be counted as beneficiary.

This indicator is applicable to nutrition-sensitive agriculture activities with explicit consumption, diet quality, or other nutrition-related objectives and/or outcomes. These nutrition-sensitive agriculture activities should be implementing components addressing one or more of the three agriculture-to-nutrition pathways: Food Production, Agricultural income, and Women's Empowerment.<sup>1</sup>

A female is considered to be consuming a diet of minimum diversity if she consumed at least five of 10 specific food groups during the previous day and night.<sup>2</sup>

The 10 food groups are:

1. Grains, white roots and tubers, and plantains
2. Pulses (beans, peas and lentils)
3. Nuts and seeds<sup>3</sup> (including groundnut)
4. Dairy
5. Meat, poultry, and fish
6. Eggs
7. Dark green leafy vegetables
8. Other vitamin A-rich fruits and vegetables
9. Other vegetables
10. Other fruits

The numerator for this indicator is the total number of female direct beneficiaries of the nutrition-sensitive agriculture activity who consumed 5 out of 10 food groups during the previous day and night.

The denominator is the total number of female direct beneficiaries of the nutrition-sensitive agriculture activity.

If data for this indicator are collected through a beneficiary-based sample survey, the numerator is the sample-weighted extrapolated total number of female direct beneficiaries of the nutrition-sensitive agriculture activity who consumed 5 out of 10 food groups during the previous day and night. The denominator is the sample-weighted extrapolated total number of female direct beneficiaries of the nutrition-sensitive agriculture activity with food group data.

Data should be collected annually at the same time of year since the indicator will likely display considerable seasonal variability. If possible, data should be collected at the time of year when diversity is likely to be the lowest to best capture improvements in year-round

<sup>1</sup> See Improving Nutrition through Agriculture Technical Brief Series, <https://www.spring-nutrition.org/publications/series/improving-nutrition-through-agriculture-technical-brief-series>

<sup>2</sup> See Introducing the Minimum Dietary Diversity – Women (MDD-W) Global Dietary Diversity Indicator for Women, [http://www.fao.org/fileadmin/templates/nutrition\\_assessment/Dietary\\_Diversity/Minimum\\_dietary\\_diversity\\_-\\_women\\_\\_MDD-W\\_Sept\\_2014.pdf](http://www.fao.org/fileadmin/templates/nutrition_assessment/Dietary_Diversity/Minimum_dietary_diversity_-_women__MDD-W_Sept_2014.pdf). Additional detail on collecting and analyzing minimum dietary diversity indicator may be found in Minimum Dietary Diversity for Women – A Guide to Measurement (<http://www.fao.org/3/a-i5486e.pdf>)

<sup>3</sup> “Seeds” in the botanical sense includes a very broad range of items, including grains and pulses. However, “seeds” is used here in a culinary sense to refer to a limited number of seeds, excluding grains or pulses, that are typically high in fat content and are consumed as a substantial ingredient in local dishes or eaten as a substantial snack or side dish. Examples include squash, melon or gourd seeds used as a main ingredient in West African stews and sesame seed paste (tahini) in some dishes in Middle Eastern cuisines.

consumption of a diverse diet. However, Feed the Future recognizes that data for this indicator is likely to be collected in the post-harvest/sale period when data for other Required if Applicable (RIA) indicators, such as gross margins and incremental sales, are collected. In this case, the indicator value may reflect a best-case scenario in terms of yearly access to a quality and diverse diet by female beneficiaries.

**Notes:**

1. This indicator complements the Feed the Future indicator "Prevalence of women of reproductive age consuming a diet of minimum diversity," which measures minimum dietary diversity among women 15-49 years old in the Feed the Future Zone of Influence through a population-based survey.
2. Using the data collected for this indicator, activities may wish to create a custom indicator measuring the average number of food groups consumed by female beneficiaries. This will allow managers to better understand progress made under this indicator, and would be especially useful in situations where diet diversity is very low at baseline.

**RATIONALE:**  
 This indicator will capture results under the Increased Availability of and Access to High-quality Nutrition-Sensitive Services and Commodities Sub-IR under USAID's Multisectoral Nutrition Strategy Results Framework, and the Improved Access to Diverse and Quality Foods IR of the Feed the Future Results Framework. Minimum Dietary Diversity – Women (MDD-W) is a validated proxy indicator for the quality of the diet for women of reproductive age (15-49 years). Women of reproductive age consuming foods from five or more of the 10 food groups are more likely to consume a diet higher in micronutrient adequacy than women consuming foods from fewer than five of these food groups [3]. While it is possible that some female direct beneficiaries measured under this indicator will be younger than 15 years or 50 years or older, we assume the majority will be women of reproductive age. Thus the indicator would still be a validated proxy for the likelihood of micronutrient adequacy for the majority of beneficiaries captured, while still capturing the consumption of a diverse diet for the remainder.

<b>UNIT:</b> Percent	<b>DISAGGREGATE BY:</b> In addition to reporting the percent value, the number of female direct beneficiaries of the nutrition-sensitive agriculture activity should be reported, to allow a weighted average percent to be calculated across activities for entry into the PPR and across operating units for reporting on the Nutrition Strategy.
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<b>TYPE:</b> Outcome	<b>DIRECTION OF CHANGE:</b> Higher is better
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**DATA SOURCE:**  
 Data for this indicator can be collected through routine reporting systems or annual (or more frequent) beneficiary-based surveys.

- MEASUREMENT NOTES:**
- LEVEL OF COLLECTION: Activity-level, direct beneficiaries
  - WHO COLLECTS DATA FOR THIS INDICATOR: Implementing partners
  - HOW SHOULD IT BE COLLECTED: Direct beneficiary sample surveys; data collection through routine reporting systems
  - FREQUENCY OF COLLECTION: Annually

<b>TYPE:</b> Outcome	<b>DIRECTION OF CHANGE:</b> Higher is better
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**DATA SOURCE:**  
 Implementing Partners will collect this data through census or survey of direct beneficiaries, direct observations of land, farm records, and activity documents.

- MEASUREMENT NOTES:**
- LEVEL OF COLLECTION: Activity-level, direct beneficiaries; only those hectares affected by USG assistance, and only those newly brought or continuing under improved technologies/management during the current reporting year
  - WHO COLLECTS DATA FOR THIS INDICATOR: Implementing partners
  - HOW SHOULD IT BE COLLECTED: Via survey or other applicable method
  - FREQUENCY OF COLLECTION: Annually reported

## Now You Try Diagramming a PIRS

### Individual Activity



Individual  
Exercise

Using the PIRS on the next page, diagram INDICATOR EG.3.2-18:  
Number of hectares under improved technologies or management  
practices.

**Diagram for:**

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SPS LOCATION: Program Element EG.3.2: Agricultural Sector Capacity

INITIATIVE AFFILIATION: Feed the Future – IR 1: Improved Agricultural Productivity / Sub IR 1.2: Enhanced Technology Development, Dissemination, Management and Innovation

INDICATOR TITLE: EG.3.2-18 Number of hectares under improved technologies or management practices with USG assistance

*DEFINITION:*

This indicator measures the area (in hectares) of land cultivated using USG-promoted improved technology(ies) or management practice(s) during the reporting year. Technologies to be counted are agriculture-related, land-based technologies and innovations, including those that address climate change adaptation and mitigation. The indicator does not count application of improved technologies in aquaculture ponds, even though area of ponds is measured in hectares under indicator EG.3-6 Gross Margin per hectare. Significant improvements to existing technologies should also be counted.

Examples of relevant technologies include:

- Crop genetics: e.g. improved/certified seed that could be higher-yielding, higher in nutritional content (e.g. through biofortification, such as vitamin A-rich sweet potatoes or rice, or high-protein maize), and/or more resilient to climate impacts; improved germplasm.
- Cultural practices: e.g. seedling production and transplantation; cultivation practices such as planting density, moulding; mulching.
- Pest management: e.g. Integrated Pest Management; appropriate application of insecticides and pesticides.
- Disease management: e.g. improved fungicides, appropriate application of fungicides.
- Soil-related fertility and conservation: e.g. Integrated Soil Fertility Management; soil management practices that increase biotic activity and soil organic matter levels, such as soil amendments to increase fertilizer-use efficiency (e.g. mulching); fertilizers; erosion control.
- Irrigation: e.g. drip, surface, sprinkler irrigation; irrigation schemes.
- Water management - non-irrigation-based: e.g. water harvesting; mulching.
- Climate Mitigation: technologies selected because they minimize emission intensities relative to other alternatives. Examples include low- or no-till practices, efficient nitrogen fertilizer use.
- Climate Adaptation: technologies promoted with the explicit objective of adapting to current climate change concerns. Examples include drought and flood resistant varieties, conservation agriculture.
- Other: e.g. improved mechanical and physical land preparation.

If an activity is promoting a technology for multiple benefits, the area under the technology may be reported under each relevant category under the Technology Type disaggregate. For example, mulching could be reported under Cultural practices (weed control), Soil-related fertility and conservation (organic content) and Water management (moisture control), depending on how of for what purpose(s) or benefit(s) the activity was promoted.

If a beneficiary cultivates a plot of land more than once in the reporting year, the area should be counted each time one or more improved technologies is applied. For example, because of access to irrigation as a result of a Feed the Future activity, a farmer can now cultivate a

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second crop during the dry season in addition to her/his regular crop during the rainy season. If the farmer applies Feed the Future promoted technologies to her/his plot during both the rainy season and the dry season, the area of the plot would be counted twice under this indicator. However, the farmer would only be counted once under *EG.3.2-17 Number of farmers and others who have applied improved technologies*.

If a group of beneficiaries cultivate a plot of land as a group, e.g. an association has a common plot on which multiple association members cultivate together, and on which improved technologies are applied, the area of the communal plot should be counted under this indicator and recorded under the sex disaggregate “association-applied”. In addition, the association should be counted once under indicator *EG.3.2-20 Number of for-profit private enterprises, producer’s organizations... and community-based organizations (CBOs) that applied improved organization-level technologies or management practices*.

If a lead farmer cultivates a plot used for training, e.g a demonstration plot used for Farmer Field Days or Farmer Field School, the area of the demonstration plot should be counted under this indicator. In addition, the lead farmer should be counted as one individual under indicator *EG.3.2-17 Number of farmers and others who have applied improved technologies*. However, if the demonstration or training plot is cultivated by extension agents or researchers, (a demonstration plot in a research institute, for instance) neither the area nor the extension agent or researcher should be counted under this indicator or indicator *EG.3.2-17*.

If more than one improved technology is being applied on a hectare, count the hectare under each technology type (i.e. double-count). In addition, count the hectare under the Total w/one or more improved technology category. Since it is very common for Feed the Future activities to promote more than one improved technology, not all of which are applied by all beneficiaries at once, this approach allows Feed the Future to accurately track and count the uptake of different technology types, and to accurately count the total number of hectares under improved technologies.

If a direct beneficiary sample survey is used to collect data for this indicator, the sample weighted estimate of the total number of hectares across all beneficiaries for each Technology Type and Sex disaggregate must be calculated using appropriate sample weights before being entered into FTFMS to ensure accurate calculation of weighted averages across all implementing mechanisms at the Operating Unit level as well as across all Feed the Future countries for global reporting.

Please refer to the [Feed the Future Agricultural Indicators Guide \(https://agrilinks.org/library/feed-the-future-ag-indicators-guide\)](https://agrilinks.org/library/feed-the-future-ag-indicators-guide) for collecting and interpreting the data required for this indicator.

**RATIONALE:**

This indicator tracks successful application of technologies and management practices in an effort to improve agricultural productivity, agricultural water productivity, sustainability, and resilience to climate change. In the Feed the Future (FTF) results framework, this indicator reports contributions to IR 1: Improved Agricultural Productivity and Sub IR 1.2: Enhanced Technology Development, Dissemination, Management and Innovation.

**UNIT:**

Hectares

**DISAGGREGATE BY:**

Technology type (see explanation in definition, above): Crop genetics, Cultural practices, Pest management, Disease management, Soil-related fertility and conservation, Irrigation, Water management, Climate mitigation, Climate adaptation, Other; Total w/one or more improved technology

	<p><u>Sex</u>: Male, Female, Joint, Association-applied</p> <p><i>Note, before using the "Joint" sex disaggregate category, partners must determine that decision-making about what to plant on the plot of land and how to manage it for that particular beneficiary and targeted commodity is truly done in a joint manner by male(s) and female(s) within the household. Given what we know about gender dynamics in agriculture, "joint" should <u>not</u> be the default assumption about how decisions about the management of the plot are made.</i></p> <p><i>Note: The sum of hectares under the Sex disaggregate should equal the total under the "Total w/one or more improved technology" Technology Type disaggregate.</i></p> <p><u>FTFMS-only disaggregate: Commodity</u></p> <p>Activities promoting sustainable intensification and similar crop diversification strategies where calculating area under specific commodities is complicated and not meaningful are not required to disaggregate beneficiaries by commodity, and should use the "Disaggregates not available" category under the Commodities disaggregate.</p>
<p>TYPE:</p> <p>Outcome</p>	<p><i>DIRECTION OF CHANGE:</i></p> <p>Higher is better</p>
<p><i>DATA SOURCE:</i></p> <p>Implementing Partners will collect this data through census or survey of direct beneficiaries, direct observations of land, farm records, and activity documents.</p>	
<p><i>MEASUREMENT NOTES:</i></p> <ul style="list-style-type: none"> <li>➤ LEVEL OF COLLECTION: Activity-level, direct beneficiaries; only those hectares affected by USG assistance, and only those newly brought or continuing under improved technologies/management during the current reporting year</li> <li>➤ WHO COLLECTS DATA FOR THIS INDICATOR: Implementing partners</li> <li>➤ HOW SHOULD IT BE COLLECTED: Via survey or other applicable method</li> <li>➤ FREQUENCY OF COLLECTION: Annually reported</li> </ul>	

## Questionnaire Design

**Notes:**



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## Steps in the QAS

- **STEP 1: READING:** Determine if it is difficult for the interviewers to read the question uniformly to all respondents.
  - **STEP 2: INSTRUCTIONS:** Look for problems with any introductions, instructions, or explanations from the respondent's point of view.
  - **STEP 3: CLARITY:** Identify problems related to communicating the intent or meaning of the question to the respondent.
  - **STEP 4: ASSUMPTIONS:** Determine if there are problems with assumptions made or the underlying logic.
  - **STEP 5: KNOWLEDGE/MEMORY:** Check whether respondents are likely to not know or have trouble remembering information.
  - **STEP 6: SENSITIVITY/BIAS:** Assess questions for sensitive nature or wording, and for bias.
  - **STEP 7: RESPONSE CATEGORIES:** Assess the adequacy of the range of responses to be recorded.
  - **STEP 8: OTHER:** Look for problems not identified in Steps 1 - 7.
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## Questionnaire Design Challenge



Small Group  
Exercise  
45 minutes

Review the sample questionnaire and find 10 reasons why it cannot be used to collect data for the “hectares under improved technology” indicator.

First team to find all 10 errors, wins a prize.

**Notes:**

AREDONIA BASELINE SURVEY - HOUSEHOLD QUESTIONNAIRE																		
IDENTIFICATION																		
A. DEPARTMENT (CIRCLE ONE)    1 ARTIBONITE    2 OUEST    3 NORD    4 NORD-EST																		
B. COMMUNE _____																		
C. SECTION COMMUNALE _____																		
D. NAME OF SELECTED RESPONDENT _____																		
E. CLUSTER NUMBER .....	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>														
F. STRUCTURE NUMBER .....	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>														
G. HOUSEHOLD NUMBER	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>														
INTERVIEWER VISITS																		
	1	2	3	FINAL VISIT														
G. DATE	<input type="text"/>	<input type="text"/>	<input type="text"/>	K. DAY <input type="text"/>														
				L. MONTH <input type="text"/>														
				M. YEAR <input type="text" value="2"/> <input type="text" value="0"/> <input type="text" value="1"/> <input type="text" value="6"/>														
H. INTERVIEWER'S NAME	<input type="text"/>	<input type="text"/>	<input type="text"/>	N. INT NUMBER <input type="text"/>														
J. RESULT CODE*	<input type="text"/>	<input type="text"/>	<input type="text"/>	O. RESULT CODE* <input type="text"/>														
NEXT VISIT: DATE	<input type="text"/>	<input type="text"/>	<input type="text"/>															
TIME	<input type="text"/>	<input type="text"/>	<input type="text"/>															
*RESULT CODES: 01 COMPLETED 02 NO HOUSEHOLD MEMBER AT HOME 03 RESPONDENT NOT AT HOME AT TIME OF VISIT 04 NO APPROPRIATE RESPONDENT 05 ENTIRE HOUSEHOLD ABSENT FOR EXTENDED PERIOD OF TIME 06 POSTPONED 07 STRUCTURE NOT FOUND 08 STRUCTURE DESTROYED 09 STRUCTURE NOT ADWELLING 10 STRUCTURE VACANT 96 OTHER _____ (SPECIFY) 97 REFUSED				P. TOTAL NUMBER OF VISITS <input type="text"/> Q. TOTAL PERSONS IN HOUSEHOLD <input type="text"/> <input type="text"/> R. PRIMARY ADULT DECISIONMAKER (1=YES, 2=NO) <input type="text"/> MALE <input type="text"/> FEMALE U. LINE NO. OF RESPONDENT TO HOUSEHOLD QUESTIONNAIRE <input type="text"/> <input type="text"/>														
V. SUPERVISOR NAME <input type="text"/>	W. FIELD EDITOR NAME <input type="text"/>		X. OFFICE EDITOR <input type="text"/>	Y. KEYED BY <input type="text"/>														
INTRODUCTION AND CONSENT																		
<p>Hello. My name is _____. I am working with the National Aredonia Statistical Office. We are conducting a survey about health, education, nutrition &amp; agriculture, employment, and community services in many places in Aredonia. The information we collect will help the government to plan health, employment, and community services. Your household was selected for the survey. I would like to ask you some questions about your household. Today's visit may take up to two hours. All of the answers you give will be confidential and will not be shared with anyone other than members of our survey team. You don't have to be in the survey, but we hope you will agree to answer the questions since your views are important. If I ask you any question you don't want to answer, just let me know and I will go on to the next question or you can stop the interview at any time. In case you need more information about the survey, you may contact the person listed on this card.</p> <p>GIVE CARD WITH CONTACT INFORMATION</p> <p>Do you have any questions?</p> <p>Z. May I begin the interview now?</p> <p>SIGNATURE OF INTERVIEWER: _____ DATE: _____</p> <p>RESPONDENT AGREES TO BE INTERVIEWED ... 1      RESPONDENT DOES NOT AGREE TO BE INTERVIEWED ... 2 → THANK THE RESPONDENT AND END THE INTERVIEW</p>																		
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%;">AA. START TIME</td> <td style="width: 5%;">H</td> <td style="width: 5%;">H</td> <td style="width: 5%;">M</td> <td style="width: 5%;">M</td> <td style="width: 10%;">CIRCLE ONE</td> <td style="width: 50%;"></td> </tr> <tr> <td></td> <td><input type="text"/></td> <td><input type="text"/></td> <td><input type="text"/></td> <td><input type="text"/></td> <td>AM PM</td> <td></td> </tr> </table>					AA. START TIME	H	H	M	M	CIRCLE ONE			<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	AM PM	
AA. START TIME	H	H	M	M	CIRCLE ONE													
	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	AM PM													

SECTION 1. HOUSEHOLD ROSTER															
00a. Who would you say is the primary adult male decisionmaker in this household? This person should be 18 years old or older.															
PRIMARY ADULT MALE DECISIONMAKER EXISTS IN HOUSEHOLD ..... 1 → ENTER NAME OF PRIMARY ADULT MALE DECISIONMAKER ON LINE 01 OF THE ROSTER. Q3 & 4 ARE PRE-FILLED FOR THIS LINE NUMBER.															
NO PRIMARY ADULT MALE DECISIONMAKER IN HOUSEHOLD ..... 2															
00b. Who would you say is the primary adult female decisionmaker in this household? This person should be 18 years old or older.															
PRIMARY ADULT FEMALE DECISIONMAKER EXISTS IN HOUSEHOLD ..... 1 → ENTER NAME OF PRIMARY ADULT FEMALE DECISIONMAKER ON LINE 02 OF THE ROSTER. Q3 IS PRE-FILLED FOR THIS LINE NUMBER.															
NO PRIMARY ADULT FEMALE DECISIONMAKER IN HOUSEHOLD ..... 2															
LINE NO.	USUAL RESIDENTS	JOB	RELATION TO PRIMARY DECISIONMAKER	RESIDENCE		AGE	ELIGIBILITY	IF AGE 15 YEARS OR OLDER		IF AGE 3 YEARS OR OLDER		IF AGE 3-24 YEARS			
				5	6			MARITAL STATUS	HIGHEST LEVEL OF SCHOOL ATTENDED/COMPLETED	CURRENT SCHOOL YEAR ATTENDANCE, LEVEL & GRADE	CURRENT/RECENT SCHOOL ATTENDANCE				
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
	Now, please tell me the names of all of the other people who usually live here, and guests of the household who stayed here last night.  LIST ALL HOUSEHOLD MEMBER NAMES (COL 2), SEX (COL 3), AND RELATIONSHIP (COL 4) TO THE PRIMARY DECISIONMAKER NAMED IN LINE 01, OR NAMED IN LINE 02 IF NO HH MEMBER ON LINE 01.	Is [NAME] a farmer?	What is [NAME]'s relationship to the primary male decisionmaker? IF NO PRIMARY MALE DECISION-MAKER: What is [NAME]'s relationship to the primary female decisionmaker? SEE CODES BELOW	Does [NAME] usually live here?	Did [NAME] stay here last night?	How old is [NAME]? IF 95 OR OLDER, RECORD 95	CIRCLE LINE NUMBER OF SELECTED RESPONDENT	What is [NAME]'s current marital status? MARRIED OR LIVING TOGETHER ..... 1 DIVORCED OR SEPARATED ... 2 VIVAVEK ..... 3 WIDOWED ..... 4 NEVER MARRIED & NEVER LIVED TOGETHER ... 5	What is the highest level of school [NAME] has attended? SEE CODES BELOW	Has [NAME] ever attended school?	What is the highest grade [NAME] completed at that level? SEE CODES BELOW	Did [NAME] attend school at any time during the current 2015-2016 school year? SEE CODES BELOW	In the current 2015-2016 school year, what level and grade of school does [NAME] attend? SEE CODES BELOW	In the current 2015-2016 school year, what type of school does [NAME] attend? PUBLIC, NON-RELIGIOUS.....1 PUBLIC RELIGIOUS.....2 PRIVATE, NON-RELIGIOUS.....3 PRIVATE, NON-RELIGIOUS.....4 FOREIGN.....5	In the current 2015-2016 school year, how often are teachers present in [NAME]'s classroom? ALWAYS... 1 OFTEN... 2 RARELY... 3 DON'T KNOW... 4
01		Y N 1 2	0 1	Y N 1 2	Y N 1 2	IN YEARS	01		Y N 1 2 NEXT LINE	LEVEL GRADE	Y N 1 2 NEXT LINE	LEVEL GRADE			
02		Y N 1 2		Y N 1 2	Y N 1 2	IN YEARS	02		Y N 1 2 NEXT LINE	LEVEL GRADE	Y N 1 2 NEXT LINE	LEVEL GRADE			
03		Y N 1 2		Y N 1 2	Y N 1 2	IN YEARS	03		Y N 1 2 NEXT LINE	LEVEL GRADE	Y N 1 2 NEXT LINE	LEVEL GRADE			
04		Y N 1 2		Y N 1 2	Y N 1 2	IN YEARS	04		Y N 1 2 NEXT LINE	LEVEL GRADE	Y N 1 2 NEXT LINE	LEVEL GRADE			
2A) Just to make sure that I have a complete listing: are there any other persons such as small children or infants that we have not listed? Any children in school or household members at work that we haven't yet listed?				YES → TO NO TABLE		ADD TO TABLE		CODES FOR Q4: RELATIONSHIP TO PRIMARY DECISIONMAKER				CODES FOR Qs 11 and 13:			
2B) Are there any other people who may not be members of your family, such as domestic servants, lodgers, or friends, who usually live here?				YES → TO NO TABLE		ADD TO TABLE		SELF ..... 01 NIECE/NEPHEW ..... 10 WIFE OR HUSBAND ..... 02 UNCLE/AUNT ..... 11 SON OR DAUGHTER ..... 03 ADOPTED ..... 12 SON-IN-LAW OR DAUGHTER-IN-LAW ..... 04 CHILD IN GUARDIANSHIP ..... 13 GRANDCHILD ..... 05 OTHER RELATION ..... 14 MOTHER/FATHER ..... 06 FRIEND ..... 15 MOTHER/FATHER-IN-LAW ..... 07 WORKER ..... 16 BROTHER OR SISTER ..... 08 RESTAVEK ..... 17 COUSIN ..... 09 NO DECISIONMAKER AGE 18+ ..... 18 OTHER ..... 96				LEVEL: LESS THAN 1 YEAR ..... 0 PRESCHOOL ..... 1 1ST YEAR ..... 1 PRIMARY ..... 2 2ND YEAR ..... 2 SECONDARY ..... 3 3RD YEAR ..... 3 COLLEGE/UNIVERSITY 4 4TH YEAR ..... 4 DON'T KNOW ..... 8			
2C) Are there any guests or temporary visitors staying here, or anyone else who stayed here last night, who have not been listed?				YES → TO NO TABLE		ADD TO TABLE									

SECTION 5.1 HUNGER

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
501	In the past 4 weeks, was there ever no food to eat of any kind in your house because of lack of resources to get	YES ..... 1 NO ..... 2	→ 503
502	How often did this happen in the past 4 weeks?	RARELY (1-2 TIMES) ..... 1 SOMETIMES (3-10 TIMES) ..... 2 OFTEN (MORE THAN 10 TIMES) ..... 3	
503	In the past 4 weeks, did you or any household member go to sleep at night hungry because there was not enough food?	YES ..... 1 NO ..... 2	→ 505
504	How often did this happen in the past 4 weeks?	RARELY (1-2 TIMES) ..... 1 SOMETIMES (3-10 TIMES) ..... 2 OFTEN (MORE THAN 10 TIMES) ..... 3	
505	In the past 4 weeks, did you or any household member go a whole day and night without eating anything at all because there was not enough food?	YES ..... 1 NO ..... 2	→ 507
506	How often did this happen in the past 4 weeks?	RARELY (1-2 TIMES) ..... 1 SOMETIMES (3-10 TIMES) ..... 2 OFTEN (MORE THAN 10 TIMES) ..... 3	

MODULES D, E, F, FF: AGRICULTURAL PRODUCTION – CROP LIST

D00. Did anyone in the household cultivate any crops between February 2015 and February 2016? Which crops? [SELECT ALL THAT APPLY]		
CROP LIST A Modules D, E, and F	CROP LIST B Modules FF	CROP LIST C no module
<p><i>Cereals</i></p> <p>01. Corn YES...1 NO...2</p> <p>02. Rice YES...1 NO...2</p> <p>03. Sorghum/Millet YES...1 NO...2</p> <p><i>Leguminous Crops</i></p> <p>04. Lima beans YES...1 NO...2</p> <p>05. Pigeon peas YES...1 NO...2</p> <p>06. Lentils YES...1 NO...2</p> <p><i>Vegetables</i></p> <p>07. Cabbage YES...1 NO...2</p> <p>08. Lettuce YES...1 NO...2</p> <p>09. Spinach, purslane YES...1 NO...2</p> <p>10. Tomato YES...1 NO...2</p> <p>11. Bell pepper YES...1 NO...2</p> <p>12. Leek, shallots YES...1 NO...2</p> <p><i>Roots and Tubers</i></p> <p>13. Potato YES...1 NO...2</p> <p>14. Sweet potato YES...1 NO...2</p> <p>15. Yam, masoko YES...1 NO...2</p> <p>16. Sweet cassava YES...1 NO...2</p> <p>17. Cassava YES...1 NO...2</p> <p><i>Other</i></p> <p>18. Sugarcane YES...1 NO...2</p> <p>19. Banana &amp; Plantain YES...1 NO...2</p>	<p>20. Avocado YES...1 NO...2</p> <p>21. Francis mango YES...1 NO...2</p> <p>22. Mango (other) YES...1 NO...2</p> <p>23. Orange YES...1 NO...2</p> <p>24. Coconut palm YES...1 NO...2</p> <p>25. Coffee YES...1 NO...2</p> <p>26. Cocoa YES...1 NO...2</p>	<p>27. Lima beans YES...1 NO...2</p> <p>28. Blackeye peas YES...1 NO...2</p> <p>29. Eggplant YES...1 NO...2</p> <p>30. Watermelon YES...1 NO...2</p> <p>31. Pumpkin, zucchini, squash YES...1 NO...2</p> <p>32. Okra YES...1 NO...2</p> <p>33. Carrot and turnip YES...1 NO...2</p> <p>34. Red beetroot YES...1 NO...2</p> <p>35. Onions (including shallots) YES...1 NO...2</p> <p>36. Malanga, Taro YES...1 NO...2</p> <p>37. Pineapple YES...1 NO...2</p> <p>38. Breadfruit YES...1 NO...2</p> <p>39. Lemon &amp; lime YES...1 NO...2</p> <p>40. Grapefruit YES...1 NO...2</p> <p>41. Tangerines, mandarines, YES...1 NO...2 and clementines</p> <p>42. Cashew YES...1 NO...2</p> <p>43. Pepper (capsicum spp.) YES...1 NO...2</p> <p>44. Papaya YES...1 NO...2</p> <p>45. Other (specify) _____</p> <p>46. Other (specify) _____</p>

MODULE D0: AGRICULTURAL PRODUCTION, GREAT RAINY SEASON: FEBRUARY THROUGH AUGUST 2015 - DIAGRAM

D01.: You know that in the country in general, there are 3 agricultural seasons :

- There is the great rainy season, where plantations are held in March and the harvest is held in June, sometimes after.
- There is the little rainy season, where plantations are held in July and harvest is held in November.
- And there is the dry season, where plantations are held in December (though sometimes as early as October), and the harvest is held in February.

INTERVIEWER: PLEASE USE THE SPACE BELOW TO DIAGRAM THE LAND WHERE THE HOUSEHOLD PRACTICED AGRICULTURE DURING THE GREAT RAINY SEASON, FROM FEBRUARY TO AUGUST 2015. THE PLOTS IDENTIFIED THROUGH THIS EXERCISE WILL BE USED FOR MODULE D. INDICATE THE LOCALITY OF EACH PLOT. NUMBER EACH PLOT.

A PLOT IS A CONTINUOUS PIECE OF LAND ON WHICH A UNIQUE CROP OR A MIXTURE OF CROPS IS GROWN UNDER A CONSISTENT CROP MANAGEMENT SYSTEM. IT MUST BE CONTINUOUS AND SHOULD NOT BE SPLIT BY A PATH OF MORE THAN ONE METER IN WIDTH. PLOT BOUNDARIES ARE DEFINED ACCORDING TO THE CROPS GROWN AND THE OPERATOR.



MODULE D. AGRICULTURAL PRODUCTION: PRIMARY SEASON 1 - GREAT RAINY SEASON: FEBRUARY THROUGH AUGUST 2015 (CONTINUED)

CHECK D04:		D06	D07	D08	D09	D10	D11	D12	D13	D14			
TRANSFER THE PLOT CODE AND LOCALITY NAME AND FOR EACH PLOT THAT WAS FARMED, AS LISTED ON THE PREVIOUS PAGE.  ENSURE THAT YOU WRITE THE PLOT CODES IN THE SAME ORDER AS IN THE PREVIOUS PAGE.		How much did you pay for seeds to cultivate [CROP]?	How much did you pay for fertilizer to cultivate [CROP]?	How much did you pay for pesticides (against mice, caterpillars, rats, etc.) to cultivate [CROP]?	How much did you pay for land preparation (including rental of tools, machinery, animals, labor) to cultivate [CROP]?	How much did you pay for water/irrigation to cultivate [CROP]?	How much did you pay for labor (excluding labor for land preparation) to cultivate [CROP]?	How much did you pay for any other inputs to cultivate [CROP]?	How much [CROP] was lost to rodents, storms, flooding or theft prior to harvesting?	How much [CROP] was harvested?			
											PLOT CODE	LOCALITY	CROP
		1											
		2											
		3											
		4											
		1											
		2											
		3											
		4											
		1											
		2											
		3											
		4											
		1											
		2											
		3											
		4											
		1											
		2											
		3											
		4											
UNIT CODES (D13, 14)													
SMALL POT	.....	01	BASKET	.....	06	BUNCH (BANANA)	.....	11					
LARGE POT	.....	02	SMALL SACK (MADE FOR RICE)	.....	07	DOZEN	.....	12					
SMALL BUCKET	.....	03	FLOUR SAK	.....	08	MAKOUT	.....	13					
BUCKET (5 GALLONS)	.....	04	LARGE SACK (MADE FOR WHEA)	.....	09	BARREL	.....	14					
SMALL BASKET	.....	05	PACK (BANANA)	.....	10	DRUM	.....	15	OTHER (SPECIFY)				

MODULE D. AGRICULTURAL PRODUCTION: PRIMARY SEASON 1 - GREAT RAINY SEASON: FEBRUARY THROUGH AUGUST 2015 (CONTINUED)

CROP		D15	D16	D17			D18	D19		D20	D21		D22	D23			
VERIFY COLUMN D04 AND CIRCLE THE CODES FOR ALL CROPS LISTED.  FOR ALL CIRCLED CODES, ASK QUESTIONS D15 THROUGH D23.		What type of processing did you apply to [CROP]? Did you use: Shelling, hulling, beating? A Drying? ..... B Milling or grinding? ... C Other? (SPECIFY) ... X Nothing ..... Y GO TO NEXT CROP: IF NONE, GO TO D17 (SELECT ALL APPLICABLE)	How much [CROP] was lost due to this processing?	What was your main method of storage for [CROP]? NONE ..... 00 UNPROTECTED PILE ..... 01 HEAPED IN HOUSE ..... 02 BAGS IN HOUSE ..... 03 TRADITIONAL SILO ..... 04 METALLIC SILO ..... 05 PROTECTED HUT ..... 06 UNPROTECTED HUT ..... 07 HUNG IN TREE ..... 08 OTHER (SPECIFY) ..... 96			How much [CROP] was lost to rotting, insects, rodents/pests, flood, theft, etc. in the post-harvest period? IF NO LOSSES, GO TO D20	What was the main reason for the loss of [CROP]? ROT ..... 1 INSECTS ..... 2 RODENTS/PESTS... 3 FLOOD ..... 4 THEFT ..... 5 OTHER (SPECIFY) ..... 6		How much [CROP] was consumed by the household?	How much [CROP] was sold?		What was the total income you received for selling [CROP]? ARE DONORS ..... LOCAL MARKET .... 2 PRIVATE TRADER... 3 AGRICULTURAL CO-OP ..... 4 OTHER (SPECIFY) ..... 6	Who was the main buyer of your [CROP]? NO ONE ..... 0 RELATIVE ..... 1 LOCAL MARKET .... 2 PRIVATE TRADER... 3 AGRICULTURAL CO-OP ..... 4 OTHER (SPECIFY) ..... 6			
				CODE	CROP	CODE		QUANTITY	UNIT		CODE	QUANTITY		UNIT	CODE	QUANTITY	UNIT
01	Corn	A B C X Y															
02	Rice	A B C X Y															
03	Sorghum/millet	A B C X Y															
04	Soybean	A B C X Y															
05	Pigeon peas	A B C X Y															
06	Groundnut	A B C X Y															
07	Cabbage	A B C X Y															
08	Lettuce	A B C X Y															
09	Spinach	A B C X Y															
10	Tomato	A B C X Y															
11	Bell pepper	A B C X Y															
12	Shallot, leek	A B C X Y															
13	Potato	A B C X Y															
14	Sweet potato	A B C X Y															
15	Yam	A B C X Y															
16	Sweet cassava	A B C X Y															
17	Cassava	A B C X Y															
18	Sugar cane	A B C X Y															
19	Banana/plantain	A B C X Y															

UNIT CODES (D16, 18, 20, 21)			
SMALL POT .....	01	BASKET .....	06
LARGE POT .....	02	SMALL SACK (MADE FOR RICE)	07
SMALL BUCKET .....	03	FLOUR SAK .....	08
BUCKET (5 GALLONS) .....	04	LARGE SACK (MADE FOR WHEA)	09
SMALL BASKET .....	05	PACK (BANANA) .....	10
		BUNCH (BANANA) .....	11
		DOZEN .....	12
		MAKOUT .....	13
		BARREL .....	14
		DRUM .....	15
		OTHER (SPECIFY) .....	96

UNIT CODES (D16, 18, 20, 21)

MODULE G. ACCESS TO AGRICULTURAL INPUTS					
G01		G02		G03	
In the past 12 months, did you use (INPUT)?		Where did you obtain (INPUT)? (SELECT ALL THAT APPLY)		Were you able to obtain (INPUT) on time in the last 12 months?	
		Previous crop? ..... A Marketplace? ..... B Private store? ..... C Association? ..... D Donor project? ..... E Government (BAC,DDA, Mayor's Office, etc.)? ..... F Self? ..... G Other? (SPECIFY) ..... X			
INPUTS		CODE		YES	NO
A	Irrigated or pumped water? YES.....1 NO.....2	A B C D E F G X		1	2
B	Improved seeds? YES.....1 NO.....2	A B C D E F G X		1	2
C	Fertilizer? YES.....1 NO.....2	A B C D E F G X		1	2
D	Pesticides? YES.....1 NO.....2	A B C D E F G X		1	2
E	Paid labor? YES.....1 NO.....2	A B C D E F G X		1	2
F	Land preparation equipment, such as tractors or animals? YES.....1 NO.....2	A B C D E F G X		1	2

MODULE G. ACCESS TO AGRICULTURAL INPUTS (CONTINUED)					
NO.	QUESTIONS AND FILTERS	CATEGORY CODES			SKIP
G04	Is (are) your plot(s) mostly flat or sloped?	FLAT .....	1		G07
		SLOPED .....	2		
G05	What types of erosion control/water harvesting facilities are available on your plots?		WI	NON	PK
	Terraces	TERRACES	1	2	8
	Grass strip	GRASS STRIP	1	2	8
	Rock wall	ROCK WALL	1	2	8
	Dry walls	DRY WALLS	1	2	8
	Water catchment/impluvium	WATER CATCHMENT/IMPLUVIUM	1	2	8
	Vetiver grass	VETIVER GRASS	1	2	8
	Tree belts	TREE BELTS	1	2	8
	Hedgerows	HEDGEROWS	1	2	8
	Drainage ditches	DRAINAGE DITCHES	1	2	8
	Gully plugs	GULLY PLUGS	1	2	8
	Contour farming	CONTOUR FARMING	1	2	8
	Something else?	OTHER _____	1	2	8
		(SPECIFY)			
G06	What is the agricultural usage of the plot(s)? Do you grow...:		WI	NON	PK
	Dense trees/shrubs (mango, oak, mahogany, coffee, cocoa, citrus...)?	DENSE TREES/SHRUBS	1	2	8
	Dispersed trees/shrubs (mango, oak, mahogany, coffee, cocoa, citrus...)?	DISPERSED TREES/SHRUBS	1	2	8
	Bananas?	BANNANN	1	2	8
	Food producing crops (rice, beans, peas, cassava, yam, potato, sweet potato, vegetables, etc.)?	KILTIPOU MANJE	1	2	8
	Patiray?	PATIRAY	1	2	8
	Fallow?	JACHÉ	1	2	8
	Something else?	LOT _____	1	2	8
		(PRESIZE)			
G07	In the past year, did you:		WI	NON	PK
	Participate in an agricultural work group, "sosye"?	PARTICIPATE IN AG WORK GROUP	1	2	8
	Participate in a konbit for agricultural work?	PARTICIPATE IN A KONBIT	1	2	8
	Hold a konbit to invite others to come and work for you?	HOLD A KONBIT	1	2	8
	Sell days or mornings of your time as a member of a group (squad, or other) ?	SELL LABOUR DAYS: GROUP MEMBER	1	2	8
	Purchase the labor of a group of workers (squad or others)?	PURCHASE LABOR OF WORKERS	1	2	8
	Sell days or mornings of labor for yourself?	SELL LABOR DAYS: FOR YOURSELF	1	2	8
	Purchase days or mornings of workers' labor to work on your own land?	PURCHASE LABOR TO WORK OWN LAND	1	2	8

## MODULE J. AGRICULTURAL TECHNOLOGIES

CHECK QUESTIONNAIRE MODULE D1, E1, AND F1 TO DETERMINE IF THE DIRECT BENEFICIARY PLANTED SOY BEANS OR GROUNDNUT IN THE PAST YEAR.

- IF THE BENEFICIARY DID NOT PLANT GROUNDNUTS OR SOY BEANS IN THE PAST YEAR, THANK THE RESPONDENT FOR THEIR TIME AND END THE INTERVIEW.
- IF THE BENEFICIARY DID PLANT GROUNDNUTS OR SOY BEANS LAST YEAR, CONTINUE WITH QUESTION J1.01.

“Next I would like to ask you about some of the crops you planted in the past one year.”

NO.	QUESTION	RESPONSE
J1.01	CHECK MODULE D1, E1, AND F1: DID RESPONDENT CULTIVATE GROUNDNUT IN THE PAST ONE YEAR?	YES ..... 1 NO ..... 2 → SKIP TO J2.01
J1.02	What kind of land preparation did you use for the groundnut you planted in the past year?  SELECT ALL THAT APPLY	NONE ..... A → J1.07 ZERO TILLAGE ..... B PLOUGHING ..... C  OTHER (SPECIFY) ..... Z
J1.03	CHECK J1.02: DID RESPONDENT USE ZERO TILLAGE TO PREPARE THE LAND?	YES ..... 1 NO ..... 2 → J1.05
J1.04	What kind of zero tillage system did you use for the groundnut?  SELECT ALL THAT APPLY	SLASH AND PLANT ..... A BURN AND PLANT ..... B HERBICIDE AND PLANT ..... C  OTHER (SPECIFY) ..... Z
J1.05	CHECK J1.02: DID RESPONDENT USE PLOUGHING TO PREPARE THE LAND?	YES ..... 1 NO ..... 2 → J1.07
J1.06	What did you use for ploughing for the groundnut?  SELECT ALL THAT APPLY	HAND TILLAGE (HOE) ..... A ANIMAL TRACTION ..... B TRACTOR ..... C  OTHER (SPECIFY) ..... Z
J1.07	What was your main source of groundnut seed?	HOME-MADE (SELF/FRIEND/RELATIVE) ..... 1 PURCHASED FROM FRIEND/RELATIVE ..... 2 PURCHASED FROM AG DEALER ..... 3 PURCHASED IN MARKET (NON-AG DEALER) ..... 4 AID DISTRIBUTION ..... 5  OTHER (SPECIFY) ..... 6

NO.	QUESTION	RESPONSE
J1.08	CHECK J1.07: DID RESPONDENT PURCHASE GROUNDNUT SEED FROM AN AGRICULTURAL OR NON-AGRICULTURAL DEALER (3 OR 4)?	YES ..... 1 NO ..... 2 → J1.10
J1.09	Please tell me the name of the dealer from which you purchased the groundnut seed.	NAME OF GROUNDNUT SEED DEALER (SPECIFY) ..... 1 DON'T KNOW ..... 8
J1.10	CHECK J1.07: DID RESPONDENT PURCHASE GROUNDNUT SEED FROM A FRIEND OR RELATIVE (2)?	YES ..... 1 NO ..... 2 → J1.12
J1.11	Why did you purchase groundnut seed from a friend or relative?	LESS EXPENSIVE ..... 1 MORE ACCESSIBLE THAN MARKET/DEALER ..... 2 QUALITY OF GROUNDNUT YIELD IS GOOD ..... 3 OTHER (SPECIFY) ..... 6
J1.12	What type of groundnut seed did you plant in the past year? SELECT ALL THAT APPLY	OPEN POLLINATED VARIETIES (OPVs) ..... A HYBRID ..... B DON'T KNOW ..... X
J1.13	Was the groundnut crop grown to provide food for the household, or was it grown to be sold or traded in the market?	GROWN FOR FOOD ONLY ..... 1 GROWN FOR MARKET ONLY ..... 2 GROWN FOR BOTH FOOD & MARKET ..... 3 OTHER (SPECIFY) ..... 6
J1.14	Some farmers plant groundnut seeds in rows or randomly broadcast or plant with other crops growing in the plot. How did you plant the groundnut seeds? SELECT ALL THAT APPLY	IN ROWS ..... A RANDOMLY BROADCAST ..... B PLANTED WITH OTHER CROPS GROWING IN THE PLOT ..... C
J1.15	Over the past two planting seasons did you rotate groundnut with other crop(s) in the same plot area?	YES ..... 1 NO ..... 2 OTHER (SPECIFY) ..... 6 DON'T KNOW ..... 8
J1.16	Did you apply fertilizer to the groundnut in the past year?	YES ..... 1 NO ..... 2 → J1.19
J1.17	At which times did you apply fertilizer to the groundnut? SELECT ALL THAT APPLY	PLANTING ..... A MID-CROP ..... B OTHER (SPECIFY) ..... Z

NO.	QUESTION	RESPONSE		
J1.18	What type of fertilizer did you use? SELECT ALL THAT APPLY	ORGANIC ..... A INORGANIC..... B FOLIAR FEEDS ..... C OTHER (SPECIFY)..... Z		
J1.19	Inorganic fertilizer is a man-made fertilizer that you can buy in a bag at the shop. Have you been trained in how to use and apply inorganic fertilizer for groundnut?	YES ..... 1 NO ..... 2		
J1.20	Did you have any insect, rodent or disease attacks on your groundnut in the past year?	YES ..... 1 NO ..... 2		
J1.21	Did you use chemicals to control insect, rodent or disease attacks on the groundnut?	YES ..... 1 NO ..... 2 → J1.23		
J1.22	Was the use of chemicals preventive, or was it in response to an insect, rodent or disease attack?	PREVENTIVE/ROUTINE ..... 1 RESPONSE TO ATTACK..... 2		
J1.23	Have you been trained in when to use and how to apply pesticides for groundnut?	YES ..... 1 NO ..... 2		
J1.24	How many times did you control weeds among your groundnut crops in the past year?	NUMBER OF TIMES: NONE ... 95 → J1.26 <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td></tr></table>		
J1.25	How did you control the weeds among your groundnut crops? SELECT ALL THAT APPLY	HOE ..... A HERBICIDE..... B MULCHING ..... C INTERCROPPING ..... D SLASHING ..... E PULL BY HAND ..... F		
J1.26	Have you been trained in when to use and how to apply herbicides for groundnut?	YES ..... 1 NO ..... 2		
J1.27	In the past year, did you use any of the following techniques to manage soil and water for your groundnut crop? SELECT ALL THAT APPLY Terracing? Mulching? Soil bands or trenches? Intercropping? Crop rotation?  Some other technique? IF YES: What was the technique?	TERRACING ..... A MULCHING ..... B SOIL BANDS/TRENCHES..... C INTERCROPPING ..... D CROP ROTATION ..... E NONE ..... X OTHER (SPECIFY)..... Z		

J1.28	Besides rainfall, did you use any additional irrigation methods for the groundnut?	YES..... 1 NO..... 2→ J1.30
J1.29	What type of irrigation did you use? SELECT ALL THAT APPLY	BY HAND (WATERING CAN, HOSE, ETC.)..... A CANALS..... B PERMANENT HOSE..... C PUMPS..... D  OTHER (SPECIFY)..... Z
J1.30	How did you harvest the groundnut?	BY HAND ONLY..... 1 WITH A MACHINE ONLY..... 2 SOME BY HAND, SOME WITH A MACHINE..... 3 NOT YET HARVESTED..... 4
J1.31	Did you dry any of your groundnut harvest before sale or use?	YES..... 1 NO..... 2→ J1.33
J1.32	What did you dry the groundnut on? SELECT ALL THAT APPLY	BARE GROUND..... A GROUND PLASTERED WITH COW DUNG..... B GROUND COVERED WITH STRAW..... C LEFT TO DRY ON PLANT IN FIELD..... D TARPAULINS..... E DRYING YARD..... F DRYING RACKS..... G SOLAR DRYERS..... H MECHANIZED DRYERS..... I  OTHER (SPECIFY)..... Z
J1.33	How did you shell the groundnut? SELECT ALL THAT APPLY	BY HAND ONLY..... A BY STICKS..... B WITH A SHELLING MACHINE..... C DID NOT SHELL..... D  OTHER (SPECIFY)..... Z
J1.34	Did you put the groundnut in bags after harvest for storage or transport?	YES..... 1 NO..... 2→ J1.36
J1.35	What type of storage bag did you use for the groundnut?	WOVEN BAG, SINGLE LAYER..... 1 TWO- OR THREE-LAYERED WOVEN BAGS..... 2 HERMETIC BAG..... 3

J1.36	<p>Did you use any of the following storage locations to store the groundnut?</p> <p>SELECT ALL THAT APPLY</p> <p>Residential house? Cribs? Granaries? Other constructed stores? Warehouses? Storage silos?</p> <p>Some other type of location? IF YES: What was the storage location you used?</p>	<p>RESIDENTIAL HOUSE..... A CRIBS ..... B GRANARIES ..... C OTHER CONSTRUCTED STORES ..... D WAREHOUSES ..... E STORAGE SILOS ..... F</p> <p>NONE/DID NOT STORE ANY GROUNDNUT ..... X → SKIP TO J2.01</p> <p>OTHER (SPECIFY) _____ Z</p>
J1.37	<p>Was your groundnut attacked by insects, rodents or disease while in storage?</p>	<p>YES ..... 1 NO ..... 2</p>
J2.01	<p>CHECK MODULE D1, E1, AND F1: DID RESPONDENT CULTIVATE SOY BEANS IN THE PAST ONE YEAR?</p>	<p>YES ..... 1 NO ..... 2 → SKIP TO END</p>
J2.01A	<p>How many varieties of soy beans did you cultivate?</p>	<p>NUMBER OF VARIETIES CULTIVATED: <input type="text"/> <input type="text"/></p> <p>DON'T KNOW ..... 98</p>
J2.02	<p>What kind of land preparation did you use for the beans you planted in the past year?</p> <p>SELECT ALL THAT APPLY</p>	<p>NONE ..... A → J2.07 ZERO TILLAGE ..... B PLOUGHING ..... C OTHER (SPECIFY) _____ Z</p>
J2.03	<p>CHECK J2.02: DID RESPONDENT USE ZERO TILLAGE TO PREPARE THE LAND?</p>	<p>YES ..... 1 NO ..... 2 → J2.05</p>
J2.04	<p>What kind of zero tillage system did you use for the soy beans?</p> <p>SELECT ALL THAT APPLY</p>	<p>SLASH AND PLANT ..... A BURN AND PLANT ..... B HERBICIDE AND PLANT ..... C OTHER (SPECIFY) _____ Z</p>
J2.05	<p>CHECK J2.02: DID RESPONDENT USE PLOUGHING TO PREPARE THE LAND?</p>	<p>YES ..... 1 NO ..... 2 → J2.07</p>
J2.06	<p>What did you use for ploughing for the soy beans?</p> <p>SELECT ALL THAT APPLY</p>	<p>HAND TILLAGE (HOE) ..... A ANIMAL TRACTION ..... B TRACTOR ..... C OTHER (SPECIFY) _____ Z</p>

J2.07	What was your main source of soy bean seed?	HOME-SAVED (SELF/FRIEND/RELATIVE) .....1 PURCHASED FROM FRIEND/RELATIVE .....2 PURCHASED FROM AG DEALER .....3 PURCHASED IN MARKET (NON-AG DEALER) .....4 AID DISTRIBUTION.....5  OTHER (SPECIFY) _____ .....6
J2.08	CHECK J2.07: DID RESPONDENT PURCHASE SOY BEAN SEED FROM AN AGRICULTURAL OR NON-AGRICULTURAL DEALER (3 OR 4)?	YES .....1 NO .....2 → J2.10
J2.09	Please tell me the name of the dealer from which you purchased the bean seed.	NAME OF SOY BEAN SEED DEALER (SPECIFY) _____ .....1  DON'T KNOW .....8
J2.10	CHECK J2.07: DID RESPONDENT PURCHASE SOY BEAN SEED FROM A FRIEND OR RELATIVE (2)?	YES .....1 NO .....2 → J2.12
J2.11	Why did you purchase soy bean seed from a friend or relative?	LESS EXPENSIVE .....1 MORE ACCESSIBLE THAN MARKET/DEALER .....2 QUALITY OF BEAN YIELD IS GOOD .....3  OTHER (SPECIFY) _____ .....6
J2.12	What type of bean seed did you plant in the past year?  SELECT ALL THAT APPLY	OPEN POLLINATED VARIETIES (OPVs)..... A HYBRID ..... B DON'T KNOW ..... X
J2.13	Was the soy bean crop grown to provide food for the household, or was it grown to be sold or traded in the market?	GROWN FOR FOOD ONLY .....1 GROWN FOR MARKET ONLY .....2 GROWN FOR BOTH FOOD & MARKET .....3  OTHER (SPECIFY) _____ .....6
J2.14	Some farmers plant soy bean seeds in rows, or randomly broadcast, or plant with other crops growing in the plot.  How did you plant the bean seeds?  SELECT ALL THAT APPLY	IN ROWS ..... A RANDOMLY BROADCAST ..... B PLANTED WITHIN OTHER CROPS GROWING IN THE PLOT ..... C
J2.15	Over the past two planting seasons did you rotate soy beans with other crop(s) in the same plot area?	YES .....1 NO .....2  OTHER (SPECIFY) _____ .....6  DON'T KNOW .....8
J2.16	Did you apply fertilizer to the soy beans in the past year?	YES .....1 NO .....2 → J2.19

J2.17	At which times did you apply fertilizer to the soy beans? SELECT ALL THAT APPLY	PLANTING ..... A MID-CROP ..... B OTHER (SPECIFY)..... Z
J2.18	What type of fertilizer did you use? SELECT ALL THAT APPLY	ORGANIC ..... A INORGANIC..... B FOLIAR FEEDS ..... C OTHER (SPECIFY)..... Z
J2.19	Inorganic fertilizer is a man-made fertilizer that you can buy in a bag at the shop. Have you been trained in how to use and apply inorganic fertilizer for soy beans?	YES ..... 1 NO ..... 2
J2.20	Did you have any insect, rodent or disease attacks on your soy beans in the past year?	YES ..... 1 NO ..... 2
J2.21	Did you use chemicals to control insect, rodent or disease attacks on the soy beans?	YES ..... 1 NO ..... 2 → J2.23
J2.22	Was the use of chemicals preventive, or was it in response to an insect, rodent or disease attack?	PREVENTIVE/ROUTINE ..... 1 RESPONSE TO ATTACK ..... 2
J2.23	Have you been trained in when to use and how to apply pesticides for beans?	YES ..... 1 NO ..... 2
J2.24	How many times did you control weeds among your soy bean crops in the past year?	NUMBER OF TIMES: <input type="text"/> <input type="text"/> NONE ..... 95 → J2.26
J2.25	How did you control the weeds among your soy bean crops? SELECT ALL THAT APPLY	HOE ..... A HERBICIDE..... B MULCHING ..... C INTERCROPPING ..... D SLASHING ..... D PULL BY HAND ..... E
J2.26	Have you been trained in when to use and how to apply herbicides for soy beans?	YES ..... 1 NO ..... 2

J2.27	<p>In the past year, did you use any of the following techniques to manage soil and water for your soy bean crop?</p> <p>SELECT ALL THAT APPLY</p> <p>Terracing?  Mulching?  Soil bands or trenches?  Intercropping?  Crop rotation?  Row planting?</p> <p>Some other technique? IF YES: What was the technique?</p>	<p>TERRACING ..... A  MULCHING ..... B  SOIL BANDS/TRENCHES ..... C  INTERCROPPING ..... D  CROP ROTATION ..... E  ROW PLANTING ..... F    NONE ..... X    OTHER (SPECIFY) _____ Z</p>
J2.28	<p>Besides rainfall, did you use any irrigation for the soy beans?</p>	<p>YES ..... 1  NO ..... 2 → J2.30</p>
J2.29	<p>What type of irrigation did you use?</p> <p>SELECT ALL THAT APPLY</p>	<p>BY HAND (WATERING CAN, HOSE, ETC.) ..... A  CANALS ..... B  PERMANENT HOSE ..... C  PUMPS ..... D    OTHER (SPECIFY) _____ Z</p>
J2.30	<p>How did you harvest the soy beans?</p>	<p>BY HAND ONLY ..... 1  WITH A MACHINE ONLY ..... 2  SOME BY HAND, SOME WITH A MACHINE ..... 3  NOT YET HARVESTED ..... 4</p>
J2.31	<p>Did you dry any of your soy bean harvest before sale or use?</p>	<p>YES ..... 1  NO ..... 2 → J2.33</p>
J2.32	<p>What did you dry the soy beans on?</p> <p>SELECT ALL THAT APPLY</p>	<p>BARE GROUND ..... A  GROUND PLASTERED WITH COW DUNG ..... B  LEFT TO DRY ON PLANT IN FIELD ..... C  TARPAULINS ..... D  DRYING YARD ..... E  DRYING RACKS ..... F  SOLAR DRYERS ..... G  MECHANIZED DRYERS ..... H    OTHER (SPECIFY) _____ Z</p>
J2.33	<p>How did you shell the soy beans?</p> <p>SELECT ALL THAT APPLY</p>	<p>BY HAND ONLY ..... A  BY STICKS ..... B  WITH A SHELLING MACHINE ..... C  DID NOT SHELL ..... D    OTHER (SPECIFY) _____ Z</p>
J2.34	<p>Did you put the soy beans in bags after harvest for storage or transport?</p>	<p>YES ..... 1  NO ..... 2 → J2.36</p>

J2.35	What type of storage bag did you use for the soy beans?	WOVEN BAG, SINGLE LAYER.....1 TWO- OR THREE-LAYERED WOVEN BAGS .....2 HERMETIC BAG.....3
J2.36	Did you use any of the following storage locations to store the soy beans?  SELECT ALL THAT APPLY  Residential house? Cribs? Granaries? Other constructed stores? Warehouses?  Some other type of location? IF YES: What was the storage location you used?	RESIDENTIAL HOUSE.....A CRIBS .....B GRANARIES .....C OTHER CONSTRUCTED STORES .....D WAREHOUSES .....E  NONE/DID NOT STORE ANY BEANS .....X → SKIP TO J3.01  OTHER (SPECIFY).....Z
J2.37	Were your soy beans attacked by insects, rodents or disease while in storage?	YES .....1 NO.....2

CONCLUDE THE INTERVIEW:

“Thank you very much for your time in responding to this survey. Your contributions are greatly appreciated.”

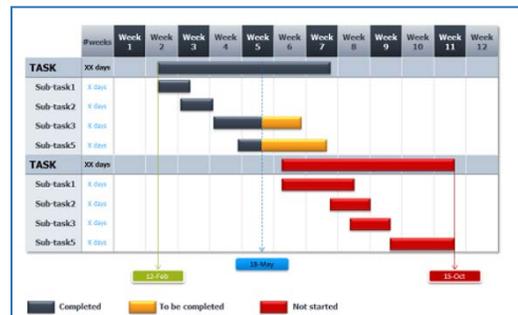
## Individual Application



Individual  
Exercise  
15 minutes

Think about an FTF activity in which you will need to collect data and draft a Gantt Chart for the activity.

Notes:



## *Measuring Area*

**Notes:**



	Accuracy	Cost	Equipment required	Expertise needed	Level of effort	Plot size
<b>Tape and compass</b>	medium-high	medium; varies with quality	low	low-medium	medium-high	< .5 ha
<b>GPS</b>	high	med-high; varies with quality	high	medium	medium	> .5 ha*
<b>Pacing</b>	low-medium	low	low	low	medium	small-medium
<b>Farmer estimates</b>	low-medium; high w/correction factor	low	low	low	low	small
<b>Remote sensing</b>	low	high	high	high	medium	very large

## Measuring Estimating Area Challenge



Group Exercise  
90 minutes

Materials required: marbles, sturdy measuring tape, handheld GPS unit (extra AA batteries), pencil and paper (Rite-in-Rain notebook preferred), Google Earth sketch of plot to be measured.

### Group I – Measuring Area by Pacing<sup>4</sup> ([Army Study Guide](#))

A pace is equal to one natural step, about 30 inches long or 0.76 meters. One way to measure ground distance is the pace count. To accurately use the pace count method, you must know how many paces it takes you to walk 10 meters. To determine this, you must walk an accurately measured course using your measuring tape and count the number of paces you take. A pace course can be as short as 10 meters or as long as 600 meters. The pace course, regardless of length, must be on similar terrain to that you will be walking over. It does no good to walk a course on flat terrain and then try to use that pace count on hilly terrain.

To determine your pace count on a 10-meter course, count the paces it takes you to walk the 10 meters. Do this three times and then average out the results 30/number of paces. The answer will give you the average paces it takes you to walk 30 meters. It is important that each person who navigates knows her pace count.

(1) There are many methods to keep track of the distance traveled when using the pace count. Some of these methods are: put a pebble in your pocket every time you have walked 10 meters according to your pace count; tie knots in a string; or put marks in a notebook. Do not try to remember the count; always use one of these methods or design your own method.

(2) Certain conditions affect your pace-count in the field, and you must allow for them by making adjustments.

- Slopes. Your pace lengthens on a downslope and shortens on an upgrade. Keeping this in mind, if it normally takes you 120 paces to walk 100 meters, your pace count may increase to 130 or more when walking up a slope.
- Winds. A head wind shortens the pace and a tail wind increases it.
- Surfaces. Sand, gravel, mud, snow, and similar surface materials tend to shorten the pace.
- Elements. Falling snow, rain, or ice can cause the pace to be reduced in length.
- Clothing. Excess clothing and boots with poor traction affect the pace length.
- Visibility. Poor visibility such as in fog, rain, or darkness, will shorten your pace.

---

<sup>4</sup> [http://www.armystudyguide.com/content/army\\_board\\_study\\_guide\\_topics/land\\_navigation\\_map\\_reading/how-to-use-pace-count-to-.shtml](http://www.armystudyguide.com/content/army_board_study_guide_topics/land_navigation_map_reading/how-to-use-pace-count-to-.shtml)

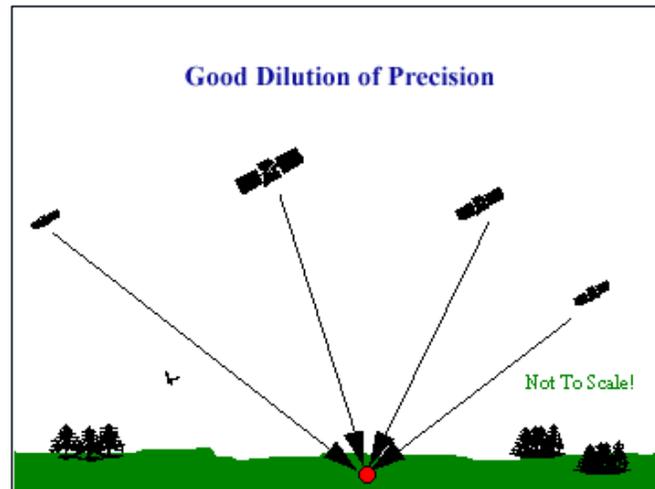
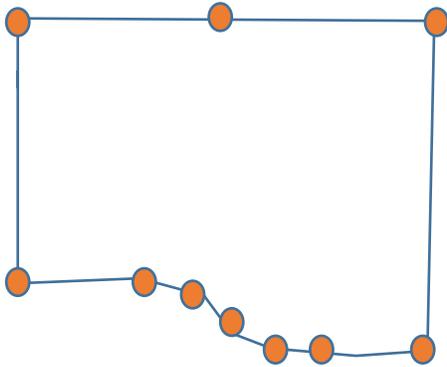
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Calculate the area of the “plot part 1” rectangle by multiplying length x width.

Calculate the area “plots part 2 and 3” triangles  $A = \frac{h_b \cdot b}{2}$ . See cheat sheet for further instructions on calculating area of triangle.

## Group 2 – Measuring Area with a GPS Unit

Turn on your GPS unit – check settings and make sure the unit is set to collect points in decimal degrees, and the correct<sup>5</sup> datum (WGS 84) is set and you have at least 4 satellites with good dilution of precision or “geometry” (satellites are not clustered together). Walk the perimeter of the plot stopping every 3-4 meters (10-13 feet) on straight edges and every 1-2 meters (3-7 feet) on curved edges to collect points. Be sure to capture the corners of the plot. Stand holding the GPS unit at each point collection location for at least 2 minutes.



## Group 3 - Farmer’s Estimate:

Group members will estimate the size of the plot and then try to predict what quantity of maize they expect to harvest this year (prediction). Record the amount in yield per acre. In the U.S. this is measured in bushels/acre. We will use NASS 2016 QuickStats<sup>6</sup> Virginia average yield per acre of 161 bushels/acre. NOTE: In your own country you would use the local unit of measurement for both area and yield. Consult with Group #1 (Pacing Measurement) and compare results on the estimated size of the plot versus direct measurement.

---

<sup>5</sup> Africa: <http://earth-info.nga.mil/GandG/coordsys/onlinedatum/CountryAfricaTable.html>  
GPS Datum List: <http://therucksack.tripod.com/MiBSAR/LandNav/Datums/GarminMapDatumList.pdf>

<sup>6</sup> 2015 STATE AGRICULTURE OVERVIEW: [https://www.nass.usda.gov/Quick\\_Stats/Ag\\_Overview/stateOverview.php?state=virginia](https://www.nass.usda.gov/Quick_Stats/Ag_Overview/stateOverview.php?state=virginia)

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## How to ...

### How to calculate an area in the field

You may need to calculate an area in the field, particularly for mapping a weed infestation or working out how much herbicide you need to mix to treat weeds.

#### Measuring an area

There are two ways you can measure an area:

1. Use a tape measure to get an accurate measurement.
2. Pace out the distance as best you can to get an estimation.



The unit used for measuring an area is a metre (m).

If you want to use the 'pacing out' method to measure an area you should first practise stepping out against a measured distance of 10m.

Here's how you do it:



**1**  
Measure out 10m.



**2**  
Use a natural stride to pace out 10m.



**3**  
Work out the number of paces taken in 10m.



Use a natural stride to pace out 10m. To get an accurate measurement don't force an overextended step. Make sure you do it several times to find your natural rhythm and pace length.

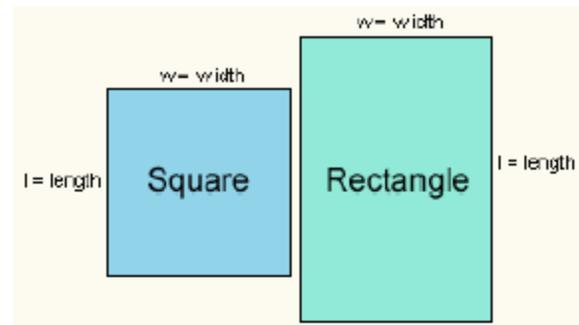
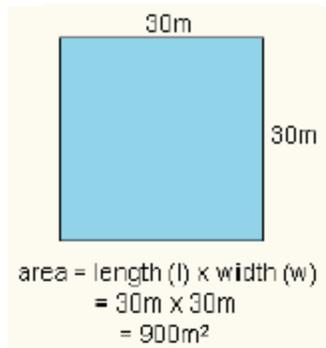
#### Calculating regular shapes

The area of a regular shape is calculated using the following formula:

$$\text{Area} = \text{length} \times \text{width}$$

The area is shown in square metres (m<sup>2</sup>). For example, to calculate the area of a plot of land, use the following formula:

[https://www.dlswb.rmit.edu.au/toolbox/conservation/html/pages/website/how\\_to/howto\\_11.htm](https://www.dlswb.rmit.edu.au/toolbox/conservation/html/pages/website/how_to/howto_11.htm)

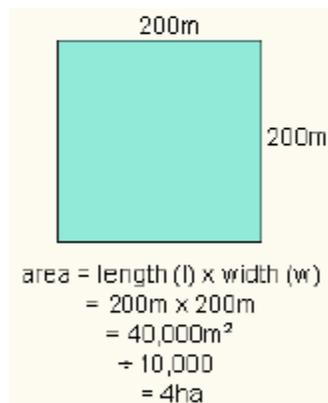
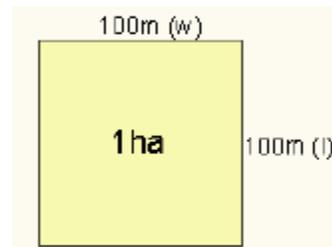


### Calculating areas in hectares

You can think of a hectare (ha) as measuring 100m by 100m.

Take the figure you have worked out in square metres (m<sup>2</sup>), then divide by 10,000 to find the number of hectares (ha).

For example, to calculate a larger area of land in hectares, use the following formula:



Use a calculator to convert an area in square metres (m<sup>2</sup>) into hectares (ha).



# GPS Field Protocol:

What you need to know when using a GPS unit for fieldwork

Global Positioning Systems (GPS) is a common way to collect location data for agricultural, urban, and natural resources. It is made up of a constellation of 24 satellites used for civilian GPS, which accurately determine your location (X, Y, Z) in any weather, day or night, anywhere on Earth. A GPS unit uses four or more satellites to triangulate your position on Earth. For this reason, you need four or more satellites! GPS satellite signals travel by line of sight, and will pass through clouds, glass, & plastic, but NOT through most solid objects, such as buildings & mountains.

## Your GPS accuracy depends on:

### The type of GPS unit you have

If you have a handheld GPS unit (e.g. Garmin), the highest attainable horizontal accuracy is about 3 m. More accurate units like Trimble's GeoXH, will give you accuracy of < 3 m, sometimes sub-meter accuracy under good conditions or with additional antennas. More expensive units are not *always* the most accurate – many have reported that Garmin handhelds give better accuracy under heavy canopy than do more advanced Trimble units.

*Recommendation:* buy the most affordable (and dependable) GPS that best suits your accuracy requirements!

### Number of satellites visible to your receiver

Buildings, terrain, or sometimes even dense foliage can block signal reception, causing position errors or possibly no position reading at all. Also, signal multipath might happen if a signal from a satellite is reflected off objects such as tall buildings or large rock surfaces before it reaches the receiver. This increases the travel time of the signal, causing errors.

*Recommendation:* The more satellites, the better – but you must have four or more before you record a point! If you cannot get four or more, wait a few minutes for the satellites to move/adjust, or move to an area with better reception and make note of distance and direction moved from the desired point.

### Strength of satellite signals

While many GPS units do not give you a measurement of satellite signal strength, you can get an idea of it by viewing the satellite screen on most GPS units, which depicts signal strength with bar graphs for each visibly satellite.

*Recommendation:* The stronger the signals, the better – just make sure you have four or more satellite signals before you record a point!

### Geometric positioning of the satellites in the sky

Ideal satellite geometry exists when the satellites are located at wide angles relative to each other in the sky, which improves triangulation and thus reduces error. While Trimble units give a measurement for satellite geometry ("PDOP," "HDOP," or "GDOP"), handheld units do not give a measurement for it – it is a good idea to be aware that accuracy will improve when satellites are distributed in different areas of the sky.

*Recommendation:* Aim for the satellites to be widely distributed across the skyplot on your GPS unit.

### Differential correction procedures

Wide-Area Augmentation System (WAAS) is available on many GPS units (see "Handheld GPS Buyer's Guide" for more info), and on all Trimble receivers. WAAS can improve GPS accuracy to within 2 m for compatible handheld GPS units, and to less than 1 m with Trimble units. However, it's only available in North America, and you need an unobstructed view of the southern horizon, so it's ideal for open land (such as open agricultural crops) and marine applications. You know you are receiving WAAS signal if you are receiving signals from satellites with ID numbers 31 or higher (in the skyplot). Differential GPS (DGPS) is available for Trimble units (and for PDAs with ArcPad and GPS Correct software) and can improve accuracy to about 1 cm.

*Recommendation:* Only enable WAAS if you have an open view of the southern horizon – if you have WAAS enabled without a clear view, your accuracy will be reduced because the GPS unit is constantly trying to find the WAAS satellites. As for DGPS, use it if you have access to DGPS correction (either real-time or post-processed), and you want sub-meter accuracy.



Pictured here is a Garmin GPSmap 60CSx as an example of the satellite screen, which all GPS devices contain.  
Image credit: Garmin.com

<http://gif.berkeley.edu>

## What format should I use to collect GPS data?

The most important things about collecting GPS are to be consistent and to document your data. That way, data can be easily used with other data with minimal adjustments, and people who use your data in the future (including you) can know exactly what format (projection and datum) you used to collect the data. If you do not document your data, it is possible that it will be unusable in the future!

### All geographic data has a projection and a datum:

- Projection is how the 3D earth is mapped on a 2D surface, like a map on paper or your computer screen. GPS units call it the "Position Format" or "Coordinate System."
- Datum is the mathematical model that fits the earth to an ellipsoid. Most GPS units call it the "Datum" or "Map Datum."

#### Recommendations:

- Use the projection: UTM (stands for Universal Transverse Mercator)
- Use the datum: NAD 83 (stands for North American Datum 1983)
- Using other projections (like Latitude-Longitude or Stateplane) and other datum (like WGS 84) is okay – just be sure you record whatever projection and datum you used!
- If you decide to use Latitude-Longitude, try to collect in decimal-degrees (hddd.dddd°) as the Position Format.

#### GPS Accuracy:

- Accuracy is how close you are to the real-world location. It is also called the offset or the error. On most handheld units, accuracy is represented by a "error buffer," e.g.  $\pm 14\text{ft}$  or  $\pm 11\text{m}$ .
- Your GPS accuracy depends on many things; see other side.
- When we talk about accuracy, usually we mean horizontal accuracy. There is also vertical accuracy, which is how close you are to the real-world elevation at a given location. Vertical accuracy is usually somewhat inaccurate with handheld GPS unit (10-200m), while it is more accurate with more advanced Trimble units (<5m). For sub-meter vertical accuracy, survey-grade GPS equipment is required.

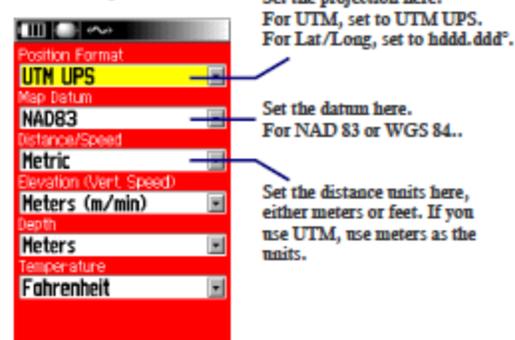
### Things to Remember:

1. Be consistent with what projection and datum you use to collect data.
2. When in doubt, or if starting a new project, use UTM projection with NAD 83 datum.
3. Only record a point if you have 4 or more satellites.
4. Record accuracies on your field sheet since you can't always transfer these digitally.

### How do I set my GPS projection & datum?

All GPS units have a Setup menu, where you can set the projection and datum. Check the GPS unit's manual for detailed instructions. Below is a screenshot from

Garmin's Setup | Units menu:



### Recording GPS Information

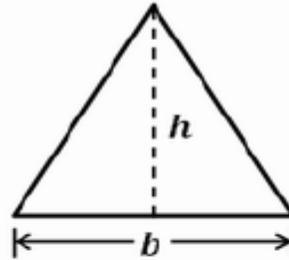
- **UTM:**
  - » Easting (e.g. 0525690)
  - » Northing (e.g. 4286289)
  - » Accuracy (e.g.  $\pm 11\text{m}$ )
- **Latitude, Longitude:**
  - » Latitude (e.g. 37.867242) with 5-6 decimals
  - » Longitude (e.g. 122.300746) with 5-6 decimals
  - » Accuracy (e.g.  $\pm 11\text{m}$ )
- **Backup**

It is always a good idea to record GPS coordinates and any other data on paper/notebook in the field if possible, just in case of data loss after accidental damage. (Damage is less common with rugged units, such as Garmin handhelds or the Trimble Recon.)

If you do record GPS coordinates, write both the X (Easting or Latitude), the Y (Northing or Longitude), and the accuracy, e.g.  $\pm 11\text{m}$ .

### Area of a Triangle

(Solve Using Base and Height)

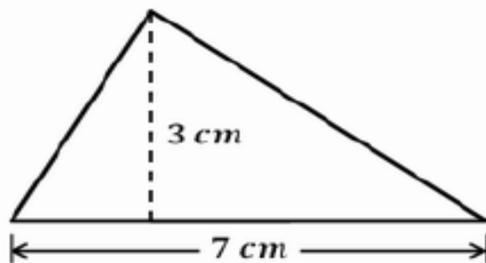


$$\text{Area} = \frac{1}{2} (b \times h)$$

*b = base of the triangle*

*h = height of the triangle*

**Example:**



$$\begin{aligned} A &= \frac{1}{2} (b \times h) \\ &= \frac{1}{2} (7 \times 3) \\ &= \frac{1}{2} (21) \\ &= 10.5 \text{ cm}^2 \end{aligned}$$

---

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---

## Disaggregating Data

Notes:



## Sampling Basics

Notes:



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## Individual Application



Individual  
Exercise  
15 minutes

Think about an FTF activity in which you need to collect performance monitoring data.

- Select one variable on which you will collect data
- Do you need to disaggregate the data
- If so, how will you disaggregate the data?
- Sample size

### Notes:

## Additional Resources:

- Feed the Future Agricultural Indicators Handbook:  
[https://agrilinks.org/sites/default/files/resource/files/FTF\\_Agriculture\\_Indicators\\_Guide\\_Mar\\_2015.pdf](https://agrilinks.org/sites/default/files/resource/files/FTF_Agriculture_Indicators_Guide_Mar_2015.pdf)
  - USGS Global Positioning Application and Practice: <http://water.usgs.gov/osw/gps/>
  - GNSS in Africa : [http://www.gnss-africa.org/?page\\_id=23](http://www.gnss-africa.org/?page_id=23)
  - [Measurement, Farm Size and Productivity \(LSMS-ISA/WorldBank\)](http://siteresources.worldbank.org/INTSURAGRI/Resources/7420178-1294259038276/Fact_Artifact_Brief.pdf)  
[http://siteresources.worldbank.org/INTSURAGRI/Resources/7420178-1294259038276/Fact\\_Artifact\\_Brief.pdf](http://siteresources.worldbank.org/INTSURAGRI/Resources/7420178-1294259038276/Fact_Artifact_Brief.pdf)
  - The Humanitarian Data Exchange - Open Data Sources for the Global Development Community:  
<https://data.humdata.org/>
  - Army Study Guide (How to Pace Count):  
[http://www.armystudyguide.com/content/army\\_board\\_study\\_guide\\_topics/land\\_navigation\\_map\\_reading/how-to-use-pace-count-to-.shtml](http://www.armystudyguide.com/content/army_board_study_guide_topics/land_navigation_map_reading/how-to-use-pace-count-to-.shtml)
-



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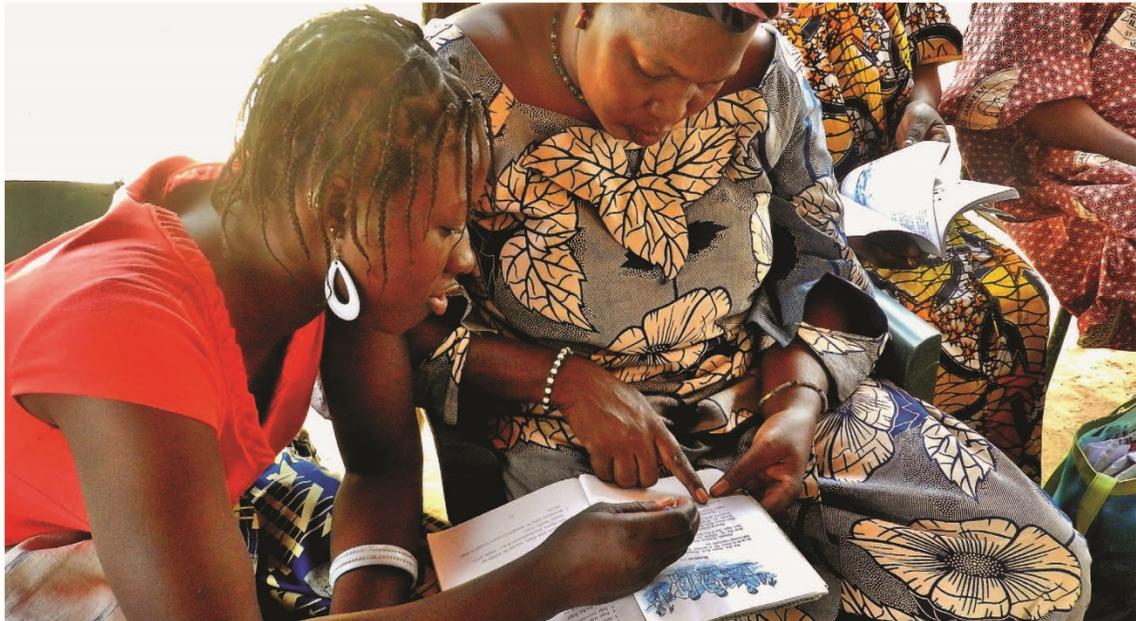


**FEED THE FUTURE**

The U.S. Government's Global Hunger & Food Security Initiative

# PERFORMANCE MONITORING

PARTICIPANT MANUAL



**USAID**  
FROM THE AMERICAN PEOPLE



This publication was produced for review by the U.S. Agency for International Development (USAID). It was prepared by the Feed the Future Knowledge-Driven Agricultural Development Project (KDAD), Contract Number: AID-OAA-C-13-00137, implemented by Insight Systems Corporation. The opinions expressed herein are those of the author(s) and do not necessarily reflect the views of USAID.

August 2016

## Welcome to the Feed the Future Performance Monitoring Course

Dear Course Participant,

Welcome to Feed the Future's course on performance monitoring. Monitoring, learning and adapting activities-based evidence moves us forward in our goal to reduce hunger, poverty and under-nutrition. To that end, this course will prepare you to:

- Meet the requirements for reporting performance such that program activities and outcomes to the Feed the Future Results Framework.
- Use performance monitoring as a means for strategic adaptive management of Feed the Future activities.

Over the next five days, you will build your skills and knowledge to:

- Develop a theory of change and a results framework for your FTF activities
- Select require if applicable indicators for your activity results framework
- Create custom indicators
- Define beneficiaries, baselines and targets
- Collect performance monitoring data
- Verify performance monitoring data
- Report and use performance monitoring data
- Submit open data

To achieve these outcomes, we have just a few guidelines for all course participants to follow:

- Listen, inquire and share
- Respect and value different ideas and options
- Create a safe space
- Challenge yourself
- Support each other

The course was developed by the Feed the Future Monitoring and Evaluation team. If you have any questions about monitoring and evaluating Feed the Future activities, do not hesitate to ask any Monitoring, Evaluation and Learning team member. We are proud to be your partners in the important work you do in the field.

Sincerely,

*Anne Swindale*  
Anne Swindale, Course Owner  
Senior Program Advisor  
Monitoring, Evaluation and Learning  
Feed the Future, USAID

*Salik Farooqi*  
Salik Farooqi, Course Owner  
Technical Advisor  
Monitoring, Evaluation and Learning  
Feed the Future, USAID

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### **Session 7: Verifying Performance Monitoring Data**

**7**

- Data Quality
  - Data Quality Assessments
-



SESSION 7:

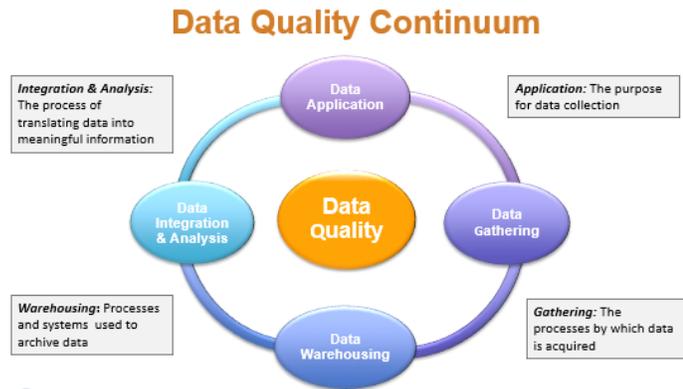
## Verifying Performance Monitoring Data

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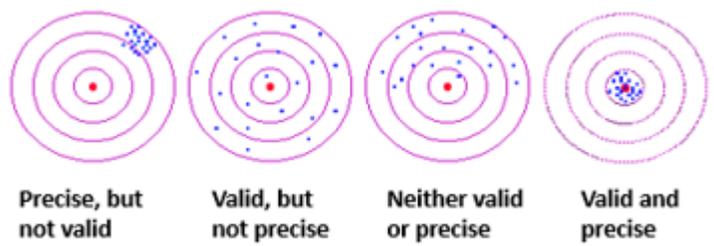
## Data Quality

### Notes:



### Five USAID Data Quality Standards

Standard	Definition
<b>Validity</b>	The data measure what they are intended to measure.
<b>Reliability</b>	The data are measured and collected consistently; definitions and methodologies are the same over time.
<b>Precision</b>	The data have sufficient detail; in this case the “accuracy” of the data refers to the fineness of measurement units
<b>Timeliness</b>	Data are current and information is available on time
<b>Integrity</b>	Data is protected from deliberate bias or manipulation for political or personal reasons.



## Identify the Data Quality Issues in Each Scenario



**Scenario #1:** Helping Farmers NGO in measuring Value of Incremental Sales. When drawing a sample, they decide to capture farmers not directly benefitting from the Feed the Future intervention.

- What data quality issue(s) should you be concerned about?
- In what circumstances would it be appropriate to sample farmers not directly benefitting from the intervention?

**Scenario #2:** Helping Farmers NGO is measuring # of farmers and others applying improved technologies, but the data does not provide any information by technology type.

- What data quality issue(s) should you be concerned about?

**Scenario #3:** Helping Farmers NGO is working in the chickpea value chain, which has two agricultural seasons in the fiscal year. When collecting information on Gross Margin, they survey farmers asking about one agricultural season.

- What data quality issue(s) should you be concerned about?

**Scenario #4:** Helping Farmers NGO is working in the chickpea value chain, which has two agricultural seasons in the fiscal year. When collecting information on Gross Margin, they survey farmers asking about one agricultural season.

- What data quality issue(s) should you be concerned about?

---

**Scenario #5:** Helping Farmers NGO conducted trainings in XYZ district and has submitted the training sign-in sheets as verification. When reviewing them, however, you notice that most of the signatures seem too similar.

- What data quality issue(s) should you be concerned about?

**Scenario #6:** Helping Farmers NGO hired a third party contractor to collect baseline data for # of hectares under improved technology, and is now preparing to collect annual monitoring data.

- Assuming that Helping Farmers NGO will no longer collect hectare information with the same third party at baseline, what data quality issue(s) would you be concerned about?
-

## Data Quality Assessments

### Notes:

- A DQA focuses on applying the data quality standards and examining the systems and approaches for collecting data to determine whether they are likely to produce high quality data over time
- If the data quality standards are met and the data collection methodology is well designed, then it is likely that good quality data will result
- DQAs are done at the indicator-level but are dependent on data collected at the activity-level!

### DQA Options

Informal Option	Semi-formal Option	Formal Option
<ul style="list-style-type: none"> <li>• Conducted internally by the AO team</li> <li>• Ongoing (driven by emerging and specific issues)</li> <li>• More dependent on the AO team and individual expertise of program</li> <li>• Conducted by the program manager</li> <li>• Product: Documented in memos, notes in the PMP</li> </ul>	<ul style="list-style-type: none"> <li>• Draws on management and M&amp;E expertise</li> <li>• Periodic &amp; systematic</li> <li>• Facilitated and coordinated by the M&amp;E expert, but AO team members are participants</li> <li>• Product: Data Quality Assessment Report</li> </ul>	<ul style="list-style-type: none"> <li>• Driven by broader programmatic needs, as warranted</li> <li>• More dependent on external technical expertise and/or specific types of data expertise</li> <li>• Product: Either a Data Quality Assessment report or addressed as a part of another report</li> </ul>



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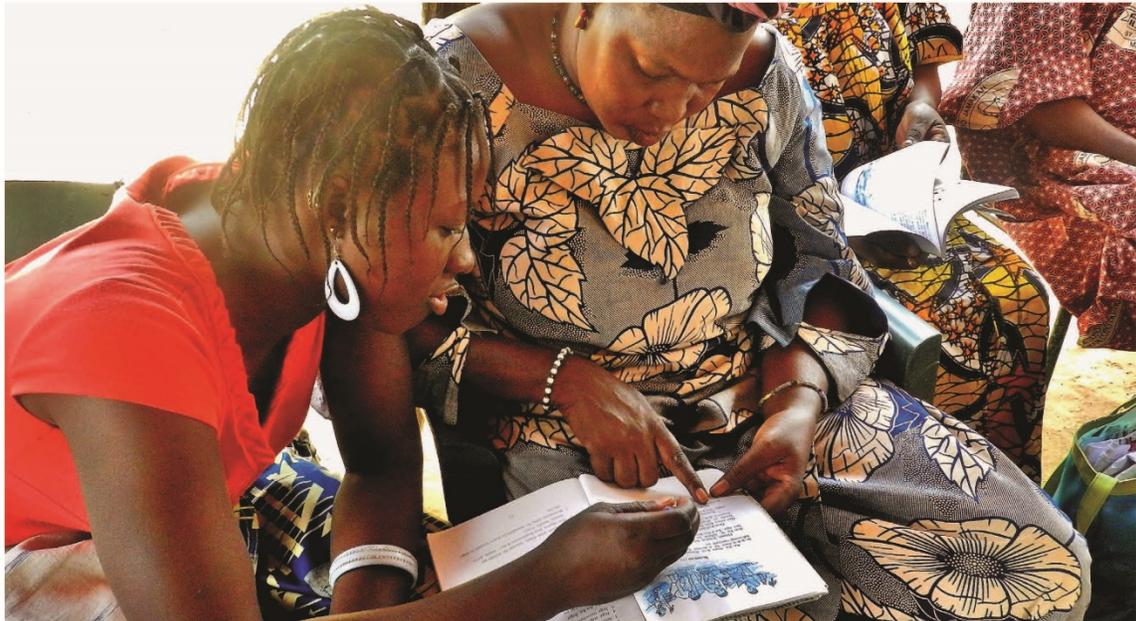


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Feed the Future, USAID





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SESSION 8:  
**Reporting and Using Data**



## NUTSENAG Performance Monitoring



Group Exercise  
60 minutes

Your team is responsible for reporting on the performance of NUTSENAG. The NUTSENAG FTFMS focuses on three indicators:

- Number of people trained
- Number of beneficiaries applying improved technologies
- Gross margin.

In addition, the implementing partners have a database they shared with us.

The data has been collected on an Excel spreadsheet. Look at the data and do some analysis; for example, compare targets to achieved, look at what proportions of results or beneficiaries fall in different disaggregate categories, and jot down what you observe in the data.

Some are questions you'll want to ask. You always want to apply a gender lens, by asking these questions in general and then also looking to see if the answer is different for male versus female farmers:

- Is NUTSENAG reaching the number of beneficiaries it planned to, overall and with training?
- Does the training seem to be effective?
- Do beneficiaries seem to be facing constraints in applying specific technology types?
- Are beneficiaries having trouble applying some types of technologies more than others?
- Are there crops where beneficiaries are having a harder time applying the promoted technologies?
- Do some of the crops yield a greater return to investment than others?
- Are there differences in the number of direct beneficiaries cultivating each crop?
- Are there are significant differences in gross margin by sex of farmer? If yes, why? Are there differences in yields? In prices received? In inputs per hectare?
- Does the amount of land cultivated under each crop vary by sex of farmer? What about the proportion of the harvest sold?

Prepare to report out on your findings and conclusions.

**Notes:**

	Baseline	Target	Actual
<b>4.5.2(7): Number of individuals who have received USG supported short-term agricultural sector productivity or food security training</b>	-	220,500	212,444
Type of individual	-	220,500	212,444
Producers	-	210,000	211,362
Sex	-	210,000	211,363
Male	-	21,000	22,249
Female	-	189,000	189,114
People in private sector firms	-	10,500	1,082
Sex	-	10,500	1,082
Male	-	6,500	750
Female	-	4,000	332
<b>4.5.2(5): Number of farmers and others who have applied improved technologies or management practices as a result of USG assistance</b>	6,850	199,500	196,169
Producers	6,837	189,000	195,087
Sex	6,837	189,000	195,087
Male	1,048	18,900	21,481
Female	5,789	170,100	173,606
Disaggregates Not Available			
Technology type	6,837	189,000	195,087
crop genetics	3,009	170,100	107,943
cultural practices	5,475	189,000	185,448
post-harvest - handling and storage	-	189,000	57,367
total w/one or more improved technology	6,837	189,000	195,087
Commodity			
Groundnut	1,852	124,740	52,507
Maize	5,361	189,000	159,634
Soy	906	52,920	24,362
Others (rest of data not included)	13	10,500	1,082
	Baseline	Target	Actual
<b>4.5(16,17,18): Gross margin per hectare, animal or cage of selected product</b>	16	24	20

<b>Groundnuts/peanuts [USD/Ha]</b>	39		75
Male	15		17
Female	887		28,812
<b>Hectares planted</b>	10		445
Male	877		28,367
Female	126		5,306
<b>Total Production (MT)</b>	3		200
Male	123		5,106
Female	4,892		225,868
<b>Value of Sales (USD)</b>	471		42,050
Male	4,421		183,818
Female	27		1,161
<b>Quantity of Sales (MT)</b>	2		140
Male	25		1,021
Female	9,064		452,204
<b>Purchased input costs (USD)</b>	292		26,698
Male	8,772		425,506
Female	18,031		122,368
<b>Number of direct beneficiaries</b>	487		8,899
Male	17,544		113,468
Female			

	Baseline	Target	Actual
<b>4.5(16,17,18): Gross margin per hectare, animal or cage of selected product</b>	250	320	385
<b>Maize [USD/Ha]</b>	236		365
Male	252		388
Female	45,322		166,309
<b>Hectares planted</b>	5,848		24,474
Male	39,474		141,835
Female	89,854		494,282
<b>Total Production (MT)</b>	11,696		75,868
Male	78,158		418,414
Female	1,934,608		17,603,811
<b>Value of Sales (USD)</b>	410,527		3,482,339
Male	1,524,081		14,121,472
Female	14,882		130,399
<b>Quantity of Sales (MT)</b>	3,158		25,795
Male	11,724		104,603
Female	337,720		2,739,923
<b>Purchased input costs (USD)</b>	140,351		1,321,571
Male	197,369		1,418,353
Female	48,733		211,362
<b>Number of direct beneficiaries</b>	4,873		22,249
Male	43,860		189,114
Female			

	Baseline	Target	Actual
<b>4.5(16,17,18): Gross margin per hectare, animal or cage of selected product</b>	206	510	517
<b>Soy [USD/Ha]</b>	210		518

Male	206	517
Female	92	3,393
<b>Hectares planted</b>	<b>4</b>	<b>556</b>
Male	88	2,837
Female	59	3,616
<b>Total Production (MT)</b>	<b>3</b>	<b>595</b>
Male	56	3,021
Female	29,543	2,036,313
<b>Value of Sales (USD)</b>	<b>1,276</b>	<b>350,544</b>
Male	28,267	1,685,769
Female	56	3,284
<b>Quantity of Sales (MT)</b>	<b>2</b>	<b>565</b>
Male	53	2,719
Female	12,193	486,300
<b>Purchased input costs (USD)</b>	<b>526</b>	<b>80,651</b>
Male	11,667	405,649
Female	4,483	30,592
<b>Number of direct beneficiaries</b>	<b>97</b>	<b>2,225</b>
Male	4,386	28,367
Female	4,386	28,367

Everyone grows maize, no one grows both maize and legumes.

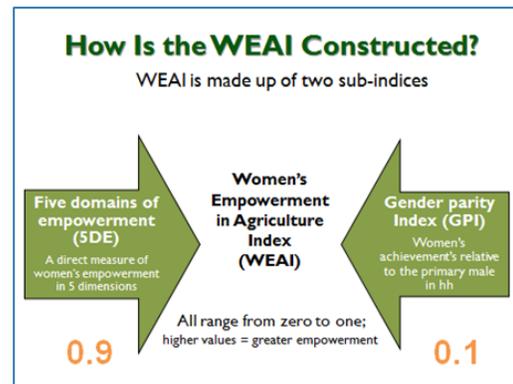
	# beneficiaries cultivating			# beneficiaries applying improved technologies			# beneficiaries using improved seed			# beneficiaries using improved cultural practices			# beneficiaries using improved post-harvest practices		
	baseline	target	actual	baseline	target	actual	baseline	target	actual	baseline	target	actual	baseline	target	actual
Groundnut males	487	6,300	8,899	97	5,670	7,120	58	5,103	4,984	78	5,670	5,696	0	5,670	4,272
Groundnut females	17,544	132,300	113,468	1,754	119,070	45,387	702	107,163	31,771	1,404	119,070	36,310	0	119,070	31,771
Groundnut total	18,031	138,600	122,368	1,852	124,740	52,507	760	112,266	36,755	1,481	124,740	42,005	-	124,740	36,043
Maize males	4,873	21,000	22,249	975	18,900	17,799	487	17,010	10,679	731	18,900	13,349	0	18,900	3,560
Maize females	43,860	189,000	189,114	4,386	170,100	141,835	1,754	153,090	70,918	3,509	170,100	113,468	0	170,100	28,367
Maize total	48,733	210,000	211,362	5,361	189,000	159,634	2,242	170,100	81,597	4,240	189,000	126,817	-	189,000	31,927
Soy males	97	2,100	2,225	29	1,890	1,669	26	1,701	1,502	26	1,890	1,502	0	1,890	1,168
Soy females	4,386	56,700	28,367	877	51,030	22,694	746	45,927	19,290	833	51,030	21,559	0	51,030	18,155
Soy total	4,483	58,800	30,592	906	52,920	24,362	772	47,628	20,791	860	52,920	23,061	-	52,920	19,323

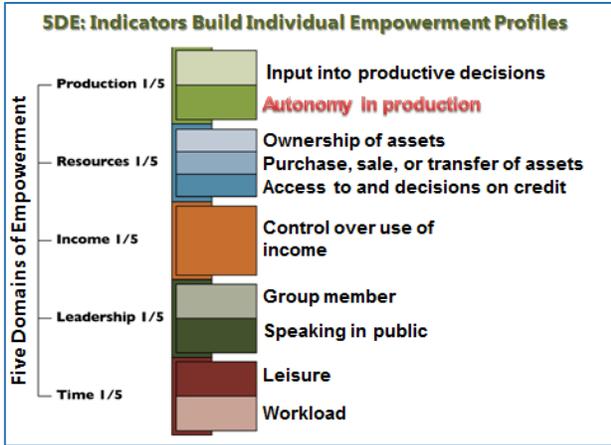
	% beneficiaries that apply improved technologies to legume but not maize (to eliminate double-counting)			unique # beneficiaries applying improved technologies			unique # beneficiaries using improved seed			unique # beneficiaries using improved cultural practices			unique # beneficiaries using improved post-harvest practices		
	baseline	target	actual	baseline	target	actual	baseline	target	actual	baseline	target	actual	baseline	target	actual
Groundnut males	0.6	0	0.4	58	-	2,848	35	-	1,993	47	-	2,278	0	-	1,709
Groundnut females	0.6	0	0.5	1,053	-	22,694	421	-	15,886	842	-	18,155	0	-	15,886
Groundnut total				1,111	-	25,541	456	-	17,879	889	-	20,433	-	-	17,594
Maize males				975	18,900	17,799	487	17,010	10,679	731	18,900	13,349	0	18,900	3,560
Maize females				4,386	170,100	141,835	1,754	153,090	70,918	3,509	170,100	141,836	0	170,100	28,367
Maize total				5,361	189,000	159,634	2,242	170,100	81,597	4,240	189,000	155,185	-	189,000	31,927
Soy males	0.5	0	0.5	15	-	834	13	-	751	13	-	751	0	-	584
Soy females	0.4	0	0.4	351	-	9,077	298	-	7,716	333	-	9,078	0	-	7,262
Soy total				365	-	9,912	311	-	8,467	346	-	9,829	-	-	7,846
			males	1,048	18,900	21,481	536	17,010	13,424	791	18,900	16,378	-	18,900	5,853
			females	5,789	170,100	173,605	2,474	153,090	94,519	4,684	170,100	169,069	-	170,100	51,515
			total	6,837	189,000	195,087	3,009	170,100	107,943	5,475	189,000	185,448	-	189,000	57,367

	average area cultivated per beneficiary			total area cultivated by beneficiaries			total area under improved technologies		
	baseline	target	actual	baseline	target	actual	baseline	target	actual
Groundnut males	0.02	0.20	0.05	10	1,260	445	2	1,134	356
Groundnut females	0.05	0.20	0.25	877	26,460	28,367	88	23,814	11,347
Groundnut total				887	27,720	28,812	90	24,948	11,703
Maize males	1.20	1.00	1.10	5,848	21,000	24,474	1,170	18,900	19,579
Maize females	0.90	0.70	0.75	39,474	132,300	141,835	3,947	119,070	106,376
Maize total				45,322	153,300	166,309	5,117	137,970	125,955
Soy males	0.04	0.20	0.25	4	420	556	1	378	417
Soy females	0.02	0.20	0.10	88	11,340	2,837	18	10,206	2,269
Soy total				92	11,760	3,393	19	10,584	2,687

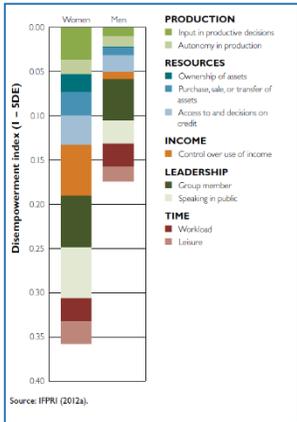
## Women's Empowerment in Agriculture Index (WEAI)

Notes:

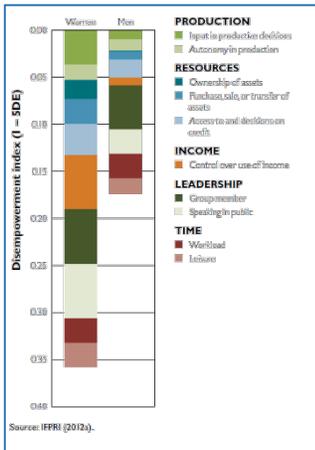




# Interpreting WEAI



What are the three indicators that contribute most to women’s disempowerment?



What are the three indicators that contribute most to men’s disempowerment?

What strikes you about the similarities and differences between men’s and women’s disempowerment?

## Individual Exercise: Interpret the WEAI data for Aredonia's ZOI Influence

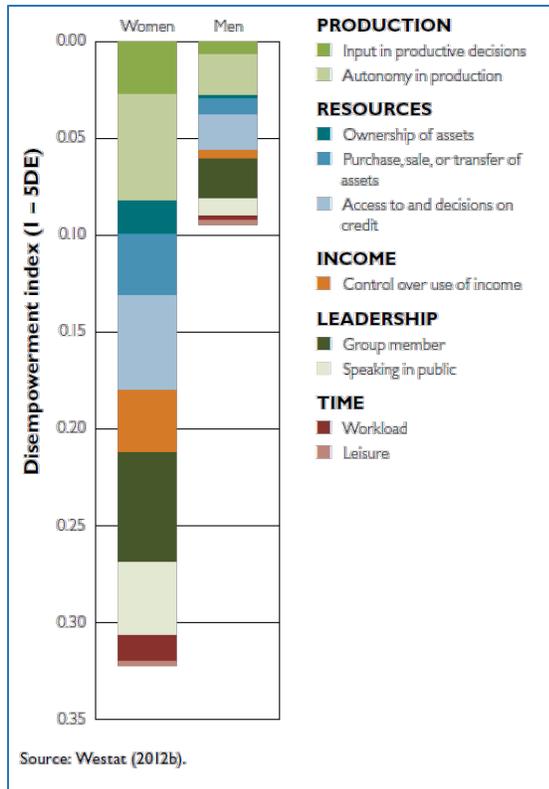


Individual Exercise  
10 minutes

Using the WEAI below:

- What are the three indicators that contribute most to women's disempowerment?
- What are the three indicators that contribute most to men's disempowerment?
- What strikes you about similarities and differences between men and women's disempowerment?

### Notes:



## Gender Integration Framework

### Notes:

<b>Problem or Constraint to Address</b>	<b>Is this problem or constraint relevant in your specific context?</b> <b>Y/N,</b> <i>Please explain and provide evidence.</i>	<b>What activity(ies) are you implementing that address or relate to this problem?</b>	<b>What activity(ies) are you planning that will address this problem and how with they address it?</b>	<b>Activity's Specific Contribution to Outcome</b>
Women do not have equal or adequate control over the use of household income. Women are not engage satisfactorily in household decisions around how to use household income	Based on the WEAI, control over income is the third largest contributor for disempowerment for women. It is also a significant gap between men and women	Fertilizer Deep Placement activity – promotes and supports women’s fertilizer dealerships / retail outlets	Ag inputs activity will certify women retailers and establish start-up grants of women-owned retailers.	By supporting women retailers, this activity will increase the ability of women to earn income outside of the farm that they may have greater ability to control

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## Identifying Constraints



Individual  
Exercise  
10 minutes

Based on your analysis of the WEAI, what constraints faced by women do you think NUTSENAG activities should focus on in order to narrow the gap between female and male groundnut yields?

## Addressing Constraints



Small Group  
Exercise  
15 minutes

For the constraint assigned to your group, identify:

- What component(s) of NUTSENAG currently address or relate to your constraint? How do they address it?
- How could you modify NUTSENAG to address the issues around this?
- How will these changes specifically contribute to improving NUTSENAG outcomes?

Prepare a flipchart summarizing your answers.

**Notes:**

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## Individual Application



Individual  
Exercise  
15 minutes

Think about your own work. Select an activity you are working on:

- How would you engage your partners with the WEAI data?
- What process would you follow to use the WEAI data to modify your interventions?

For more information on WEAI: <http://www.ifpri.org/topic/weai-resource-center>

## Writing Results Narratives

### Notes:

A narrative has four parts:

- What's the problem?
- What are we doing to solve the problem?
- What results are we seeing?
- What are we going to do to improve results?

### Types of Narratives

In Feed the Future context, we focus on three types of narratives:

1. **Performance Narratives:** explains how results are linking to desired outcomes, identifies successes and challenges, and expected activities
  2. **Deviation Narratives:** explains why targets have been missed (+/-)
  3. **Success Stories:** highlights real-life examples of positive results of interventions
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## Which option do you prefer?

As a problem statement:

Option 1	Option 2
Honduras is the second poorest country in the Western Hemisphere, with a poverty rate of 66 percent. Approximately 2.5 million of the extreme poor live in rural areas, 40 percent of which are concentrated in the Western Highlands.	Nepal is a severely food deficit country recovering from a 10-year civil war and remains the poorest country in South Asia. Malnutrition is a widespread problem in Nepal with rates comparable to those in many African countries.

As a solution statement:

<b>Option 1</b>	The activity promotes rice and maize production in the Senegal River Valley and the Southern forest zone with millet and fish as secondary priorities. Small scale and industrial mills receive support in improving quality management capacities, such as training in quality control practices, storage systems, local milling cluster development, contractual and production monitoring, investment negotiations and working capital access.
<b>Option 2</b>	The activity promotes agriculture through capacity building efforts aimed at raising the technical skills and knowledge of labor-saving technologies and practices that can reduce vulnerability and strengthen the food security of households. Food security funds are used to accelerate the uptake of proven production, processing, and marketing technologies; significantly increase the productivity of selected staple food crops and some export cash crops with more access to agricultural inputs.

As a results statement:

## Option 1

- In FY 2011, USAID reached over 435,000 farmers who applied deep fertilizer placement and urea briquettes to improve management practices on more than 244,600 hectares, leading to an average 15% increase in rice yields for these farmers. As a result, the Barisal division in the south experienced its first-ever rice surplus.

## Option 2

- Malawi has completed a CAADP Compact, CIP Peer review and Business Meeting. Malawi's FTF strategy is fully aligned to Malawi's CIP. Through a public-private partnership with Lilongwe Dairies, FTF beneficiaries doubled milk yields in 2011 as a result of USAID training in feeding practices and fodder conservation improved animal breeds, and improved storage facilities.

Which will you give additional funding to?

## Option 1

- The value chain activity will continue to support the development and scaling up of innovative solutions to improve food security. This includes support for climate-smart agriculture to increase agricultural production and help meet future food needs; improved technologies for irrigation; water reuse, efficiency, and storage activities within the food value chain; and development of a drought monitoring and mitigation system for the region.

## Option 2

- Given the influence of the private sector, the value chain project plans to establishing **5 new partnerships** next year, which will create **24,000 new jobs**, assist **52,000 farmers** in applying new technologies or management practices, and leverage **\$31.1 million** in loans for farmers, agro-processors and micro, small, and medium enterprises. If this model proves to be successful, the value chain project will continue to expand to additional geographic areas, beginning in FY17.

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Remember when writing a narrative to:

- Know your audience and purpose
- Be specific
- Be concise
- Use numbers
- Talk about: the problem, solving the problem, the result, the potential

Which is a better deviation narrative?

- Option 1**
  - The value chain activity did not reach its target for training female farmers, but exceeded its target for training male farmers.
- Option 2**
  - The value chain project did not reach its target for training female farmers as the activity faced difficulty in recruiting women's participation. Additional sensitization workshops will be held to encourage women's engagement.

## Writing a Performance Narrative



Small Group  
Exercise  
20 minutes

- From the data on the Excel spreadsheet, write a short performance narrative:
- Highlight 1 or 2 results in 3 or 4 sentences.

**Notes:**

## Individual Application



Individual  
Exercise  
10 minutes

Record your key learnings about writing performance narratives.

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## Visualizing Data



### Notes:

- 1 Visualizations are all about comparisons.
- 2 Choose an appropriate chart type.
- 3 Simplify your message. Simplify your graphics. Get it right in black and white.
- 4 Annotate to explain and provide context.
- 5 Sketch and try variations.

## Draw a Story



Small Group  
Exercise  
20 minutes

Draw one:

- Scenario card
- Findings card

Using your scenario and finding sketch out your data story.

Be prepared to explain your sketch:

- What relationship are you showing?
- How did you decide to represent the data?
- What was challenging?
- Were there any tradeoffs you made in your visualization?

**Notes:**

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## Additional Resources on Visualizing Data

- USAID GeoCenter: <https://sites.google.com/a/usaaid.gov/usaidgeocenter/>
- Color: [Color Brewer](#)
- Excel: <http://stephanieevergreen.com/>
- New York Times: The Upshot
- Flowing data: [www.flowingdata.com](http://www.flowingdata.com)
- Data Stories podcast: <http://datastori.es/>
- Source OpenNews (Projects): <https://source.opennews.org>
- [Pinterest gallery](#)

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## WHERE SHOULD I START WHEN MAKING A VISUALIZATION OR MAP?

### 1 HAVE A QUESTION OR GOAL

What do you want to learn or find out?

What story or message do you want to tell?

### 2 DEFINE THE AUDIENCE

Who will use the information?

How will they use it?

interactive / online presentation  
one pager  
poster

least  
↓  
most information dense

Why will they use it?

- to learn
- to understand
- to make decisions
- as a platform to discuss data
- ...

### 3 EXPLORE & CLEAN THE DATA

Do the data make sense?

- How are the data distributed?
- Are there outliers?
- Are there missing data?
- Do the data fall within a reasonable range?

What do they mean?

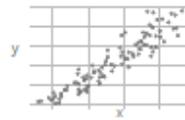
- Are the data related?

- Do new variables shed more insight?

Plot bar charts (categorical data) or histograms (numerical data)



Plot scatter or line plots between two variables



x seems to be positively correlated with y.

Transform data

- Average (point or running), calculate a percent, convert to comparable units
- Normalize, create ratios, reduce dimensions by calculating an index

### 4 DEFINE WHAT COMPARISONS TO MAKE

What do you want to show?

How do you want to show it?

Fill in the blanks!

I want to show the relationship between \_\_\_\_\_ and \_\_\_\_\_.

I want \_\_\_\_\_ to use this info to \_\_\_\_\_.

I want to represent this with <<plot type>>.

**5 TEST IT OUT!**

Sketch, make a mock-up, test it in your software, and refine it.

Sketch, test, refine

**6 IS THIS THE BEST WAY TO REPRESENT THE INFO?**

Is the plot successful? Refine it by asking yourself:

- Does the plot show the relationship I want?
- Is the plot type successful?  
Is there a better way?

- Will it be useful to the audience?



- Can you understand the plot with little verbal explanation?

Annotations are your friend. Use them to explain how to read the graph, and/or what's interesting about it. Directly label things where possible. Only use legends if you have to.

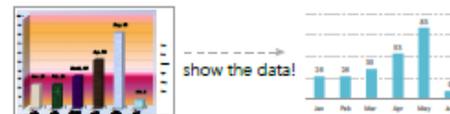


- Is the plot a faithful representation of the data?

Plots can lie (or at least distort the truth). Don't do that.

- Is every dot, symbol, color, line, and variable necessary?

Keep things simple, consistent, and meaningful



- Is the plot more effective as small multiples?



- How should things be ordered?

- alphabetically
- by ranked value
- by group or theme



- Should I group (average) the variables together?

Does the average smooth out noise, or does it wash away the signal?



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**GEOCENTER**



## **FOR MORE INFORMATION:**

For more information about the Feed the Future Performance Monitoring Course, contact:

**Anne Swindale** ([aswindale@usaid.org](mailto:aswindale@usaid.org)) or **Salik Farooqi** ([sfarooqi@usaid.gov](mailto:sfarooqi@usaid.gov))

**Monitoring, Evaluation and Learning**

**Bureau of Food Security**

**USAID**



**FEED THE FUTURE**

The U.S. Government's Global Hunger & Food Security Initiative

# PERFORMANCE MONITORING

PARTICIPANT MANUAL



**USAID**  
FROM THE AMERICAN PEOPLE



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August 2016

August 2016

## Welcome to the Feed the Future Performance Monitoring Course

Dear Course Participant,

Welcome to Feed the Future's course on performance monitoring. Monitoring, learning and adapting activities-based evidence moves us forward in our goal to reduce hunger, poverty and under-nutrition. To that end, this course will prepare you to:

- Meet the requirements for reporting performance such that program activities and outcomes to the Feed the Future Results Framework.
- Use performance monitoring as a means for strategic adaptive management of Feed the Future activities.

Over the next five days, you will build your skills and knowledge to:

- Develop a theory of change and a results framework for your FTF activities
- Select require if applicable indicators for your activity results framework
- Create custom indicators
- Define beneficiaries, baselines and targets
- Collect performance monitoring data
- Verify performance monitoring data
- Report and use performance monitoring data
- Submit open data

To achieve these outcomes, we have just a few guidelines for all course participants to follow:

- Listen, inquire and share
- Respect and value different ideas and options
- Create a safe space
- Challenge yourself
- Support each other

The course was developed by the Feed the Future Monitoring and Evaluation team. If you have any questions about monitoring and evaluating Feed the Future activities, do not hesitate to ask any Monitoring, Evaluation and Learning team member. We are proud to be your partners in the important work you do in the field.

Sincerely,

*Anne Swindale*  
Anne Swindale, Course Owner  
Senior Program Advisor  
Monitoring, Evaluation and Learning  
Feed the Future, USAID

*Salik Farooqi*  
Salik Farooqi, Course Owner  
Technical Advisor  
Monitoring, Evaluation and Learning  
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### **Session 9: Submitting Open Data**

**7**

- USAID's Open Data Policy: ADS 579
- Getting Information from a Dataset





SESSION 9:

## Open Data: Policy and Process

## Submitting Open Data

### USAID's Open Data Policy: ADS 579

Notes:

## Data Types

Structured	Unstructured
<ul style="list-style-type: none"><li>• Machine readable</li><li>• Highly organized</li><li>• Relational databases and language designed to be used with them (JSON, SQL)</li></ul>	<ul style="list-style-type: none"><li>• Multi-media</li><li>• Photos, Videos</li><li>• Emails</li><li>• Narrative reports (Word, PDF)</li></ul>
	

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"Design from beginning to get good data rather than spending a ton of money to cleanse the data"  
Michael Angus, *MasterCard*



## Getting Information from a Dataset



Small Group  
Exercise  
30 minutes

With your group, look at the data you are given:

- Find which IP works in the most places.
- Count the number of projects per Admin I.

Please only look at the Dataset your group is assigned.

**Notes:**

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## Data structure exercise: Dataset 1

Bureau / Operating unit / Implementing mechanism / Indicator	Prime Partner	Admin1	Admin0
ETH04 Ethiopia Sustainable Agriculture Incubator (ESAI)	PCI	Addis Ababa; Amhara; Dire Dawa; Oromia; Southern Nations, Nationalities and Peoples; Tigray	Ethiopia
46551 SmallHolder Horticulture Project (SHH)	Government of Israel - Center for International Cooperation of the Foreign Ministry of Israel	Amhara; Oromia; Southern Nations, Nationalities and Peoples; Tigray	Ethiopia
TEMPORARY ETHIOPIA WATER WATER	International Rescue Committee	Afar; Oromia; Somali	Ethiopia
42165 Capacity to Improve Agriculture and Food Security (CIAFS)	Fintrac, Inc	Addis Ababa; Amhara; Oromia; Southern Nations, Nationalities and Peoples; Tigray	Ethiopia
TEMPORARY ETHIOPIA MASHAV MASHAV	Placeholder Inc.		Ethiopia

## Data structure exercise: Dataset 2

ID	ImplementingMechanism	ImplementingPartner	admin1	admin0
1	42165 Capacity to Improve Agriculture and Food Security (CIAFS)	Fintrac, Inc	Addis Ababa	Ethiopia
2	ETH04 Ethiopia Sustainable Agriculture Incubator (ESAI)	PCI	Addis Ababa	Ethiopia
3	TEMPORARY ETHIOPIA WATER WATER	International Rescue Committee	Afar	Ethiopia
4	42165 Capacity to Improve Agriculture and Food Security (CIAFS)	Fintrac, Inc	Amhara	Ethiopia
5	46551 SmallHolder Horticulture Project (SHH)	Government of Israel - Center for International Cooperation of the Foreign Ministry of Israel	Amhara	Ethiopia
6	ETH04 Ethiopia Sustainable Agriculture Incubator (ESAI)	PCI	Amhara	Ethiopia
7	ETH04 Ethiopia Sustainable Agriculture Incubator (ESAI)	PCI	Dire Dawa	Ethiopia
8	42165 Capacity to Improve Agriculture and Food Security (CIAFS)	Fintrac, Inc	Oromia	Ethiopia
9	46551 SmallHolder Horticulture Project (SHH)	Government of Israel - Center for International Cooperation of the Foreign Ministry of Israel	Oromia	Ethiopia
10	TEMPORARY ETHIOPIA WATER WATER	International Rescue Committee	Oromia	Ethiopia
11	ETH04 Ethiopia Sustainable Agriculture Incubator (ESAI)	PCI	Oromia	Ethiopia
12	TEMPORARY ETHIOPIA WATER WATER	International Rescue Committee	Somali	Ethiopia
13	42165 Capacity to Improve Agriculture and Food Security (CIAFS)	Fintrac, Inc	Southern Nations, Nationalities and Peoples	Ethiopia
14	46551 SmallHolder Horticulture Project (SHH)	Government of Israel - Center for International Cooperation of the Foreign Ministry of Israel	Southern Nations, Nationalities and Peoples	Ethiopia
15	ETH04 Ethiopia Sustainable Agriculture Incubator (ESAI)	PCI	Southern Nations, Nationalities and Peoples	Ethiopia
16	42165 Capacity to Improve Agriculture and Food Security (CIAFS)	Fintrac, Inc	Tigray	Ethiopia
17	46551 SmallHolder Horticulture Project (SHH)	Government of Israel - Center for International Cooperation of the Foreign Ministry of Israel	Tigray	Ethiopia
18	ETH04 Ethiopia Sustainable Agriculture Incubator (ESAI)	PCI	Tigray	Ethiopia
19	TEMPORARY ETHIOPIA MASHAV MASHAV	Placeholder Inc.	unknown	Ethiopia

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## Data structure exercise: Merging data

admin1	stunting_pct	PSNP_participation
Addis Ababa	22.9	NA
Afar	46.1	65.6
Amhara	42.2	14.8
Dire Dawa	27.1	59.2
Oromiya	38.2	2.3
SNNP	44.1	15
Somali	36.5	12
Tigray	47.5	28.9

## Notes (continued):

### Things to watch out for:

- 1 Merged cells (rows or columns)
  - 2 No unique id
  - 3 Inconsistent data (names, numbers, codes)
  - 4 Variable (column) names not meaningful
  - 5 Special characters within numeric variables (\$,\*,...)
  - 6 Variable names contain measurements (quarter1, quarter2)
  - 7 Information recorded for human not computer consumption
  - 8 Spreadsheet layout designed for human consumption
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## Individual Application



Individual  
Exercise  
15 minutes

What are your key learnings from this session?

Think about a dataset you are going to be collecting. What will you consider doing differently as a result of this session?

### Notes:

### Additional Resources:

- \*Training: USAID University [Open Data at USAID ADS 579-USAID Development Data](#)\*9 (restricted access - USAID employees only)
- Frequently Asked Questions: [www.usaid.gov/data/frequently-asked-questions](http://www.usaid.gov/data/frequently-asked-questions)
- Policy Announcement: <http://1.usa.gov/1tF8COg>
- Implementing Partner Notices Portal - Acquisition: <http://bit.ly/1zRuKaJ>
- Implementing Partner Notices Portal - Assistance: <http://bit.ly/1ud8ndq>
- Executive Order on Open Data: <http://1.usa.gov/1hChkTn>
- OMB Open Data Policy: <http://1.usa.gov/1iQkPd6>
- Project Open Data: <https://project-open-data.cio.gov/>
- ADS 579 Fact Sheet



**FOR MORE INFORMATION:**

For more information about the Feed the Future Performance Monitoring Course, contact:

**Anne Swindale** ([aswindale@usaid.org](mailto:aswindale@usaid.org)) or **Salik Farooqi** ([sfarooqi@usaid.gov](mailto:sfarooqi@usaid.gov))

**Monitoring, Evaluation and Learning**

**Bureau of Food Security**

**USAID**

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## Application: Back on the Job

### Action Planning

- Identify your key learning:
  - Take some time to review the notes you made in your participant guide.
  - Think about the exercises you completed.
  - Reflect on the lectures.
- Plan how you will apply your learning to a FTF activity you are responsible for



### Your Tweet

In 140 characters or less, write a tweet to share with the class what you learned during this course and how you are going to apply it to a Feed the Future Activity you are working on.



KEEP  
CALM  
and  
CARRY ON  
MEASURING

## BIOGRAPHIES –



**Anne Swindale**, Senior Program Advisor – Monitoring and Evaluation in USAID’s Bureau for Food Security, is an economist with more than 30 years of experience in technical assistance, research and project management in agriculture, food security, and nutrition strategy and program assessment, design, monitoring, and evaluation. She has a multi-sectoral background spanning agriculture, poverty, food consumption, and nutrition; and extensive experience with project management, program impact evaluation and performance reporting for USAID agriculture, food security and nutrition programs; and the collection, management, and analysis of large and complex primary income, expenditure, and consumption data sets from households and individuals. Prior to joining USAID in 2011, she was Deputy then Director of the USAID-funded Food and Nutrition Technical Assistance Project (FANTA) for 13 years. She also worked for the Consultative Group for International Agricultural Research International Potato Center in Peru and the Dominican Republic. She has a Ph.D. from the Fletcher School of Law and Diplomacy at Tufts University with a specialization in development economics and food, nutrition, and agricultural policies. She speaks Spanish.



**Salik Farooqi** serves as Technical Advisor for Monitoring, Evaluation & Learning in the Bureau for Food Security, and oversees the Bangladesh portfolio. He also developed, and now manages, the flagship Feed the Future Monitoring, Evaluation, and Learning mechanism, PEEL. Salik joined the Bureau in September 2012 as a Presidential Management Fellow. A few weeks prior to coming on board, he completed his PhD in Sociology and Public Policy at the University of Michigan with a successful defense of his dissertation in which he conducted a sociological analysis of development effectiveness. Salik earned his Bachelor's degree in Economics and Political Science at McGill University in Montreal, Canada and his Juris Doctorate at William and Mary School of Law, where he focused on International Law.



**Zachary Baquet** serves as the Knowledge Management Specialist for USAID’s Bureau for Food Security (BFS). Prior to joining BFS, he was an AAAS Science & Technology Policy Fellow in USAID’s Office of Agriculture. In the Office of Agriculture, Zachary worked on food security, the integration of climate change and agriculture programming, and knowledge management issues. He received a B.A. in Physics and Astronomy from Vassar College – Poughkeepsie, NY. In graduate school, Zachary dabbled briefly in aerospace engineering before switching to molecular biology. He received his Ph.D. in 2004 from the University of Colorado in Boulder where he studied the development of the mammalian nervous system and models of Huntington’s disease. In 2008, he finished a post-doctoral fellowship at St Jude Children’s Research Hospital in Memphis, TN where he researched how the immune system affects the progression of Parkinson’s disease.



**Anna Brenes** began work in July 2012 with USAID | Haiti as the GIS Mapping and Reporting Specialist where she assisted M&E teams with data collection, analyses, and management using the Haiti DevResults information management systems. She joined the USAID/BFS/SPPM/MEL team in January 2016 as a Data Support Specialist. Prior to working with USAID, Ms. Brenes worked with the State of Minnesota as a GIS Analyst. She has lived abroad with her husband and children in Morocco, Bolivia, and the Netherlands. Ms. Brenes has an undergraduate BA degree from the University of Wisconsin, Madison in

International Relations, and a graduate MS degree in Agriculture Education/Sustainable Community Development from the University of Wisconsin, River Falls.



**Farzana Ramzan** is a Monitoring and Evaluation Specialist in the Bureau for Food Security. Farzana is the M&E technical advisor for Feed the Future countries in East Africa, including Tanzania, Kenya, Ethiopia, South Sudan and the Democratic Republic of Congo. Farzana also manages the Women's Empowerment in Agriculture Index portfolio, the first direct measure of women's empowerment and inclusion in the agriculture sector, and the PovertyCounts portfolio, a simplified tool.



**Kiersten B. Johnson, PhD**, is a social demographer working in the field of international development. She served nearly 20 years as a researcher for USAID's Bureau for Global Health MEASURE DHS project, analyzing Demographic and Health Surveys (DHS) and Service Provision Assessment health facility data. She later expanded the use of DHS data to support the work of the US Global Climate Change Initiative and USAID's Office of Forestry and Biodiversity, integrating NASA's satellite remote-sensing data into the DHS to explore associations among climate, environment, and health and nutrition outcomes. More recently, she has supported the US Government's Feed the Future Initiative through assisting USAID's Bureau for Food Security to implement population-based surveys and impact evaluations related to

agriculture and nutrition. She currently serves as a senior Monitoring and Evaluation Advisor in USAID's Bureau for Food Security. Kiersten has published on topics including child nutrition, food security, impacts of socioeconomic inequalities on development outcomes, gender, climate change and biodiversity, HIV/AIDS, health systems, maternal and child health and survival, and malaria. She has worked in numerous countries throughout Africa, Asia, and Latin America and the Caribbean.

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**Krista Jacobs** is a Gender Advisor at the Bureau for Food Security and a development economist whose work focuses on gender, food security and assets. Current and recent work includes advising agricultural projects on gender integration, program evaluation, developing methods to measure women's and men's land and asset rights, building gender capacity of community-based programs, and building the monitoring and evaluation capacity of local civil-society organizations. Her work has focused in East and West Africa. Dr. Jacobs holds a PhD in Agricultural and Resource Economics from the University of California, Davis.



**Laura Hughes** is a data scientist at the U.S. Agency for International Development. As a member of the GeoCenter, she uses data science and visualization to analyze international development issues. She also trains people on how to use data visualizations to communicate complex problems and solutions. Trained as a biophysical chemist, Laura is passionate about translating messy data and complex statistical analyses into understandable insights that can influence policy and investment decisions. She holds a Ph.D. from Stanford University, an M.Phil. from the University of Cambridge as a Gates Cambridge Scholar, and an M.S./B.A. from Northwestern University.



**Lindsey Anna** is a public health and international development professional with over 7 years of experience designing, implementing, and monitoring food security and nutrition programs. She joined USAID's Bureau for Food Security in October 2014 as a Monitoring & Evaluation Adviser supporting Feed the Future focus countries in LAC and aligned countries in the Middle East and Asia. She is also the M&E lead for Ebola-affected countries in West Africa. Most notably, Lindsey serves as the BFS technical lead for data quality. Before joining USAID, Lindsey previously worked at a number of USAID implementing partners, including Social Impact and FHI360, where she filled various programmatic and technical roles providing budget, program design, and M&E support. Lindsey also possesses vast experience in domestic and global health policy having started her career in the U.S. Senate and the U.S. Department for Health and Human Services. Lindsey received her MPH from The George Washington University and BS in Commerce from DePaul University.



**Tatiana Pulido** is a Monitoring and Evaluation (M&E) Specialist in the Bureau for Food Security at USAID, supporting Central Asia, Rwanda, and Uganda Feed the Future programming. Ms. Pulido also manages the \$50 million USAID/BFS Feed the Future M&E contract, FTF FEEDBACK, as well as a grant to IFPRI for impact evaluation work. She is the M&E technical advisor on metrics for market systems approaches to development and Climate Smart Agriculture in the Feed the Future initiative. She has worked in agriculture/food security for 6 years, 3 years on MEL. Ms. Pulido has a B.A. with honors from Brown University (International Relations, focus on agriculture policy), and a M.Sc. from Georgetown University (International Development focus on Food Security).



**Roberta Talmage** is a performance and organizational development consultant at Training Resources Group, Inc. (TRG) with 20 years' experience in the corporate and not-for-profit sectors. As a Registered Organization Development Consultant with a background in instructional design and leadership develop, she designs and facilitates training and organizational development initiatives systematically and builds strategic partnerships to develop and implement programs that have long-term impact on organizations. As an engineer with a background in whole systems design, she uses technology to create engaging and impactful learning experiences. Prior to joining TRG, Roberta focused on culture

change as an internal consultant in the Global Diversity and Inclusion Office and Leadership Institute of a Fortune 100 company. Roberta is the founder of Sharing the Sun, a curriculum for English language high school students in Kyrgyzstan that builds identity and community post ethnic conflict. As a Returned Peace Corps volunteer, she continues to support the Society for the Protection of Rural Children's Rights in Bazar Korgon, Kyrgyzstan.



**Stacy Cummings** has served for over 20 years as an education and capacity building professional in various international development federal agencies, as well as the corporate and not-for-profit sectors. Ms. Cummings is the Training Portfolio Manager with the QED Group, LLC for USAID's Feed the Future Knowledge Driven Agricultural Development (KDAD) project. Recently, she served as Training Coordinator for USAID's Office of Education providing professional development for civil, foreign, and

foreign service national staff. Prior to this she was a Technical Training Specialist in the Office of Overseas Programming and Training Support at the US Peace Corps where she led the agency in instructional systems design to enhance Volunteer training and technical assistance to field staff in more than 70 countries. She has worked with Academy for Educational Development (AED), Pacific Resources for Learning, the World Bank, and Lutheran World Relief. She has a Master's degree in International Training and Education from American University.

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