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

FOOD SECURITY AND AGRICULTURE CORE COURSE

PARTICIPANT MANUAL

USAID
FROM THE AMERICAN PEOPLE

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December 2017

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Welcome to the Food Security and Agriculture Core Course

Dear Colleague:

The Bureau for Food Security is excited to offer the new Food Security and Agriculture Core Course. As the title suggests, the course brings a new focus to food security development by incorporating the vision for food security and agriculture development from the Global Food Security Strategy (GFSS). The GFSS builds on the first phase of Feed the Future, but deepens its emphasis on nutrition and adds resilience as a new focus. The course presents a shared understanding of the Agency's priorities and key issues in agriculture and food security needed to implement the GFSS. Participants will explore state-of-the-art thinking around important issues, principles and resources needed to design and implement activities for expanded and more sustainable results. The course will explore the underlying theory of change in the GFSS – inclusive agriculture-led growth drives gains in incomes, resilience and nutrition, with emphasis on outcomes and impacts that benefit the poor.

The course learning objectives cover the following:

1. Examine agriculture-led growth as a driver of income, nutrition and food security gains that especially benefit the poor.
2. Survey and apply up-to-date evidence to the technical areas on the GFSS intermediate results (IR) that reflects the embedded theory of change:
    a. Explore proven approaches that have been shown to achieve progress most effectively and efficiently in the IRs at scale
    b. Understand cutting-edge thinking on food and agriculture programming through market-led partnerships with the private sector, nutrition sensitive agriculture, climate resilient agriculture and other program areas
    c. Integrate cross-cutting IRs (gender, policy and governance, youth, etc.) to the three GPSS Objectives for improved results
3. Investigate resilience strategies that apply to small- and mid-size farmers.
4. Develop and maximize linkages for improved program impacts on reducing extreme poverty, child stunting and hunger.

This 5-day course will take advantage of participants' diverse backgrounds, drawing on the experience of all participants to fill knowledge gaps among colleagues. It will consider how linked production and market systems generate on- and off-farm investments and take into account opportunities for delivering important food security gains at the population level. It will emphasize the importance of facilitating partnerships across the food system, including at national levels where important policy approaches are promoted. Ultimately, the course will seek to provide participants with the necessary insights and understanding to understand the portfolio of complementary

approaches most likely to generate the gains envisioned in the Global Food Security Act.

We designed this course to serve both the newest employees as well as the most experienced. The course will assist you in achieving the best possible outcomes using the talents, experience and knowledge of people that push the frontiers of reducing poverty and malnutrition worldwide. We look forward to your participation.

Sincerely,

Beth Dunford

Robert Bertram

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Overview of Food Security and Agriculture Core Course

A. Purpose

USAID employees and the learning community will build a common understanding of Agency priorities, challenges and key issues in agriculture and food security. Exploring the latest state of the art thinking in Agriculture and Food Systems that can be applied to new and existing strategy, this will lead learners to designing intervention that achieve greater targeted result.

B. Learning Objectives

1. Apply state-of-the-art evidence to technical areas on the GFSS intermediate results (IRs) through a theory of change (ToC):
    a. Understand and adapt cutting-edge thinking on nutrition sensitive agriculture
    b. Apply cross-cutting IRs (gender, climate, governance, nutrition, etc.) to the three GFSS Objectives to improve results
2. Examine agriculture as a main driver of economic growth, nutrition and food security.
3. Investigate resilience strategies that apply to small and mid-size farmers.
4. Develop and maximize linkages for improved program impact on reducing poverty and stunting (between agriculture, gender, youth, nutrition, health, climate, food safety, etc.).

C. Agenda

FOOD SECURITY AND AGRICULTURE CORE COURSE CALENDAR

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
Welcome | 8:30				
Introduction to Course, GFSS	Resilience	Policy, Governance and Standards	Research and Development	Data and Analysis
Break | 10:30				
Case Studies	Resilience	Policy, Governance and Standards	Scaling Extension	Monitoring and Evaluation Mechanism
Lunch | 12:15				
Agriculture Innovation Systems	Nutrition	Sustainable Intensification	Market Systems and Value Chains	Case Study Application
Break | 2:30				
Sustainable Agriculture Productivity Growth Introduction	Nutrition	Sustainable Intensification	Financing and Investing in Agribusiness	Reflection
Reflection	Reflection	Exchange – Digital Tools	Reflection	Wrap-up
Evaluations	Evaluation	Evaluation	Evaluation	Evaluation

D. Before We Begin

What expectations do you have for this week?

What do you hope to learn?

What questions did you bring with you and you hope to have answered?

Exercise

The Experts in the Room

Day 1

Introduction to Course and Global Food Security Strategy

Global Food Security Strategy

Overarching goal to **sustainably reduce hunger, malnutrition and poverty.**

Objective 1: Inclusive and sustainable agriculture-led economic growth

Objective 2: Strengthened resilience among people and systems

Objective 3: A well-nourished population especially among women and children

Why Agriculture?

1. Investing in Agriculture and how Agriculture is the foundation of the pathway out of poverty

2. Systems Approach

3. Background of Food Security

Agri-Food Systems: Transformation and Food Security

Notes:

Exercise 1:

1. What characteristics of agricultural transformation are most critical to your country's development?
2. How can the U.S. Agency for International Development (USAID) help promote agricultural transformation?

Identify 2–3 critical facets of agricultural transformation that are priorities for their countries, and 2–3 ways that USAID can help promote agricultural transformation.

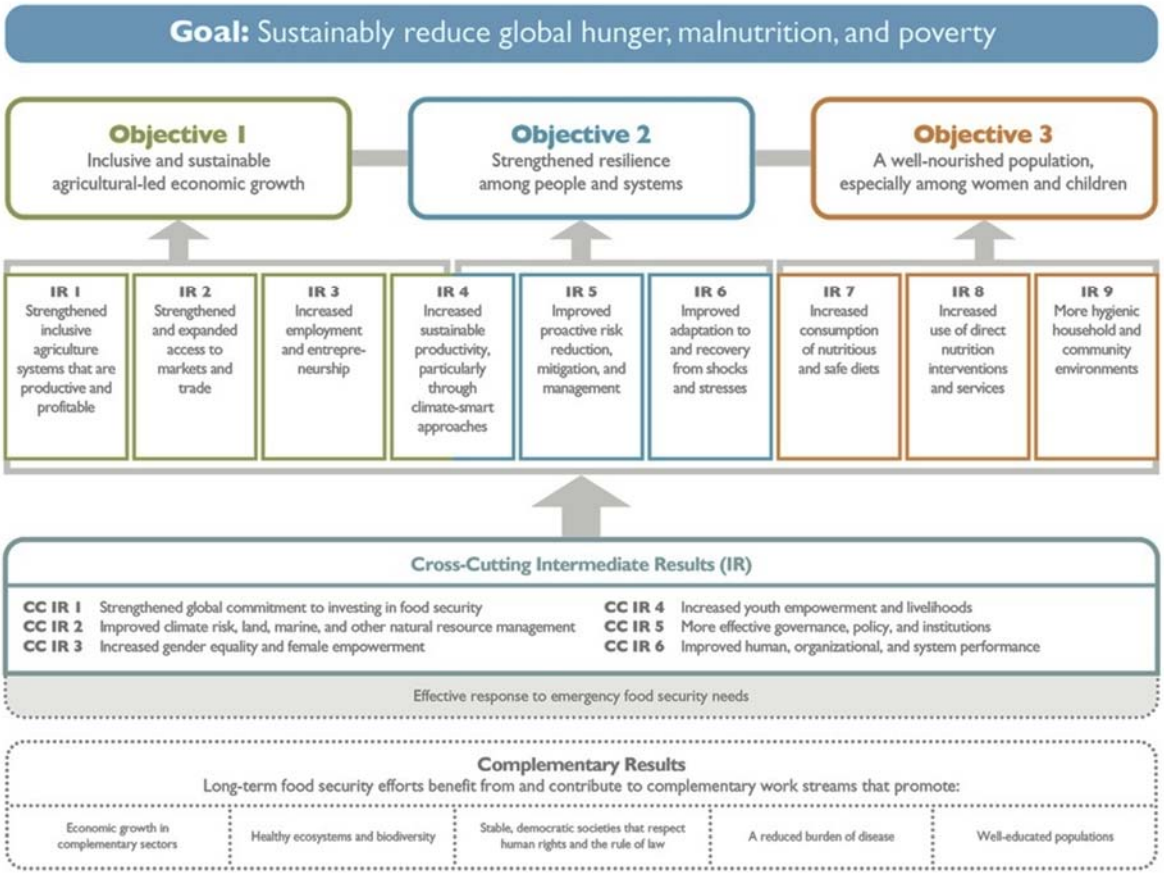
Capture your group's ideas on the flipcharts.

Exercise 2:

1. How do particular trends generate opportunities for us to further promote agricultural transformation?
2. How do particular trends generate risks that can affect what we do?

Capture your group's ideas on flipcharts.

Global Food Security Strategy



What's New?

Two by Four

Exercise

Rules

1. All moves must be made in pairs – a pair is you and anyone standing next to you.
2. When a pair moves out of the middle of the group, the empty spot they left must be filled by another pair.
3. Pairs may not pivot or turn around.
4. There should be no gaps in the solution.

Strategy

Case Study

Exercise

The 5Rs Framework

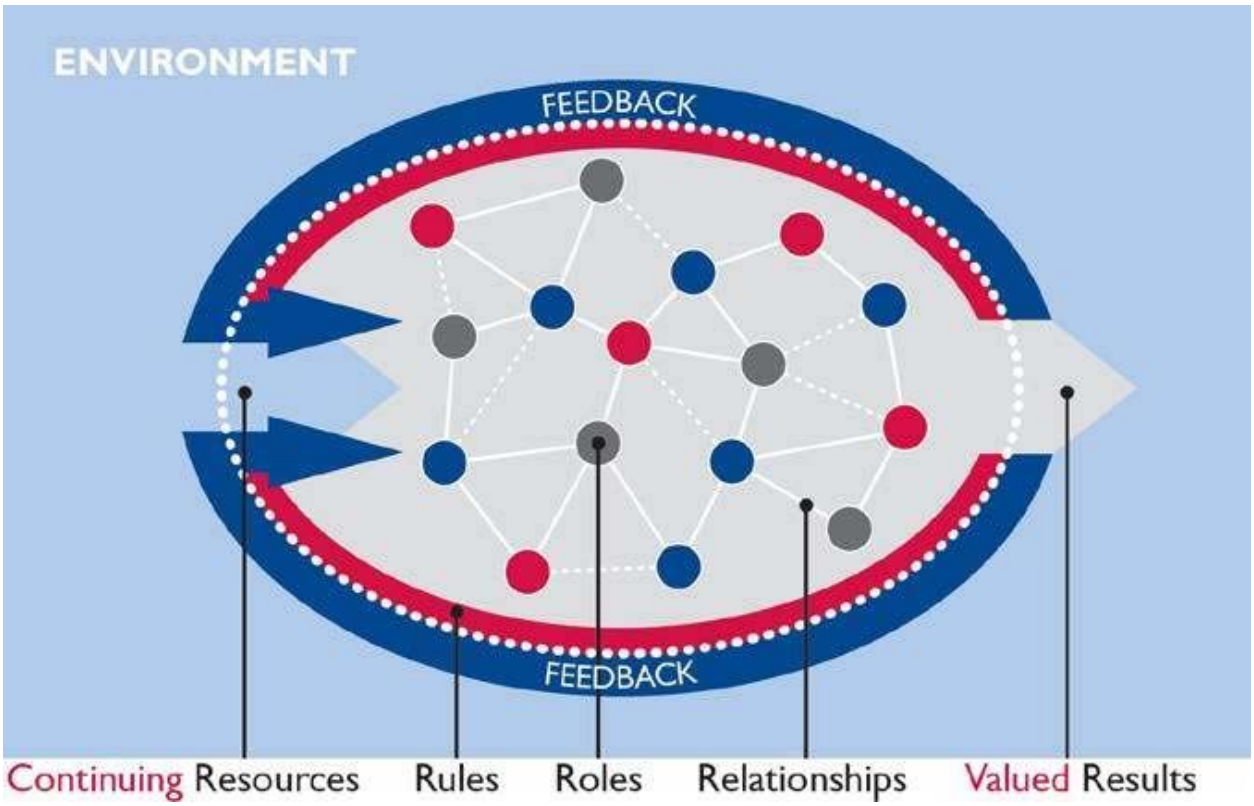
Resources

Rules

Roles

Relationships

Results


ENVIRONMENT
FEEDBACK
FEEDBACK
Continuing Resources
Rules
Roles
Relationships
Valued Results

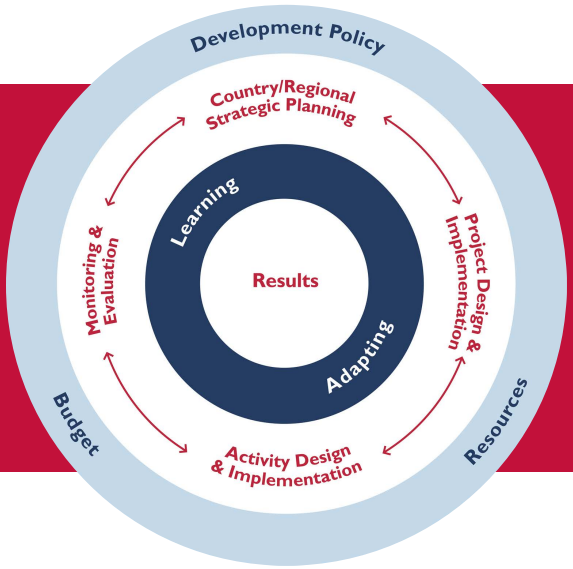
Notes

USAID FROM THE AMERICAN PEOPLE

PROGRAM CYCLE

TECHNICAL NOTE

THE 5RS FRAMEWORK IN THE PROGRAM CYCLE



This Note describes the 5Rs Framework and demonstrates how it can be applied to strengthen local systems and promote sustainability.

Technical Notes provide key concepts and approaches to USAID staff and partners related to the Program Cycle. These documents are published as a suite of Additional Help documents to supplement ADS 201 produced by the Bureau for Policy, Planning and Learning.

INTRODUCTION

USAID's Program Cycle Operational Policy (ADS 201) provides guidance to missions and other operating units on how to implement the Program Cycle. A key principle of the Program Cycle is to "Promote Sustainability through Local Ownership." The purpose of this Technical Note is to describe the "5Rs Framework", a practical methodology for supporting sustainability and local ownership in projects and activities through ongoing attention to local actors and local systems.

This Note is rooted in USAID's 2014 Local Systems Framework paper, which establishes that achieving sustained improvement in development results depends on the contributions of multiple and interconnected local actors. That document also states that USAID needs to improve its systems practice if it is to engage local actors and strengthen local systems more effectively and thus realize sustained results more consistently. The 5Rs Framework, also introduced in the Local Systems Framework, is intended as a simple and practical tool to promote good systems practice. The 5Rs Framework highlights five key dimensions of systems: **Results, Roles, Relationships, Rules and Resources**. Collectively these 5Rs can serve as a lens for assessing local systems and a guide for identifying and monitoring interventions designed to strengthen them.

This Technical Note is divided in two parts. The first part provides an introduction to the 5Rs Framework and the systems practice from which it emerges. The second part demonstrates how **systems practice can be embedded in the Program Cycle** by continuously applying the 5Rs, especially to the design, implementation, and monitoring of USAID projects and their accompanying activities.

This Note is also intended to be practical, tailored to the processes laid out in ADS 201, especially those associated with project design and management. However, the Agency's experience in applying systems practice to development problems is limited at this point and has focused more on up-front assessment of systems than it has on engaging systems through projects and activities. This reality is reflected in Part 2 of this Note. Guidance related to the earlier stages of project design is more detailed. Guidance dealing with implementation and monitoring is lighter and more speculative. Yet, with greater emphasis on local systems in ADS 201, the hope is that more and more projects and activities will be designed and monitored with local systems in mind. As experience engaging systems increases, this Note will be updated accordingly.

Finally, in addition to this Note, ProgramNet hosts a Local Systems Toolkit, a collection of resources designed to provide support to USAID staff interested in learning more about systems tools and concepts and their application.

SYSTEMS PRACTICE AND THE 5RS FRAMEWORK

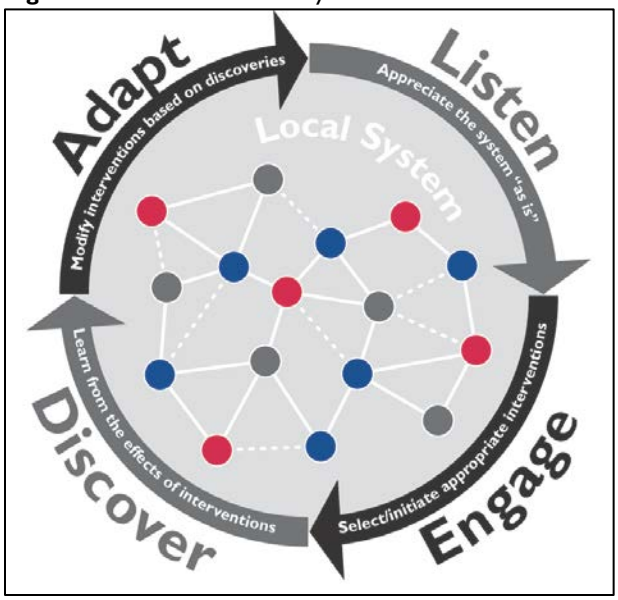
Systems Practice. As laid out in the *Local Systems Framework*, achieving and sustaining development results depends on strengthening the local systems that produce those results. Strengthening local systems depends, in turn, on being able to work with those systems effectively. And working effectively with systems requires both a willingness to embrace the concepts and tools that comprise systems thinking and a set of commitments and values that guide the way of working with systems. Systems thinking and systems working come together in a **systems practice**: a way of seeing, analyzing, and acting through systems.

Systems practice is an ongoing process, but can be usefully divided into four phases or tasks:

- **Listening** to the system to appreciate how it currently operates;
- **Engaging** the system to prompt change, primarily through selected interventions designed to modify interactions in ways that produce desired results;
- **Discovering** the actual effects of those interventions on the system; and
- **Adapting** interventions in response to discoveries to promote interactions that yield improved results.

These four phases of systems practice are depicted in Figure 1 (at right).

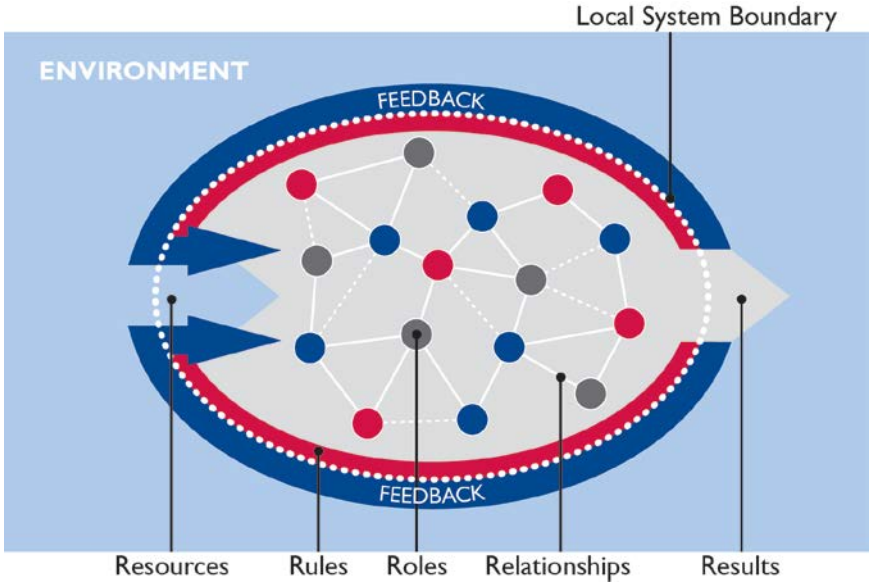
Figure 1. The Four Phases of Systems Practice.



The 5Rs Framework. The 5Rs Framework provides focus to each of the four phases of systems practice. The Framework identifies key aspects of a system that are important for understanding how the system functions and important as leverage points for introducing change. Thus the five "Rs" that make up the framework—**Results, Roles, Relationships, Rules and Resources**—help to identify what we should listen for, where we should engage, what we should discover, and what interventions we may need to adapt.

Together the 5Rs capture the basic dynamics of a system. Figure 2 provides a stylized depiction of a system. At the center of the figure—and at the center of any system—are interactions. In the development space those interactions occur between human actors, both organizations and individuals. Those actors assume certain **roles** (identified by different colored circles) within a network of various types of **relationships** (the lines connecting the circles). Those interactions depend on certain inputs or **resources** (the incoming light blue arrow) and produce certain outcomes or **results** (the outgoing gray arrow). And the whole process of transforming resources into results through the interactions of system actors is governed by a set of **rules** (the red band).

Figure 2. The 5Rs: Key Elements of a Local System.



Further, any system exists in a broader **environment** (itself comprised of systems) and there are interactions between the two. The environment influences the system and the system can influence its broader environment. This interaction between system and environment is captured in several ways in Figure 2: via the light blue arrow that draws resources from the environment into the system, the gray arrow that injects system results into the environment, and the dark blue arrows that capture the dynamic when results influence the subsequent availability of resources. These feedback loops are essential for ensuring the sustainability of the local system, as described in Box 1 (see page 4).

Results (and Systems Boundaries). Development efforts are usually organized around achieving a specific result, such as reducing infant death, increasing early-grade reading proficiency, or increasing access to potable water. Systems practice can also be organized around these types of results by focusing attention on the system responsible for producing them. Approached this way, some key result becomes the organizing principle for defining, investigating and engaging the associated system. Thus if the desired result is increased reading proficiency by third graders in a particular country, the systems

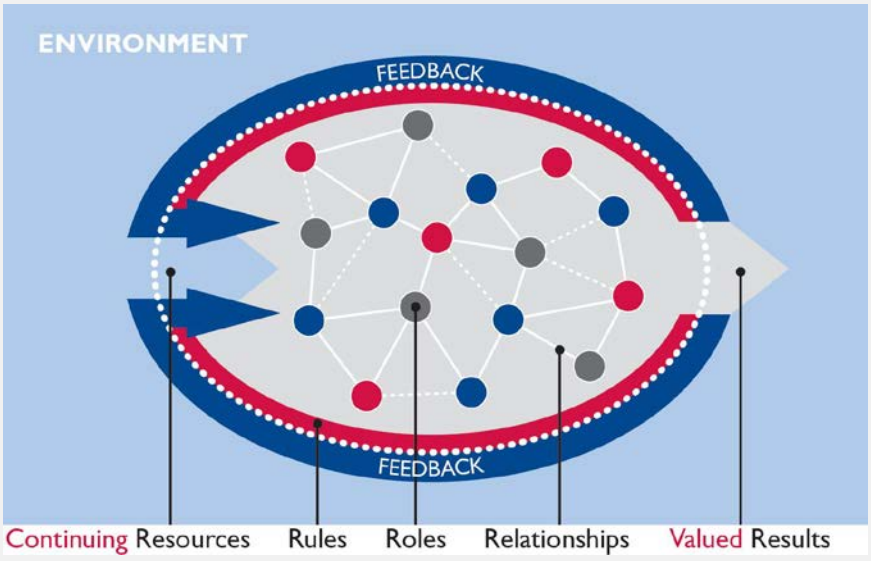
BOX 1. SUSTAINABILITY IN A LOCAL SYSTEM

If an inflow of resources serves as "fuel" to keep the system functioning, the sustainability of the system depends on keeping those resources flowing. Usually the continuing inflow of resources is contingent on realizing some result, as when a wholesaler continues financing grain purchases because there are profits (results) to be made or when a government continues providing budgetary resources for primary education because it engenders political support (results) from parents who are seeking a better future for their children. This important connection between realizing results and the continuing inflow of resources is depicted by the dark blue arrows in Figure 3 (below).

One implication of this understanding of sustainability is that sustainability depends on realizing results that systems-actors truly value. If the results are not valued—or fail to materialize—then systems actors will reduce resource inflows, which may undermine the viability of that system. And as systems are likely to include actors playing different roles and holding different perspectives, there will also be differences over which results really matter. Assuring valued results to a diverse set of systems actors is a central concern in designing interventions that will actually promote sustainability.

Sustainability, then, depends upon the ability of the system to produce valued results over time. Applying the 5Rs Framework to the program design process can help develop interventions that are informed by local context and more likely influence the system to produce valued results that are sustained over time.

Figure 3. Sustainability in a Local System.



focus is on the interactions between actors (captured in terms of roles and relationships), the resources and the rules that together play a prominent role in producing reading proficiency.

Determining the appropriate dimensions of a system can be challenging, even when using a clearly articulated result as the focal point. It is not always easy to distinguish between the roles, relationships, resources and rules that are essential contributors to realizing a result—and thus are part of the system—from those that are somewhat less significant—and thus outside. This process becomes even more challenging if the result is not clearly framed or there are different perspectives to reconcile about

where to draw the boundary between what is part of the system and what remains outside as part of the environment.

The boundary is depicted by the dotted white band in Figure 2. It surrounds the focal result and its associated system. **The space within the boundary defines the local system.** Those system elements are local to the identified result in the sense that they are essential to achieving it. Depending on the desired result, the scope of a local system may vary from small (household or community) to large (national, regional or global).

Although a single result will serve as the organizing principle of a system, that system will produce other results, both positive and negative, in addition to the focal one. For example, in addition to low proficiency levels, the early grade reading system might also be producing teacher absenteeism, poor instruction, or civil society advocacy for education reform. These additional results certainly should be captured and may become issues to address as part of the engagement phase. However, it is important to maintain a distinction between these subsidiary results and the one around which the system is organized.

Roles and Relationships. Actors, whether organizations or individuals, and their interactions are at the heart of all human systems. However, more important than the actors are the specific functions—or roles—those actors take on within a system. Indeed, it is the importance of the role and not the stature of the actor that determines position inside or outside the system boundary.

Distinguishing roles from actors is also important because a single actor can sometimes play several roles in a system, as when an NGO is both a service provider and an advocate. The reverse can also occur. Different types of actors take on the same role as when both government and the private sector deliver health care through clinics.

Roles can be expected to vary depending on the way the system is organized. For example, a market-based system might have such roles as "retailers", "consumers", "wholesalers" and "importers", where a service delivery system is likely to have "providers", "users", or "funders." In addition to these more obvious roles, there is mounting evidence suggesting that strong and adaptive systems have actors playing roles as stewards, facilitators, brokers, knowledge hubs, networkers and advocates. More information on roles can be found on ProgramNet.

Roles and relationships are tightly linked. Indeed many roles are defined in terms of the relationships they have with others. Relationships refer to the types of interactions that occur between actors playing particular roles and can be characterized along several dimensions, including formal to informal, strong to weak, mutual to one-sided, cooperative to adversarial and productive to destructive.

Rules. Rules refer to formal laws, regulations and statutes and to less formal norms, incentives and expectations that influence the structure of the system and the way it functions. Generally the rules of interest are those that apply to the other Rs. Among these would be: rules that determine which actors can enter the system and what roles they can play, restrictions on what relationships can be formed and by whom, regulations on the distribution of resources and standards on how results will be evaluated.

Enforcement is an important consideration in examining rules. Rules on the books but not enforced are hardly rules at all. And rules that are enforced, but erratically or with bias, have a different effect on the system than rules that are enforced uniformly. Thus it is usually more efficient to focus first on the behavior of system actors and the incentives they face and then trace back to the rules and norms that may be their cause than it is to start with a list of legal provisions and try to assess their practical effects.

Resources. Resources encompass the various inputs that are transformed into results. Financial resources, whether in the form of government budget flows, private sector investments, or donor grants, are likely to be important in any system of interest. However, depending on the system, other resources may also be important. Natural resources in the form of fertile soil and adequate rainfall may be important inputs into a crop production system. Similarly, human resources in the form of a supply of trained teachers may be an important input to a reading proficiency system. Whatever their form, the focus should be on identifying those inputs that are needed as "fuel" for the interactions that then yield results.

THE 5RS: INTEGRATING SYSTEMS PRACTICE IN THE PROGRAM CYCLE

Systems practice entails both a set of concepts and a way of working intended to catalyze—and sustain—system change. **In the USAID context, systems practice is operationalized through the Program Cycle.** And by identifying sustainability and local ownership as a guiding principle, ADS 201makes clear that considering local systems and how best to engage with them should be a priority throughout the Program Cycle.

The integration of systems practice and the Program Cycle is particularly important where efforts to change system dynamics are planned and implemented. In Program Cycle terms this occurs primarily during the project design process, but also touches on management, monitoring and learning at both the project and activity levels. The 5Rs Framework was specifically developed to facilitate integration of systems practice and the Program Cycle at these key junctures. And thus these are the portions of the Program Cycle that are addressed in this Technical Note.

This section is organized according to the four phases of systems practice—listening, engaging, discovering and adapting. However, connections are made throughout the narrative to the relevant Program Cycle steps. Annex A provides a more detailed crosswalk between systems practice and the project design requirements in the Program Cycle.

LISTENING TO SYSTEMS

The first phase of a systems practice is to appreciate the local system as it currently functions: how it is organized, how well it functions and how valued are the results it is seen to produce. Listening carefully to the local system "as is" is a necessary prelude to identifying and designing interventions intended to improve system performance. **Thus listening to systems is an essential element of project design.**

The 5Rs Framework helps to structure the listening phase by focusing attention on what to listen for. However, a systems assessment is not a strictly linear process. Describing one "R" may lead to insights

about other Rs, and as you become more comfortable with the 5Rs approach, you may begin to work back and forth across the Rs rather than taking each in turn. Table 1 (see page 7) offers a set of questions to guide investigation into the contribution of each of the 5Rs to the functioning of the "as is" system.

Table 1. Guiding Questions for Listening to the "As Is" System

Element	Questions
Results	▪ What is the target result around which the local system is defined? ▪ Are there trends (increasing, decreasing) or patterns in the target result over time? ▪ How is the target result evaluated by local actors? Is it valued? ▪ How is that valuation expressed to actors inside and outside the local system? ▪ What other results (positive/negative) do actors note about the local system? ▪ How adaptive, resilient, or self-sustainable does the local system seem to be?
Roles	▪ What roles are actors currently performing? ▪ Are some actors performing multiple roles? ▪ Are some roles being played by different types of actors, such as both government and the private sector providing primary education? ▪ Are donors or other third parties playing prominent roles? ▪ How effectively are actors fulfilling the roles they have taken on? ▪ Are there issues of legitimacy or appropriateness surrounding the choice of roles that particular actors might take on? ▪ Are there any roles that seem to absent? Why?
Relationships	▪ What types of relationships exist between role-players (formal/informal, contractual/hierarchical/reciprocal)? ▪ How strong are these relationships? ▪ How valued are these relationships? Are they collaborative? Mutually beneficial? Conflictual? Predatory? ▪ Does the strength of the relationship vary depending on the actors involved? ▪ Are there relationships identified as missing, weak, unnecessary or illegitimate?
Rules	▪ What rules affect the way the local system functions? ▪ Are the relevant rules formal (laws) or informal (norms)? ▪ Are relevant rules enforced? How well? Effectively? Equitably? ▪ Are actors in the local system able to modify the rules that affect them?
Resources	▪ What resources are currently being used by the local system in producing the target result? ▪ Are there needed resource inflows that are missing or insufficient? ▪ Are there trends (increasing, decreasing) or patterns (cyclical) in resource inflows? ▪ What are the sources of those resources? Are they reliable and secure? ▪ How well are the results that the local system is producing being translated, through feedback loops, into sustained resource inflows?

Preliminaries. Before embarking on a listening exercise, bear three things in mind:

First, structure the listening in such a way as to **obtain multiple and diverse perspectives**. It is important that the team conducting the listening is diverse—because people with different backgrounds will be attuned to hearing different things—and that those the team hears from are representative of the diversity found within the local system itself. Tapping into this diversity is important to determine if there are strong differences of opinion about key dimensions of the local system: what is the focal result and how valued is it; where does the system boundary lie; how well are each of the 5Rs contributing to a functioning system? Therefore an important consideration in project design planning is how to ensure that the design team is diverse and is able to hear from multiple perspectives.

Second, **listening can be accomplished in several ways**. Certainly listening can actually be accomplished by listening to the spoken opinions of local actors. And that type of listening, whether through key informant interviews, focus groups, opinion surveys and the like, may well be necessary, especially if there are groups within the system who are marginalized and left out of the conversation. However, traditional analyses and assessments, from political economy analyses to gender analyses to technical and sectoral assessments, can provide valuable insights into the way a local system is organized and functions. In addition, employing some systems-specific tools, such as social network analysis, can be valuable in clarifying dynamics that other assessments often miss. Table 2 (see below) provides an illustrative –and partial—crosswalk between each of the 5Rs and analyses that may be helpful in better understanding them.

Table 2. Types of Analyses

Element	Illustrative Information Sources
Results	Technical studies Opinion surveys Customer/client satisfaction surveys
Roles	Gender analysis Social Network Analysis Organizational Performance Index PFMRAF Stage 1 and 2 Technical capacity analyses
Relationships	Social Network Analysis Value chain/market analysis Causal loop diagrams
Rules	Political Economy Analysis PFMRAF Stage 1
Resources	Political Economy Analysis Economic growth forecasts Market studies Customer/client satisfaction surveys

Finally, as important as listening is, it is also important not to fall into the **"analysis paralysis" trap**. Local systems are complex social phenomena that are hard to understand. It is important to develop a working understanding of the system before engaging it. But at the same time, it also true that engaging the system and noting the response to interventions also provides important information about the system's dynamics that can only emerge through discovery. Therefore, there is always an analytic balancing act to perform between how much effort to devote upfront before engagement and how much to rely on the insights to be gained from close monitoring of interventions intended to modify the system in some way. Thinking through this balance is another important consideration in project design planning.

For presentation purposes, listening is broken up into a series of steps. But the actual process is likely to be more iterative; moving back and forth across these steps as understanding of the "as is" system deepens.

1. **Select the Focal Result of Interest.** The first step to listening is to identify a result that will serve as the focal point for the local system to be examined. As already noted, listening will be more targeted and effective if the focal result is clearly articulated. Getting to that point will take some effort. It will likely require sifting through various documents and their broad statements of development problems to figure out what specific outcomes need to be analyzed and understood. And then it will entail validating any framing of the focal result with systems actors. It is quite possible that taking account of alternative viewpoints may lead to reframing the focal result or redefining what the "problem" is altogether. Because we are listening to the system "as is", the focal result that is being produced by the system is likely to be negative, for example "low reading proficiency."

2. **Bound the Local System.** Care in framing the focal result makes it easier to set the boundary that defines the local system from which that result emerges. A clear boundary is essential for ensuring that listening efforts are focused on the roles, relationships, resources and rules that are most significant in producing the result of interest. At the same time, setting the boundary is a judgement call that should be reviewed with a range of system actors to get their views about who and what is important for achieving the target outcome.

   Since more expansive boundaries (such as focusing at country-level rather than at a province) usually involve more actors with more interrelationships, the listening required to gain a working understanding is more demanding. There may come a point when the requirements of a good-faith listening effort may seem overwhelming. In those circumstances it may make sense to reframe the focal result more tightly so that it defines a more compact—and more manageable—local system that is easier to listen to.

3. **Develop an Understanding of the "As Is" Local System.** Once the focal result and associated local system boundary has been defined, it is now possible to examine the internal workings more deeply through the lens of all of the 5Rs. The aim is draw on available analyses and data to build out a fuller understanding of the results, roles, relationships, rules and resources of the local system under investigation to the point that it becomes clear why the system "as is" produces the observed

results. It is likely that thinking through the 5Rs will happen more than once during the listening phase. The first time provides an opportunity to assess what is already known about the 5Rs and what holes may remain. Determining what additional analyses are necessary to fill identified information holes then becomes part of project design planning. Once those additional analyses are complete, a second application of the 5Rs should reveal a fuller understanding of the 5Rs.

Thinking through the 5Rs can proceed in any order, though many have found that it is easiest to begin by identifying actors within the system and then characterizing the roles those actors play and the relationships between them (having preceded this by determining the focal result as part of the determining the system boundary). Finally, it is important to take note of both what is working well in addition to what is identified as problematic.

Examining the local system in terms of the 5Rs can be done in a variety of ways: by individuals or by a group in a workshop format; by Mission staff reflecting on their own experience and commissioned studies or as a frame for eliciting insights from local actors. For example, Box 2 shows one possible method of using the 5Rs for an analysis of the system as it currently exists.

ENGAGING SYSTEMS

The second phase of systems practice focuses on actively engaging a system to promote positive—and sustained—change. As promoting positive and sustained changed is most effective when it is locally-owned and locally-led, it is important that all facets of engagement are undertaken in collaboration with system actors and stakeholders.

This phase begins with preparatory analytical work and then moves on to the development of the project theory of change, activity design and implementation of specific interventions intended to induce changes in the way the system functions. The 5Rs Framework provides a useful guide along the way. As a start, the 5Rs provides a way to describe the future local system that is needed to produce a desired development outcome. Second, the Framework provides a way to identify interventions by providing a common frame to compare the system as it needs "to be" in the future with the actual systems as it is in the present. Finally the 5Rs also helps to prioritize among identified interventions. This section describes how to use the Framework in these three ways.

1. **Identify the "To Be" System.** The practice for identifying the "to be" system largely mirrors the practice for identifying the "as is" system. The same analytic process applies as do the commitments to seeking out multiple perspectives and validating conclusions with local actors. Information sources that contribute to listening can also offer insights into the functioning of the future local system. Indeed the processes are so similar that they can be carried out in parallel. **The big difference is that appreciating the current system is a diagnostic exercise accomplished through listening while envisioning a "to be" system is a more challenging task of working with local actors to imagine a future state and the pathways for getting there.**

   As with listening, the first step is to articulate a result that will serve as the anchor of a local system. Here the anchor is some desired result to be realized in the future. To make comparison easier, this

future target result should be framed as some improvement on the focal result that served as the anchor for the analysis of the "as is" system. For example, the focal result would be framed in terms of current national levels of maize production where the target result might be stated as a sustained increase in maize production.

It is also very important that the target result is one that is valued by actors, since valued results are a crucial element in establishing the positive feedback loop necessary to sustain a local system (see Box 1 and Figure 2).

Having set the (valued) target result, the next step is to put a boundary around the "to be" system. The procedure is the same as the one laid out in the listening phase: examining actor roles and relationships, resources and rules to distinguish those that are vital for producing the target result—and thus make up the future local system—from those that are less important and can be treated as part of the environment.

2. **Envision the "To Be" System in Terms of the 5Rs.** Having established the broad contours of the "to be" system, the next step is flesh it out by applying the 5Rs in more detail. A set of guiding questions is provided in Table 3 (on page 12). A key consideration at this point is to maintain in the "to be" systems any of the system strengths identified in the "as is" system.

BOX 2 – SYSTEMS MAPPING APPROACH TO "AS IS" ASSESSMENT USING THE 5RS FRAMEWORK

In this method, a team uses post-it notes or sheets of paper to organize the data for each "R" of the framework. "Results" are organized on the right; "resources" are listed on the left, and the actors and roles they fill in the middle. This set-up mimics the diagram of the system in Figure 2 on page 3, where the actors are in the center with a description of their role in the system and the transformation of resources into results. Relationships can be depicted either qualitatively on a separate list, by the way in which actors are grouped (in clusters or far apart), or connected with yarn or string. Teams can be creative in how to use this approach; the goal is to think through how the information fits together and can explain why the system produces the results that it does. In the figure above, the example system is of the agriculture sector in an African country.

Table 3. Guiding Questions for Envisioning the "To Be" System

Element	Illustrative Information Sources
Results	▪ What is the target result around which the local system is defined? ▪ Is the target result valued by local actors? Which ones? ▪ How will that valuation be expressed to actors inside and outside the local system? ▪ How will resilience and adaptability be built into the system? ▪ What other positive results should the "to be" system produce?
Roles	▪ What roles will local actors need to perform? ▪ Are these existing or new roles? For new roles, who will play them? ▪ What roles will donors or other third parties play? How can those roles be phased out over time? ▪ Are there issues of legitimacy or appropriateness surrounding the choice of roles that particular actors might take on?
Relationships	▪ What types of relationships will need to exist between role-players (formal/informal, contractual/hierarchical/reciprocal)? ▪ Are these new or existing relationships? ▪ How can these relationships be constructed to be mutually beneficial?
Rules	▪ What rules will be needed to enable the local system to function well? ▪ What is needed to ensure rules are enforced efficiently and equitably? ▪ How much rule flexibility will be required to provide the local system with the flexibility to adjust to changes in its environment?
Resources	▪ What continuing inflow of resources will be needed by the local system to produce the target result? ▪ How can this flow of resources be made reliable and secure? ▪ How can improving target results be leveraged, through feedback loops, into improving the sufficient and reliability of resource inflows?

The end product of the listening phase is a description of the "as is" local system organized around the 5Rs. Producing a similar description of the "to be" system facilitates a comparison between the current local system and a desired future configuration that will produce and sustain improved results.

3. **Identify Needed Change.** Comparing the two descriptions of local systems helps identify what changes are needed to move from "as is" to "to be." Moreover, **needed changes are organized in terms of the 5Rs, which provides greater precision as to the types of changes that are required**. This is a worthwhile effort for the reasons laid out in Box 3.

BOX 3. IS THIS REALLY NECESSARY?

Envisioning the "to be" system, comparing it with the current one, and thinking through the requirements to promote change will take time and effort. Some may question whether these steps are necessary and will want to proceed directly from a listening assessment of a system to identifying interventions. But there are at least four reasons the more deliberate approach has value:

1. **Collaboration.** The documents created through this process—the description of the "to be" system and the assessment of needed change—can serve as a basis for collaboration with others interested in supporting reforms. The description of the "to be" system can serve as a common frame for collective action and the change action can potentially be divided up among interested collaborators.
2. **Unintended consequences.** Thinking through the configuration of the local system should identify dynamics that might otherwise be missed until they appear as the unfortunate unintended consequences of some intervention.
3. **Sequencing.** Taking time to consider the overall feasibility of the changes required to realize desired results can point out if a phased approach is needed; an approach that may entail (unglamorous) interventions to build the foundations of capacity and social capital needed to introduce more dramatic change later on.
4. **Common stake.** Perhaps most importantly, one of the outcomes of engaging in this analysis collaboratively is that systems actors should begin to realize that while they may have different roles in the local system and different interests, they are, in fact, part of a system and have a stake in seeing it thrive. Realizing this shared stake can have a profound and positive effect in the way actors think about their roles and relationships and their willingness to advocate for the resources needed to sustain "their" system.

4. **Assess the Feasibility of Change.** At this point attention starts to shift from identifying what change is needed to consideration of what interventions can be introduced in the local system to support needed changes in how it functions. As the shift occurs—and prior to additional investments in design processes—it makes sense to reflect on the feasibility of the identified change agenda.

   There are any number of factors to consider in weighing feasibility, ranging from the extent of change required within the local system, to the plausibility of the theory of change, to the support the change agenda enjoys from system actors and key stakeholders, to the levels of resources available to fund interventions and support system change. From a 5Rs perspective, **strengthening existing roles, changing rules and increasing levels of existing resource inflows are probably more feasible than creating new roles, changing norms, or seeking out new resource inputs**. But experience is limited.

   If the feasibility of the identified change agenda comes into question, there are two options for making engagement more manageable. One option is to reduce the extent of needed change by

shrinking the scale of the "to be" system. Doing so requires a more modest framing of the target result along with a pared down local system, but should not be too taxing given existing analysis.

There may be value in sequencing interventions, either over the life of a project or over multiple projects, tackling the change agenda in stages rather than all at once. For example, it may be necessary to modify the rules governing relationships before actually working on strengthening the relationships themselves. The Global Heath (GH) Bureau has had success using the 5Rs as a way to sequence interventions over many years and multiple projects. In a retrospective application, GH colleagues noted that early efforts to strengthen relationships paid off when it came to eliciting additional resources and shifting roles (see Box 4, below, and additional resources available on ProgramNet).

BOX 4. TRACING THE DEVELOPMENT OF A LOCAL SYSTEM: FAMILY PLANNING IN NICARAGUA

The 5Rs Framework was used by the Global Health Bureau to facilitate a retrospective documentation of how USAID's involvement in the family planning sector in Nicaragua evolved from a donor-led model in the early 1990s to the nationally-led and largely self-sustaining system Nicaragua has today. In this case, Global Health took "systems snapshots" at various points over the 20-year evolution and then used the 5Rs to describe the local systems at that point and capture any system changes. These snapshots focused on policy shifts (Rules), increasing domestic resource mobilization (Resources), and strengthening of local capacity for advocacy and service delivery (Roles and Relationships), which eventually lead to graduation from USAID support.

This review validated the 5Rs as a useful tool for tracking systems change and elicited a number of new insights:

- The retrospective exercise highlighted the importance of building relationships early in the process to catalyze development in other dimensions of the local system. For example, the initiation of Contraceptive Security Committees (CSCs) in 1999 facilitated a strengthening of relationships between multiple actors into a strong coalition for commodity procurement reform. CSCs went on to play a central role in developing formal contraceptive security plans in 2006 and 2009 and became a permanent fixture in family planning policy in Nicaragua.
- The exercise clearly demonstrated the connection between valued results and sustainability. Demand for family planning services grew over time and translated into pressure on political leaders to keep the programs going and growing. With time, support for family planning became a plank in the platforms of both political parties.
- Some interventions clearly catalyzed additional advances, but others had less clear paths of influence. This is consistent with the idea that systems are dynamic and not always predictable, and underscores the importance of investing in multiple approaches, continuing to monitor for change, and leveraging positive results to reinforce changes in the system that support the eventual achievement and sustainability of development goals.

From a Program Cycle perspective, projects and local systems should be aligned. In other words, each USAID project should be designed to promote change within a single, bounded local system. And conversely, efforts to support change within a defined local system should be organized within a single project. **With projects and local systems aligned, the Project Purpose is identical to the target result.**

5. **Select and Design Activities (Interventions).** As defined in ADS 201, an activity carries out an intervention or a set of interventions that help to achieve a Project Purpose. The starting point for selecting the activities (interventions) that will be included in the project design is the list of needed change that resulted from comparing the current "as is" system to the "to be" system that is the subject of the project. As this set of needed changes is already organized according to the 5Rs, each of them can be considered a "lever" that can be applied to generate some amount of systems-level change.

   The changes that matter take place at the system level: changes in systems interactions that result in better and more sustainable results. However, those interactions cannot be altered directly by outside actors. They can only be changed by the systems actors themselves through the ways they interact with one another. The situation is much like a musical performance. The director may have an understanding of how the piece should sound. But the director cannot realize that result directly. Instead the performance is a product of how the individual musicians interact as they play their various parts.

   The way to promote system change is indirectly, through a set of interventions designed to affect key aspects of the system such as: improving the performance of a role, promoting relationships where they did not exist, modifying incentives through a change in a rule, or increasing the level of available budgetary resources. A single intervention engages a specific aspect of the system and should not be expected to elicit the type of system change needed to produce the target result. Rather, systems change usually requires the combined efforts of a number of interventions (activities), each engaging a discrete part of the system but together initiating more profound change in the way the system functions. The 5Rs can assist in identifying those key interventions.

   An important design task is to determine which of the identified interventions to include within the project as it is unlikely that a project will be able to incorporate them all. This selection process is in many ways a continuation of the feasibility assessment conducted earlier. Recalling that strengthening existing roles may be a more feasible approach, systems considerations include:

   - ***Systems significance.*** Systems visualization tools, such a Causal Loop Diagramming and Social Network Analysis, may identify issues or actors that may play a significant role within the local system—or are conspicuously absent. Thus targeting these issues or actors can yield large ripple effects. These tools can also help identify virtuous and vicious cycles that interventions may be able to promote or counteract as the case may be.
   - ***Systems stewardship.*** A number of studies have documented the value of one or more actors playing a system steward role during the transition from "as is" to "to be." The role of the

steward is to facilitate the introduction of new dynamics by providing information, coaching, or convening. To be successful, the actor playing the steward role needs to be perceived by other actors as impartial and whose only interest is the improvement of the system as a whole. Thus a design question is whether such a role would be helpful and, if so, which actor(s) should be asked to take it on.

Whatever interventions are ultimately selected, they should be designed with the watchwords of good systems practice in mind: promote local leadership and local ownership of systems change, facilitate that change rather than directing it, respect and respond to differing perspectives, and anticipate the need to adapt.

DISCOVERING SYSTEM RESPONSE

The third phase of systems practice is discovering more about the dynamics of a local system as it responds to interventions. Discovery can reinforce understandings developed through listening and engagement when the local system responds in the ways that were anticipated. And discovery can alter understandings of the system's dynamics when it responds in unexpected ways. The 5Rs Framework assists discovery by providing a structure for capturing systems change, both expected and unexpected. As such, discovery through the 5Rs promotes learning within projects and activities (see Box 5, below).

BOX 5. CLA AND THE 5RS

Strategic collaboration, continuous learning, and adaptive management link together all components of the Program Cycle. A Collaborating, Learning, and Adapting (CLA) focus helps ensure that programming is coordinated together, grounded in evidence, and adjusted as necessary to remain relevant and effective throughout implementation. The 5Rs Framework reflects many of the same principles as CLA, and offers a specific process that can help USAID staff to actualize aspects of CLA at the project level.

- Collaborating: Both the 5Rs and CLA promote the idea that contextual learning is key, that USAID is one of many interconnected actors, and that it is necessary to solicit multiple and diverse perspectives throughout design and implementation.
- Learning and adapting: CLA defines a diverse set of practices to promote continuous learning and adapting in USAID strategies, projects, and activities. The four phases of systems practice define a process for continuous learning during project design (the "listen" phase), project implementation (the "discover" phase) and for adapting interventions in response to this learning (the "adapt" phase).
- Using core questions to inform design and implementation: The 5Rs Framework provides a structured process for approaching each phase of systems practice by answering a series of guiding questions. From a CLA perspective, the 5Rs guiding questions could be considered learning questions about a project's local actors, relationships, and implementation context. Both the 5Rs and CLA's Learning Agenda approach begin by defining the critical questions to inform programming, and only then choosing methodologies for answering them, including methods that go beyond standard M&E practices and assessments.

Discovering system response is in many ways analogous to the listening phase of systems practice. In the complex environments where USAID works, it is often not possible to fully predict how a specific project will influence the system. Even after having invested in listening and developing robust contextual assessments, engaging in a system through a specific project or activity will yield new information about how a system works. The 5Rs Framework can provide an organized approach to monitoring that captures information from each dimension of the system throughout project implementation. Regularly assessing project activities, both individually and collectively, for effects on the local system will allow teams to track progress toward the envisioned system "to be." This approach to monitoring can help a project team stay aware of how influences in one part of the system may bring about changes elsewhere, and identify ways to course-correct if a project is not producing the anticipated outcomes.

1. **Develop a Project-Level Monitoring Plan Attuned to Systems Change.** Monitoring takes place at both the activity level and the project level. Both are important and both can be organized with the 5Rs Framework. But robust monitoring at the project level is central for capturing and assessing systems change and, by extension, the prospects for achieving and sustaining results.

   Most activity-level interventions target a single "R", such as introducing new roles, strengthening existing relationships or reforming rules. Monitoring at this level will be focused on whether the actual intervention, whether training, facilitation, or introduction of a new technology, is yielding the desired change in that particular "R." However, changes to a single "R" are not likely to elicit system-level change. Rather it is only at the project level, where multiple interventions addressing multiple "Rs" come together, that systems change will become noticeable.

   Thus robust project-level monitoring is essential. And that begins with a thoughtful project level monitoring plan that is designed to capture system-level change. Doing so goes beyond aggregation of activity level monitoring and focuses on the collective effect that the discrete activity-level interventions are having on overall system functioning. Project level monitoring looks at how all five of the Rs are changing and how those changes are interacting with one another. It also looks at how the local system is interacting with its broader environment, especially if the system results are generating the type of support needed to continue the flow of resources needed for self-sustainability.

2. **Select Appropriate Monitoring Methods.** When framing a project-level monitoring plan, it is important to select methods attuned to capturing systems change. Such methods can be drawn from three broad categories:

   - ***Systems visualization methods***, such as Social Network Analysis or Causal Loop Diagramming can be used iteratively to capture broad system-level changes
   - ***Narrative methods***, encompasses a broad array of methods ranging from informal consultations and focus groups to outcome harvesting or most significant change. What these methods have in common is that they are all grounded in narratives from system participants—or key external stakeholders—about what they are observing from the inside about how the system is evolving.

- ***Indicator methods*** use data, usually quantitative, to capture key changes in a system.

Table 4 provides a list of monitoring methods, drawing from all three categories, which have been identified as useful for capturing aspects of system change. Some of the listed monitoring methods are tried and true. Some are less familiar. USAID is currently collecting and testing promising approaches to identify those that are most useful in development settings.

As Table 4 also indicates, some methods are better attuned to capture change in some Rs than others, so a portfolio of monitoring methods is likely. It is unlikely that a single monitoring method will be sufficient to capture system change. But whichever methods are selected it is important to include multiple perspectives throughout this process to ensure that the indicators and monitoring targets chosen capture what is important for progressing towards the system "to be." To this end, the proposed monitoring plan should be validated with a variety of stakeholders.

Table 4. Methods for Monitoring Systems Change

Element	Illustrative Information Sources
Results	Outcome indicators Citizen feedback/user surveys Outcome harvesting Stakeholder consultations
Roles	Social Network Analysis Organizational Performance Index Citizen feedback/user surveys
Relationships	Social Network Analysis Stakeholder consultations
Rules	Rapid Political Economy Analysis Stakeholder consultations
Resources	Market studies Indicators

ADAPTING TO DISCOVERIES

The fourth phase of systems practice focuses on adapting in response to what has been discovered about the effects of interventions on system dynamics. If those effects appear negative, adapting might entail modifying, scaling-back, postponing or even cancelling one or more interventions. Alternatively, if an intervention has particularly positive effects on the system, adapting might call for an expansion of an activity. Or if a new opportunity arises, adaptation might include adding a new intervention.

As a systems practice, adaptation entails working though the steps described under Engaging Systems, though this time with the benefit of additional insight uncovered through discovery. The amount of effort devoted to reconsidering the "to be" system, recalibrating which interventions are a priority, adjusting activity designs, modifying implementation plans, or tweaking project monitoring plans will

depend on what is discovered and how much those discoveries of actual system response deviate from initial expectations. Continued use of the 5Rs Framework can help organize discoveries by relating them to what is now known about each of the five Rs. Adaptation in the engagement approach is likely to be needed where new understandings differ most from the initial ones.

As with the engagement tasks, it is also important that possible adaptations be considered collaboratively with system actors. One way to do this, drawing from the growing practice of adaptive management, is to build regular points of reflection into implementation plans. Gathering together system actors and key stakeholders to review what has been discovered and assess what, if any, adaptation is required not only helps build local ownership for systems change, but also reinforces that important shared stake in good systems performance.

ANNEX A. LINKING THE 5RS WITH THE PROGRAM CYCLE.

Though systems practice should be an ongoing consideration throughout the Program Cycle, this table identifies the specific project design tasks identified in ADS 201 where the 5Rs Framework can be particularly helpful. The brief descriptions of how to use the 5Rs in these instances summarize steps described in more detail in the body of this Note.

Program Cycle Element	How the 5Rs Can Help
Project Design Planning (ADS 201.3.3.12)	Completing the Project Design Plan (PDP) will entail at least one iteration of "listening" to the "as is" system to identify its boundaries and describe the system in terms of each of the 5Rs.
Preliminary Project Purpose	Determining the focal result is an essential part of defining and bounding the "as is" system. At this point, this focal result can serve as a preliminary statement of the Project Purpose. However, it may be modified as more is learned about the "as is" system and attention shifts to envision the "to be" system during project design.
Plan for conducting analyses	The 5Rs can structure the review of existing analyses and help to identify gaps in understanding the "as is" system. Where gaps exist, consider some of the analyses listed in Table 1. The aim is to develop a reliable working understanding of the local system in terms of the 5Rs.
Plan for engaging local actors	An initial iteration of listening to the "as is" system will identify key systems actors and their roles and relationships. Consulting them during project design is important to improve understanding of the system and its strengths and weaknesses, validate system boundaries and assess support for systems change.
Plan for considering possible use of G2G	Listening to the local system with the 5Rs in mind will help identify the roles government actors play and their relationships to other actors. This analysis will help identify if those roles and relationships need to be addressed through the project and, if so, if direct assistance to government actors is the appropriate mechanism.
Project Design (ADS 201.3.3.13)	Completing the analysis and design tasks involved in project design and the preparation of the Project Approval Document (PAD) draws on three phases of systems practice: listening, engaging, and discovering. This would include completing the analytic tasks set out in the PDP to arrive at a working understanding of the "as is" system, identifying the "to be" system, comparing the "as is" and "to be" systems to identify the scope and feasibility of systems change, identifying those interventions that will be addressed through specific activities, and framing the project-level monitoring, evaluation and learning (MEL) plan. The 5Rs Framework is integral to all of these steps and ensures consistency across them.
Project Purpose	The target result of the "to be" system becomes the Project Purpose.
Context	This portion of the PAD can be addressed through a thoughtful description of the "as is" system in terms of the 5Rs and how that system relates to its environment.
Project Description	The Project Description would include a description of the "to be" system in terms of the 5Rs plus the analysis of what needs to change and feasibility of that change. The analysis of change and its feasibility provides the basis for the articulation of the theory of change.
Summary of conclusions from analyses	The 5Rs provides an efficient way to identify and relate the key findings and insights from various analyses, including consultations from local actors. And if the context and Project Description are also presented in terms of the 5Rs, it is easy to make the case that the project has made good use of the analysis.
Activity plan	Part of engaging with systems is using the 5Rs Framework to identify the key interventions that are expected to prompt systems change. These interventions will be implemented through activities that are summarized in the PAD's Activity Plan.
Project MEL plan	The 5Rs provide a structure for identifying those aspects that of systems change that need to be monitored. This Note also includes suggestions about methods that can be employed to monitor each of the Rs. The 5Rs can also serve as a structure for identifying priorities for learning.
Project logic model	The requirement for a logic model can be satisfied with a graphical depiction of the "as is" system and some indication, perhaps with arrows, of the interventions/activities that will be implemented to elicit systems change.

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LOCAL SYSTEMS:

A FRAMEWORK FOR SUPPORTING SUSTAINED DEVELOPMENT

APRIL 2014

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WASHINGTON, DC

Cover: *Snapshots of various facets of the local systems found around the world that link farmers, governments, sellers, and consumers to produce and market rice. The local systems represented are located in Iraq, Vietnam, Mali, India and Burma.*

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BOXES

Note: Other than official documents of USAID or the U.S. government, citations in this report are provided for informational purposes and do not constitute a formal endorsement.

FORWARD

In a world where great ideas and inspirational leadership come from everywhere, we have to find and support local solutions that will lead to sustainable development. Over the last four years, we have begun a critical shift in the way we administer our assistance, pioneering a new model of development that places a greater emphasis on direct partnerships with local change-agents who have invaluable in-country knowledge, networks, and expertise.

Local institutions, private sector partners, and civil society organizations serve as engines of growth and opportunity in their countries. That's why we're now helping small businesses grow with new technologies and easier access to capital. We're collaborating with local inventors, helping them test and scale their innovations to reach millions of their fellow citizens. We're also forging new partnerships with non-governmental organizations to increase government accountability to its citizens. In 2013, alone, we worked with 1,150 local organizations in 74 countries.

As a result of our direct partnerships, the Ministry of Public Health in Afghanistan has presided over the largest decreases in maternal and child death in the world. A teaching hospital in Kenya can hire a U.S.-based university to continue its HIV/AIDS research. And a farmers' association in Guatemala can become our signature partner in strengthening food security for 32,000 families.

We are also changing the way we measure and manage risk. Before we enter a direct partnership, we use sophisticated tools to assess their financial management capacity and safeguard our nation's resources.

Our new Local Systems Framework underscores this renewed focus. At its core, this policy provides a blueprint for how we will work to achieve our vision of sustainable development—empowering a new generation of local entrepreneurs, innovators, and community leaders to advance the development of their own communities. We identified ten core principles of successful local partnerships—including smarter evaluation systems and more flexible projects—that can adapt to emerging needs.

By forming local partnerships, we not only make our work more effective, but inherently more sustainable. As President Obama has said, our new model of development must be "rooted in shared responsibility, mutual accountability and, most of all, concrete results that pull communities and countries from poverty to prosperity." I look forward to working with all of you to harness the talent and potential of our local partners. Together, we can create a brighter, more prosperous future for the world's most vulnerable people.

Rajiv J. Shah
USAID Administrator
April 2014

ACKNOWLEDGEMENTS

Following the USAID-organized Experience Summit on Strengthening Country Systems in November 2012, the Bureau for Policy, Planning and Learning (PPL) asked Tjip Walker to lead the effort to transform the ideas generated during the summit into a conceptual framework on local systems. Tjip recruited David Jacobstein from the Bureau for Democracy, Conflict and Humanitarian Assistance and Raquel Gomes from the Bureau for Economic Growth, Education and Environment to form the core drafting team, which was supervised by PPL's Larry Garber. An internal advisory group comprising the following individuals also met regularly to discuss key themes and sections of the report: Jim Barnhart, Tom Briggs, Terry Brown, Karen Cavanaugh, Clinton Doggett, Jeanne Downing, Brian Frantz, John Niemeyer, Laura Pavlovic, Laura Schulz and Pamela Wyville-Staples.

Once an initial draft was prepared, the Framework also benefitted from a review process led by Local Solutions Coordinator Elizabeth Warfield and including the following Agency staff: Ruth Buckley, Laura Pavlovic, Lisa McGregor-Mirghani, Steve Pierce, Susan Reichle and Cliff Stammerman.

In October, the Framework team disseminated a consultation draft within the Agency and externally. As described in the Annex, an extensive six-week consultation process ensued, which confirmed the basic direction of the Framework, but also led to several modifications of the document.

EXECUTIVE SUMMARY

This Framework describes USAID's overarching approach to transforming innovations and reforms into sustained development. Drawing upon USAID's experience, established good practice and systems thinking, this Framework places local systems at the center of all our efforts to promote sustainability.

The focus on local systems is rooted in the reality that achieving and sustaining any development outcome depends on the contributions of multiple and interconnected actors. Building the capacity of a single actor or strengthening a single relationship is insufficient. Rather, the focus must be on the system as a whole: the actors, their interrelationships and the incentives that guide them. Realizing improved development outcomes emanates from increasing the performance of multiple actors and the effectiveness of their interactions. And sustaining development outcomes depends on the sustainability of the local system—specifically, its built-in durability and adaptability that allows actors and their interrelationships to accommodate shocks and respond to changing circumstances.

This Framework contributes to the ongoing transformation of the way the Agency does business by defining clear and practical steps toward realizing a vision of development that is locally owned, locally led and locally sustained. These steps include: (1) adhering to good practice in engaging local systems (see Box 1); (2) modifying the Agency's risk assessment process to take better account of rewards as well as risks and to better enable us to direct our resources where they are most likely to catalyze sustained development; and (3) broadening our results architecture to track our contributions to the strength and sustainability of local systems. Ultimately, effective and empowered local systems are essential to sustainably fulfilling our mission to partner to end extreme poverty and to build resilient, democratic societies.

The Framework also defines how we will advance aid effectiveness and serves as the basis for deeper collaboration with all partners to support sustainability though local systems. The Framework concludes with a series of follow-on steps—some already underway—that will help us make progress.

Box 1. Ten Principles for Engaging Local Systems

1. **Recognize there is always a system.**
2. **Engage local systems everywhere.**
3. **Capitalize on our convening authority.**
4. **Tap into local knowledge.**
5. **Map local systems.**
6. **Design holistically.**
7. **Ensure accountability.**
8. **Embed flexibility.**
9. **Embrace facilitation.**
10. **Monitor and evaluate for sustainability.**

1 A VISION AND A FRAMEWORK

Today's international development landscape is very different than just a few decades ago. New challenges, including rampant urbanization and climate change, have come to the fore, even as we have seen dramatic reductions in extreme poverty, HIV/AIDS prevalence and civil conflict. We have also seen the emergence of new opportunities—the spread of communications technologies, the rise of global philanthropy, the formation of new public-private partnerships and multi-stakeholder alliances, and the upsurge in entrepreneurship worldwide—that are transforming traditional development models and relationships.

Operating effectively in the modern development landscape requires an equally modern development approach to promoting local solutions. One vital feature of a 21st-century development model is that it takes full advantage of emerging opportunities by leveraging the latest scientific and technological advances and by promoting new coalitions to tackle pressing development challenges. Through USAID Forward's emphasis on promoting local solutions, including those initiatives focusing on innovation and partnerships, the Agency is actively evolving and refining its role as a development convener, connector and incubator.

To complement the search for new ideas and modes of collaboration, a second feature of this 21st-century approach is thoughtful engagement with the many segments of developing societies to ensure that technical innovations and social reforms produce positive and lasting change. USAID and its many partners have decades of experience supporting this type of development. We have learned that introducing innovation and reform is not easy, because change inevitably confronts established sets of ideas, practices, relationships and results. We have learned that we are most successful when we work productively with local change agents, supporting their efforts to promote innovation, advocate for reform, develop

Box 2. Experience and Evidence that Inform the Framework

Experience – This Framework builds on years of experience by USAID and its partners on supporting sustainable development through institutional development, capacity building, policy reform, civil society strengthening, service delivery improvement, value chain and market system development, and systems strengthening. The collective experience was reviewed during the two-day *Experience Summit on Strengthening Country Systems* in November 2012. The Summit provided an opportunity for USAID staff and partners to examine accumulated experience and identify what is most relevant moving forward. A summary of the event and background materials are available at: kdid.org/events/experience-summit.

Evidence – USAID also commissioned a series of research papers prepared by the Overseas Development Institute (ODI) that reviewed the case for providing direct funding to governments, civil society organizations, universities or the private sector in developing countries and examined the available evidence about the contribution such "localized aid" makes to sustainability. The four papers are available here.

A woman eats rice on a street in Rangoon. *AFP Photo/Nicolas Asfouri*

capacities, deepen accountability and improve results. And we have learned that locally led development is more likely to be sustained when it alters incentives and institutions.

The purpose of the Local Systems Framework is to present USAID's overarching approach to supporting the transformation of innovations and reforms into sustained development. It draws from our collective experience (see Box 2, page 1) as well as from global good practice on aid effectiveness. However, this Framework adds several 21st-century elements—most significantly, an embrace of systems thinking and an emphasis on the concept of local systems. These additions provide a lens and a language that help focus our development efforts; orchestrate all assistance modalities to serve a common purpose; integrate our policies, plans and projects; and afford a platform for collaboration with our partners, U.S. Government counterparts and other donors. The Framework also accesses important insights and powerful tools that help address pressing development problems and navigate the complexity of 21st-century development. But perhaps most important, it offers clear and practical steps toward realizing the vision of development that is locally owned, locally led and locally sustained.

The Framework is presented in the next four sections. Section 2 provides additional detail on the concept of a local system and how that concept is connected to aid effectiveness and to sustainability. Section 3 introduces systems thinking and describes how it improves the way we think about sustainability, while Section 4 draws on that thinking and established good practice in distilling 10 principles to guide engagement with local systems. Section 5 considers USAID's current approach and identifies areas where changes are needed in order to fully adopt the Framework.

Together, these four sections provide a roadmap of the general direction we will take toward realizing the vision of locally led and locally responsive development. The aim is to provide sufficient orientation to USAID staff and to our partners in the United States and around the world to generate common understanding and greater collaboration. At the same time, making progress will also require additional tools and operational guidance. Some of the initial priorities are itemized in Section 6 of this paper.

2 SYSTEMS AND SUSTAINABILITY

Sustainability is an essential component of development and a core commitment of USAID and every international development agency.[1] The basic idea is simple: Development investments in poor countries, of whatever form, should catalyze the economic, political and social processes within those countries that yield ever-improving lives for their citizens. However, as a practical matter, translating discrete development projects and programs into broad-based social change is complex.

Global best practice on how to support sustained development is embedded in principles of aid effectiveness first ratified in the Paris Declaration (2005) and reaffirmed in global compacts adopted in Accra (2008) and Busan (2011).[2] The central insight is that external aid investments are more likely to catalyze sustained development processes when they reinforce a country's internally determined development priorities (country ownership) and arrangements (country systems). The most recent articulation of the aid effectiveness principles at Busan has added an important nuance: Effective and sustainable development is inclusive development (see Box 3). Inclusive country ownership means that development priorities are established in ways that are broadly responsive to citizen needs and aspirations. Inclusive country systems also recognize that ***all parts of society***—certainly governments, but also civil society, the private sector, universities and individual citizens—have important resources, ideas and energy that are essential to sustaining development.

Box 3. Busan Partnership for Effective Development Cooperation, 2011

The Busan Partnership Agreement, endorsed by 160 countries including the United States, calls for a more inclusive approach to development. Key statements include (emphasis added):

- We commit to modernize, deepen and broaden our cooperation, involving state and non-state actors that wish to shape an agenda that has until recently been dominated by a narrower group of development actors. In Busan, we forge a new global development ***partnership that embraces diversity and recognizes the distinct roles that all stakeholders in cooperation can play to support development***.
- We welcome the opportunities presented by diverse approaches to development cooperation, such as South-South cooperation, as well as the ***contribution of civil society organizations and private actors***; we will work together to build on and learn from their achievements and innovations, ***recognizing their unique characteristics and respective merits***.
- At Busan, ***we now all form an integral part of a new and more inclusive development agenda…. we welcome the inclusion of civil society, the private sector and other actors***.

[1] Sustainability is central to USAID's mission. However, there are times when the need to respond rapidly to a natural disaster, a public health emergency or a political crisis is of prime importance. Accomplishing that mission may entail establishing systems parallel to the local one, but even then we should respond to crises in ways that lay the foundation for an eventual shift toward local systems and sustainable development results. This approach is elaborated in USAID's 2012 *Policy and Program Guidance on Building Resilience to Recurrent Crisis* (available at: http://www.usaid.gov/sites/default/files/documents/1870/USAIDResiliencePolicyGuidanceDocument.pdf).

[2] The terminology is shifting from "aid effectiveness" to "development effectiveness" to better recognize that the principles of aid effectiveness apply to all who support development processes and not only to the providers of official development aid. Even so, aid effectiveness is still the more common term and the one used here.

Definition: Local System

Local system refers to those interconnected sets of actors—governments, civil society the private sector, universities, individual citizens and others—that jointly produce a particular development outcome.

The **"local" in a local system** refers to actors in a partner country. As these actors jointly produce an outcome, they are "local" to it. And as development outcomes may occur at many levels, local systems can be national, provincial or community-wide in scope.

Recognizing that a country system should be framed inclusively is the kernel of what we mean by a local system. It is certainly true that development resources, catalysts, advocates, entrepreneurs and providers come in many forms. However, the idea of a local system goes further: Achieving and sustaining any development outcome depends on the contributions of multiple and interconnected actors. Reducing infant mortality requires the collective efforts of ministries of health, public and private clinics, grassroots health organizations and individual mothers. Increasing food production involves the joint efforts of individual farmers, private suppliers, agricultural researchers and government-sponsored extension agents—and will come to naught if that increased supply is not met with increased demand from individual consumers or commercial buyers. Expanding mobile banking networks requires investments from banks and telephone companies, but it also takes inputs from the government to provide a welcoming investment climate and from local businesses and their customers, who see value in the new service.

Each set of interconnected actors whose collective actions produce a particular development outcome is a local system. Improving that development outcome necessarily requires a systems approach. Building the capacity of a single actor or strengthening a single relationship is insufficient. Rather, the focus needs to be on the system as a whole—the actors, their interrelationships and the incentives that guide them. Improvements in development outcomes emerge from increasing the performance of individual actors and the effectiveness of their interactions. Similarly, sustaining development outcomes depends on the sustainability of the local system, its built-in durability and a level of adaptability that allows actors and their interrelationships to accommodate shocks and respond to changing circumstances.

The U.S. Government has repeatedly affirmed the central pillars of aid effectiveness across the past two administrations, with bipartisan support. Still, the greater attention to inclusive development ratified in Busan is a welcome amendment, as it closely aligns with U.S. experience and policy positions. Key policy documents emphasize that development, at its best, is locally driven and inclusive of popular aspirations, while development assistance needs to build local capacities and capabilities in ways that lead to sustained improvements in people's lives and livelihoods (see Box 4). USAID reflects these commitments in our current *Policy Framework 2011-2015*, which underscores the importance of "nurtur[ing] lasting institutions, systems and capacities in developing countries that enable them to confront development challenges effectively."

Box 4. Recent U.S. Policy Commitments

U.S. Global Development Policy, 2010

"We will also strive to help increase the capacity of our partners by investing in systemic solutions for service delivery, public administration and other government functions where sufficient capacity exists; a focus on sustainability and public sector capacity will be central to how the United States approaches humanitarian assistance and our pursuit of the objectives set out in the Millennium Development Goals."

USAID Policy Framework, 2011-2015

"The ultimate goal of development cooperation must be to enable developing countries to devise and implement their own solutions to key development challenges and to develop resilience against shocks and other setbacks. Sustainability is about building skills, knowledge, institutions and incentives that can make development processes self-sustaining. Sustainability cannot be an afterthought—it must be incorporated from the start when preparing a program or project."

Source: USAID, *USAID Policy Framework 2011-2015:* 35 (available at: www.usaid.gov/sites/default/files/documents/1870/USAID%20Policy%20Framework%202011-2015.PDF).

Focusing on local systems does not stop with recognizing a more inclusive set of key development actors (government agencies, civil society organizations, private sector firms or others). It also invites greater attention to the roles those actors play in producing development outcomes and how effectively they fulfill their roles. That, in turn, provides a basis for determining how best to partner with various local actors, including whether to provide funding to them directly. In addition, thinking in terms of local systems nuances commitments by international actors, including governments and non-governmental actors, to strengthen—and use—country systems.[3] From a local systems perspective, "strengthening" means building up the capacities of local actors—governments, civil society and the private sector—and the system as a whole, while "use" means relying on that local system to produce desired outcomes. And in this context, where sustainability is the ultimate objective, USAID is committed to employing all of our development resources to strengthen and use local systems.

Definition: Sustainability

Sustainability refers to the ability of a local system to produce desired outcomes over time. Discrete projects contribute to sustainability when they strengthen the system's ability to produce valued results and its ability to be both resilient and adaptive in the face of changing circumstances.

Iraqi girls harvest high-quality amber rice in the Abbasiyat area, near the Shiite Muslim holy city of Najaf, about 160 kms south of Baghdad, November 11, 2002.
AFP Photo: Karim Sahib

[3] We recognize the important role that our implementing partners play in building local capacities through their partnering with local actors, providing them technical assistance and funding, and advocating more generally for inclusive local systems.

3 LEVERAGING SYSTEMS THINKING

"Local systems" provides a valuable conceptual frame to consider the roles of a broad range of actors and their contributions to sustainability. In this context, using local systems integrates our commitments to sustainability, inclusivity and aid effectiveness while also clarifying USAID Forward objectives, especially the commitment to expand localized aid. However, there are also the less-visible dynamics that animate a system and which ultimately determine the outcomes a system produces and whether those outcomes are sustained.

Over the last few years, the international community has wrestled with these systems dynamics as we have sought to overcome fragility and promote stability, resilience, adaptability and accountability. What all of these efforts share with each other—and with sustainability—is that the desired results arise from the ways numerous actors act and interact. And as we have learned, sometimes at great cost, our discrete interventions targeting a particular agency, organization or set of individuals do not always translate into the reductions in fragility or the increases in resilience, adaptability, accountability or sustainability we seek.[4]

To increase our analytic and operational leverage on these dynamic processes, we mean to take systems—and systems thinking—seriously. Systems thinking—and associated concepts and tools—has grown out of a desire to understand dynamic processes and thus is particularly well-suited to help us navigate the vagaries of dynamic development. Adding this focus on systems dynamics to local systems provides us with a robust framework for more effectively supporting the emergence of sustainability.

Definition: Systems Thinking

Systems Thinking refers to set of analytic approaches —and associated tools—that seek to understand how systems behave, interact with their environment and influence each other. Common to all of these approaches is a conviction that particular actions and outcomes are best understood in terms of interactions between elements in the system.

As USAID leverages systems thinking to support sustainability, we will build on existing efforts across the Agency and among our partners. Staff within every pillar bureau and in many missions regularly apply a systems perspective to their area of expertise. Indeed, in areas as diverse as conflict assessment, market development and health service delivery, systems thinking and systems tools are central features. These early adopters of systems thinking provide a rich source of experience and expertise for the Agency as we move forward with this approach.

[4] In the language of systems, properties like resilience and sustainability are called "emergent," as they emerge out of the interactions among a system's constituent elements. Emergence is a central concept of systems thinking and a topic of considerable investigation. An important insight, which we intend to exploit, is that emergence is not always regular and uniform. Indeed, it can be quite complex. And accounting for complexity has implications for how we plan and engage local systems. See, for example, Ben Ramalingam's *Aid at the Edge of Chaos: Rethinking International Cooperation in a Complex World,* 2013.

4 ENGAGING LOCAL SYSTEMS: TEN PRINCIPLES

This section moves from how USAID will apply systems thinking to principles that will guide USAID's efforts to engage local systems. These principles are grounded in existing good practice, but are particularly relevant as practical ways to work with our local and international partners to strengthen local systems and realize sustained development.

1. **Recognize that there is always a system.** There are systems operating in every development context. No situation is a blank slate. As a result, thinking in systems terms and applying systems tools will provide valuable insights into the operating environment, including perspectives on why things are the way they are and what needs to change; the identity of key actors, key relationships and the

Women sell rice on January 30, 2013 at a market in the northern city of Gao. *Photo: AFP/Sia Kambou*

contours of power and interests; and opportunities and impediments to improved development outcomes and their sustainability.

2. **Engage local systems everywhere.** As we find local systems everywhere, and as sustainability ultimately depends on strengthening those systems, it makes good development sense not only to think systemically but also to act systemically by seeking out opportunities to engage local systems in all situations. Certainly, the nature of that engagement will vary. Some systems will already be well-functioning and will require little support. Others will be problematic due to fragility, inequity, conflict, corruption, weak institutions or political stagnation. But even when local systems are weak, contested or perverse, there will likely be actors or locations committed to reform. It is important to identify and find ways to support these nodes of reform, as they are the poles around which strong and sustainable systems can emerge.

3. **Capitalize on our convening authority.** One of USAID's strengths is our ability to gather together diverse actors to address development challenges, whether at the global, national or grassroots level. This convening capacity is a valuable resource when engaging local systems, whether assembling multiple stakeholders in a joint mapping exercise, facilitating consultations around priorities or organizing opportunities for local actors to provide feedback on system performance. We can further use our convening authority to link local actors with international thought leaders and social entrepreneurs to catalyze innovative responses to their development challenges.

4. **Tap into local knowledge.** Local people understand their situations far better than external actors. They will understand the ways that multiple layers of history, politics, interests and formal and informal rules shape the current situation and what is possible to change. They will have views, perhaps divergent, on the contours of a local system—its boundaries and the results that matter, what works and what does not, and what an external actor can usefully contribute. For these reasons, we should regularly seek out local perspectives, paying particular attention to the voices of marginalized populations, as we map local systems and plan, design, implement, monitor and evaluate our interventions.

Box 5. The Five Rs

One approach for making sense of local systems focuses attention on the 5Rs—resources, roles, relationships, rules and results:

- **Resources:** Local systems transform resources—such as budgetary allocations or raw materials or inputs—into outputs.
- **Roles:** Most local systems involve a number of actors who take on various defined roles: producer, consumer, funder and advocate.
- **Relationships:** In a similar fashion, the interactions between the actors in a local system establish various types of relationships. Some may be commercial; others more administrative and hierarchical.
- **Rules:** An important feature of local systems is the set of rules that govern them. These rules define or assign roles, determine the nature of relationships between actors and establish the terms of access to the resources on which the system depends.
- **Results:** The concept of "results" is expanded to include measures of the overall strength of the local system as well as traditional outputs and outcomes.

Applying this framework helps identify strengths and weaknesses in existing local systems and provides a guide to systems-strengthening interventions. For example, in the mid-1980s, limited access to quality fertilizer was suppressing the yields of food and cash crops in Cameroon. An assessment revealed that the problem was not price—fertilizer was heavily subsidized by the government—but erratic ordering and hold-ups throughout the fertilizer marketing system. These deficiencies all were traceable to the government's monopoly on fertilizer importation and distribution.

Working with the government, distributors, cooperatives and banks, USAID developed a multifaceted project that addressed rules (modifying regulations to permit free entry into the fertilizer marketing systems), *resources* (establishing a revolving credit fund to facilitate private importation and distribution), *relationships* (facilitating connections and interactions between actors as they became accustomed to the new arrangements) and *roles* (providing technical assistance to the government to develop its capacity as a steward rather than manager of fertilizer supply).

The *result* was a more efficient and responsive system: Delivery times were cut in half, delivery costs were cut by one-third and farmers had the types of fertilizers they wanted when they wanted them.

Source: S. T. Walker, *Crafting a Market: A Case Study of USAID's Fertilizer Sub-Sector Reform Program*, 1994 (available at: pdf.usaid.gov/pdf_docs/PNABR906.pdf).

Box 6. The Value of Local Accountability

When villagers and teachers, instead of school officials, are allowed to set their own priorities for improving schools and directly monitor performance, the results can be priceless. In Uganda, World Vision knew that community-based monitoring of school performance could help sustain improvements in education that building schools, supplying textbooks and training teachers alone could not. They tried two approaches: the use of a standard scorecard with performance questions identified by education officials and development partners, and a participatory scorecard, where community members defined the issues they would monitor.

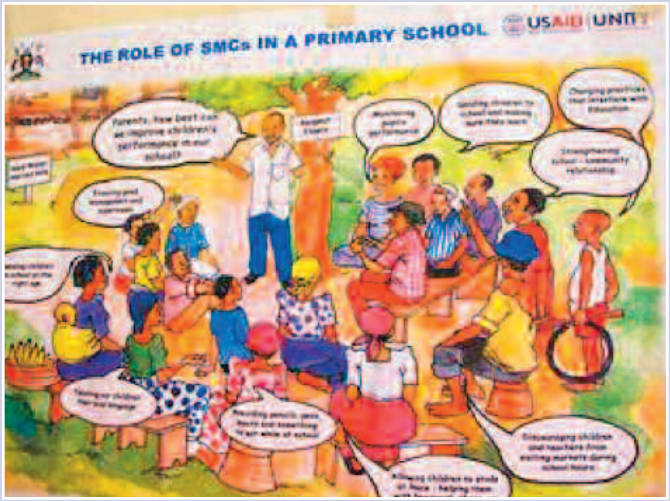

Photo: World Vision International

A randomized controlled trial revealed that the participatory scorecard delivered more than the standard scorecards. The participatory approach prompted higher efforts by teachers, as expected. But it also prompted higher efforts from villagers: Local politicians learned more about their country's education policies and what they could advocate for on behalf of their constituents, parents increased their support of schools by contributing to midday meals and children found a forum to report teacher absenteeism and other factors that hurt their education. In the end, although the standard scorecard made little difference in school performance, the participatory scorecard improved attendance by teachers and students and helped raise student test scores.

Sources: A. Zeitlin and others, *Management and Motivation in Ugandan Primary Schools: Impact Evaluation Final Report,* Center for the Study of African Economies, 2011. World Vision, *Citizen Voice and Action: Civic Demand for Better Health and Education Services*, 2010.

5. **Map local systems.** The centerpiece of a systems approach is a deep and nuanced understanding of the systems we engage. Drawing on local knowledge, the aim is to sift through varying perspectives to reveal the contours of a local system—its boundaries, the key actors and their interrelationships, and system strengths and weaknesses. The intent of this mapping is not to create a separate and stand-alone analysis, but to apply a systems lens to any analysis or assessment we undertake. A number of tools are available to assist with these analytical processes; several already are part of USAID's repertoire, including the 5-R tool described in Box 5[5], page 8. But more important than the tool or assessment methodology is the systems thinking it promotes.

   Ideally, these mappings are undertaken collaboratively with local and international actors. The involvement of others taps into local knowledge, promotes a common understanding of a system and its dynamics, and establishes a common ground for coordinating multiple interventions.

6. **Design holistically.** A good project design will engage a local system holistically. Building on the understandings of a system's contours elicited during the mapping phase, a good project design will address that system as a whole, incorporating discrete activities and interventions that together will strengthen the system and produce sustainable results. In doing so, project designers will need to draw artfully from the full range of available development modalities, including technical assistance and capacity development through grants, contracts or from USAID staff directly; policy reform and other forms of performance-based assistance; localized aid; facilitation; and public-private partnerships and multistakeholder alliances—and in all cases choose the combination that is most likely to foster sustainability.

[5]Available tools include USAID's frameworks for: (1) assessing civil conflict (*Conflict Assessment Framework 2.0*, 2012, available at: pdf.usaid.gov/pdf_docs/pnady739.pdf and the related document, *Systems Thinking in Conflict Assessment: Concepts and Application,* 2011, available at: pdf.usaid.gov/pdf_docs/PNADY737.pdf); (2) analyzing value chains (*Training Curriculum on Facilitating Value Chain Development*, available at: www.microlinks.org/library/training-curriculum-facilitating-value-chain-development); and (3) mapping local organizations (usaidlearninglab.org/library/usaid-local-capacity-development-mapping-tool).

7. **Ensure accountability.** Strong accountability relationships are essential to durable and adaptive local systems. These relationships provide the feedback channels that give a system its dynamism and ultimately it sustainability—feedback that the system is generally working well and feedback that adjustments are needed to better respond to citizen demands or adapt to changes in the larger operating environment. (Box 6, page 9, provides some clear evidence of the power that local feedback has on service quality.) Accountability relationships can take a number of forms, from formal political processes, to direct feedback of consumers and users, to input from providers of goods and services. But whatever forms they take, and consistent with USAID's 2013 Strategy on Democracy, Human Rights and Governance, accountability relationships must be given serious attention in every effort to strengthen local systems.[6]

8. **Embed flexibility.** If we wish to promote adaptability within systems, then we need to engage them in ways that are themselves adaptable. We need to design and manage all of our interventions—be it technical assistance, localized aid, policy reform, or another arrangement—in ways that allow adjustments in the face of shocks or in response to learning. This emphasis on implementation flexibility is partly about modeling good practice, but it is also about having the ability to support—and strengthen—those adaptive responses that emerge during a project's lifetime

9. **Embrace facilitation.** Our systems strengthening mantra should be: facilitate; don't do. In other words, our engagements with local systems should facilitate system interactions without assuming responsibility for performing them directly. When we facilitate, we recognize that the strength of the local system and its prospects for sustainability depend on its ability to operate unaided, and that intervening too heavily robs local actors of opportunities to craft a true local solution. In embracing facilitation, USAID has a growing body of experience to draw on, as summarized in Box 7.

Box 7. Facilitation in Action

Facilitation is an approach to project implementation that minimizes direct provision of goods and services and focuses instead on catalyzing behaviors, relationships and performance as a way to support local systems.

An example is USAID/Ghana's approach to supporting maize, rice and soybean smallholder farmers in northern Ghana. Through the Agricultural Development and Value Chain Enhancement Project, ACDI/VOCA works with larger-scale farmers and local firms to serve as intermediaries in the value chain that link smallholder farmers to agricultural services such as credit, inputs and tractor services. Using a facilitative approach, ACDI/VOCA mentors the intermediaries in their internal operations, and in their outreach upstream to service providers and downstream to smallholders, producing a network that links over 200 business service providers to 34,000 farm families.

Source: USAID, *Understanding Facilitation*, 2012 (available at microlinks.kdid.org/sites/microlinks/files/resource/files/Facilitation_Brief.pdf).

10. **Monitor and evaluate for sustainability.** The choice of monitoring and evaluation methods provides important opportunities to engage local systems and promote sustainability. Certainly, monitoring and evaluation need to be attuned to charting the progress of local systems toward sustainability. More participatory forms of monitoring and evaluation not only provide local perspectives on what is working and what could be improved, but also can ensure that monitoring and evaluation products are locally useful. And use of local monitors and evaluators deepens another source of localized accountability.

[6]Specifically, the *Strategy on Democracy, Human Rights and Governance* states (p.5): "[T]echnical efforts to promote poverty reduction and socioeconomic development must address democracy, human rights and governance issues, including a lack of citizen participation and poor government accountability" (available at: pdf.usaid.gov/pdf_docs/pdacx557.pdf).

5 CATALYZING A SYSTEMS APPROACH

Shifting thinking and engagement to be more attentive to systems and sustainability must be complemented with shifts in the incentives that motivate USAID staff and, by extension, the Agency's implementing partners. Specifically, staff should be rewarded for thinking systemically, engaging local systems holistically and investing development resources in ways that support sustained development. A compelling vision, strong leadership commitments, a suite of accessible tools and effective training all catalyze more effective practice, but these measures need to be reinforced with clear expectations that key programming decisions will be made in ways that support the locally owned, locally sustained development we seek.

Two sets of incentives deserve early attention: USAID staff need to be encouraged to design and implement projects in ways that produce sustained impact as well as rapid results, and staff need to be empowered to make investments in those actors, organizations, agencies, or sectors where the prospects for sustaining results are greatest. Addressing the first requires broadening how we think about results, and the second requires recalibrating how we think about risk.

5.1 SEEKING A BROADER SET OF RESULTS

USAID staff and our implementing partners spend considerable time and energy collecting and reporting annual performance data. This attention to annual targets and results often comes at the expense of attention to the capacities, relationships and resource flows that are crucial components of lasting local systems. Box 8 provides a poignant illustration of what happens when a project focuses on project outputs rather than the underlying system. The implementers were able to create conditions that led to increases in certain nutritional practices during the project period; however, an ex-post evaluation found that mothers abandoned some practices when the project supports disappeared because those practices were insufficiently embedded into the local health system.

Box 8. Insights from an Ex-post Evaluation

The Office of Food for Peace recently conducted a set of ex-post evaluations of the Title II Program in Kenya, Bolivia, Honduras and India. The study examined project characteristics that facilitate sustainable activities, and explored how the process of "exiting" affected sustainability.

In Kenya, for instance, the study examined health and nutrition practices one and two years after exit. The study revealed that low- or no-cost practices, such as mothers exclusively breastfeeding their infants, were sustained. But practices that relied on donor-funded resources, such as feeding during diarrhea, declined over time.

Overall, program components that focused on strengthening local relationships and built local capacity were more likely to be sustained than those that did not. This lesson will serve Food for Peace as it designs future projects.

Source: J. Coates, and others, "Exit Strategies Study: Kenya," as part of *Ensuring the Sustainability of Program Impacts: Effectiveness of Title II Program Exit Strategies*, 2012.

The challenge is to create a results architecture that keeps attention focused simultaneously on outputs and outcomes and on the condition of the system that will produce those outputs and outcomes over time. The first step is to expand the conception of a result to include key attributes of a well-functioning system as well as the outputs and outcomes it produces. The second step is to develop reliable ways to measure those attributes. Adding measures of system durability and adaptability to existing indicators of project outcomes will provide a more insightful basis for assessing the effective-

ness of investments and for reporting progress in meeting near-term targets and attaining longer-term sustainability.

5.2 RECALIBRATING RISK

In the same way that we need to deepen the way we think about results, we also need to sharpen the way we think about risk. As a starting point, we recognize that all development efforts are subject to risks, ranging from political instability, to natural disasters, to weak governance, to unexpected resistance to change. And should any of these risks become a reality, it would undermine the impact of our investments and the prospects for sustained development. To operate effectively in these environments requires an ability to assess risks rigorously and comprehensively so as to identify the sectors, local partners and funding mechanisms that offer the best opportunities for strengthening local systems and producing sustained development.

Supporting USAID staff to seek out and take advantage of those opportunities requires deepening the Agency's approach to risk in three ways.[7] First, we need to create opportunities to think about risks comprehensively and comparatively,[8] starting by naming and classifying the important types of risk that can undermine our goal of sustained development, such as set forth in Box 9. The next step is to round out our suite of rigorous risk assessment tools so that we have the same ability to identify the contextual and programmatic factors that can undermine sustained development that we currently have to assess fiduciary and reputational risk.[9] Then we need to structure key decisions more often as choices among multiple options, where a comprehensive risk analysis identifies the particular configuration and levels of risks associated with each choice. Assessing risks comprehensively and comparatively is particularly important in both strategic planning—to help identify which sectors or systems to prioritize—and project design—to inform the choice of local actors to engage and funding arrangements to use.

Second, we need to weigh the upside potential of development investments against the possible threats to them. In other words, we need to consider rewards as well as risks, and the consequences of not acting at all. This broadened conception is particularly important when the reward is sustained development.

Some interventions may be difficult and will take time to produce change. Thinking only in terms of risk may preclude these types of investments. For example, USAID/Rwanda has committed to supporting the government's plan to expand feeder roads. Building up the limited capacity of district governments to manage road construction and supervise maintenance will take effort and carries programmatic and fiduciary risks. Even so, it makes good sense when also taking into account the long-term benefits of a locally managed rural road network and the increased economic activity it will support.

Box 9. Sources of Risk

Development activities face many types of risk, but four stand out:

- ***Contextual risk*** captures the possibility that various occurrences particular to a specific area or context adversely affect the realization of development outcomes. Examples include risks of a natural disaster or civil unrest.
- ***Programmatic risk*** refers to the possibility that characteristics of an intervention, including the way it was designed or implemented, adversely affect the realization of expected outcomes.
- ***Reputational risk*** highlights the possibility that a loss of credibility or public trust resulting from how a project is implemented or the choice of partners adversely affects the realization of development outcomes.
- ***Fiduciary risk*** refers to the possibility that the misuse, mismanagement or waste of funds adversely affects the realization of development outcomes.

[7] There is growing attention within the development community to issues of risk and how donors manage it. Examples include OECD/DAC, *Managing Risks in Fragile and Transitional Contexts: The Price of Success?*, 2011 (available at: http://www.oecd.org/dac/incaf/48634348.pdf) and ODI, *Localising Aid: Is it Worth the Risk?*, 2013 (available at: www.odi.org.uk/publications/7568-localising-aid-risk).

[8] The steps laid out here follow the risk management framework used by the U.S. Government Accountability Office; for example in Risk Management: *Strengthening the Use of Risk Management Principles in Homeland Security*, 2008 (available at: www.gao.gov/assets/130/120506.pdf).

[9] USAID currently has a well-developed set of tools to assess fiduciary risks associated with partnering with governments (Public Financial Management Risk Assessment Framework [PFMRAF]) and with local civil society (the Non-U.S. Organization Pre-award Survey [NUPAS]). Attached to the PFMRAF is a separate analysis to examine the reputational risk associated with partnering with particular governments or government agencies.

Third, we need to calibrate risk mitigation more finely. The desired standard is to align risk mitigation efforts with the scale and scope of the risks to be faced. Achieving this standard requires refining measures of both the likelihoods and costs associated with all four types of risk, considering risk-sharing in assessments of fiduciary risk and determining the cost-effectiveness of common risk mitigation methods.

Among the methods we can employ to better understand the nature of risk, ex-post evaluation stands out. They offer the most direct way to examine the lasting effects of development interventions and to provide unique insights into the functioning of social systems. From a different angle, the same evaluation can provide data about programmatic risk, providing information about the gains realized—or foregone—in the years after an intervention ends.

Taken together, expanding the results we seek and deepening the way we consider risks will better ensure that we are investing and engaging with sustainability clearly in mind. Going forward, USAID will rely more on the approach of providing incentives in support of sustainability than on specifying targets for partnering with particular types of local actors or utilizing particular types of assistance.[10] A more holistic set of incentives, as laid out here, will help ensure that all of our potential investments are assessed in the same way for the results they generate, the risks they face and the rewards they offer. This even-handed examination of results, risks and rewards will empower staff to make the best choices about where to work and what partners to work with to support sustained development.

This picture taken on October 2, 2013 shows terrace rice fields in Mu Cang Chai district, in the northern mountainous province of Yen Bai.
Photo: AFP/Hoang Dinh Nam

[10]To elevate attention to sustained development and embrace aid effectiveness commitments, the Agency established a target of increasing the level of localized aid to 30 percent by the 2015 fiscal year. That target remains. But as USAID looks forward, the focus will be more on how we use 100 percent of our resources to strengthen and sustain local systems rather than just the share that goes directly to local partners.

6 THE WAY FORWARD

The previous four sections have laid out a vision and a framework for advancing sustained development that relies on thinking and working more systemically. Earlier sections have also identified broad principles and incentives that serve as signposts directing us toward that destination. This section focuses on the initial steps necessary to making progress on our journey.

USAID can make some headway on its own, and as part of the Local Solutions initiative, we are committed to doing so. But significant progress toward making sustained development a more consistent reality will depend on many others across the globe joining with us in this effort. Therefore, as we work internally to identify, nurture, reward and spread good practice, we will seek out external collaborators who wish to join us, especially those willing to take these first steps along with us.

- **Spread systems thinking**. Thinking systemically is the essence of the Framework. Therefore, under the auspices of the Local Solutions team, USAID will spread systems thinking through the Agency by facilitating the dissemination of tools, techniques and good practices from those individuals, offices and missions that are more expert to those that are less so. We will promote communities of practice, peer-to-peer learning and consultation, how-to notes and other means for building up and building out good practice.
- **Embed systems thinking and local systems into the Program Cycle.** The Program Cycle is USAID's model for sequencing and integrating its programming, from strategic planning and project design to implementation, monitoring, learning, adaptation and evaluation. Thus, to modify day-to-day operations to support more effective engagement with local systems requires us to better integrate systems thinking and systems tools into the Program Cycle. To achieve this objective, we will tailor specific tools and techniques for use at different points in the Program Cycle and adjust training and guidance as we confirm good practice.
- **Add to the ways we can support local systems.** As we think and engage more systemically, we will need to use a broader suite of assistance modes than we currently rely on. Some modes, like staff-led policy dialogue and policy reform-based finance, are already available but not in wide use. Others, such as cash-on-delivery and other variants of performance-based programming, are promising but need piloting and vetting to determine how they are best used to support local systems.
- **Sharpen our risk management practices.** As spelled out in Section 5.2, we need to sharpen our risk management practices to ensure we are making the investments that are most likely to produce sustained development. To do so, we need to develop a risk management approach that assesses risks in conjunction with strategic objectives, considers both risk and rewards rigorously and comprehensively, and is integrated seamlessly into the Program Cycle.
- **Develop ways to measure systems.** In support of our efforts to broaden the results we seek, we will create a repertoire of approaches for measuring dimensions of system strength. Developing this repertoire is essential to tracking the effects of interventions on local systems to ensure they are advancing sustainability.
- **Initiate a series of ex-post evaluations.** The most direct way to assess sustainability is to examine the effects of USAID-funded projects three to five years after their conclusion. Ex-post evaluations provide opportunities to explore the impact that discrete interventions have had on a local system and contribute to a deeper understanding of programmatic risk. For these reasons, USAID will initiate an

annual series of sectoral ex-post evaluations, each year examining a different set of projects with similar aims to understand their lasting effects.

- **Reinforce staff skills.** Embracing the vision of sustained development and the Local System Framework brings with it different staff roles. All staff, but particularly those in the field, will need to serve more as development facilitators and social entrepreneurs—convening, connecting and catalyzing local and international actors. For most staff, this represents an exciting and welcome transition, but this change requires both reinforcement of a new skill set and aligning staffing patterns and personnel rating and promotion processes.

Taking these initial steps, and indeed progressing toward the broader vision, will certainly require leadership, insight, creativity, resourcefulness and courage from many, both inside USAID and in the wider development community. But even more, such change will require persistence. Realizing these changes will take years and will be challenging to sustain in the face of demand for immediate results and the attraction of the tried-and-true. Yet we must remain steadfast. Supporting sustained development is what defines us and is what the world expects.

Indian farmers plant paddy saplings in a field at Milanmore village, on the outskirts of Siliguri. *Photo: AFP/Diptendu Dutta*

ANNEX
THE CONSULTATION PROCESS

Developing this Framework has been an intentionally consultative process; in part because we recognized that relevant expertise was widespread inside USAID and in the broader development community and in part because we wanted to use the consultations to build as broad a consensus as possible for the vision and direction spelled out in the Local Systems Framework. Beginning with the November 2012 Experience Summit on Strengthening Country Systems, and continuing during the next 12 months, discussion and comment with internal and external audiences has been a consistent practice.

This Annex focuses on the feedback to the Consultation Draft distributed at the end of October 2013. The wisdom and experience that our many reviewers shared with us during that period, and at earlier junctures, has been humbling and inspiring. We appreciate these fulsome and candid reactions, and we have put them to good use.

Who We Heard From

We posted the draft Framework online for comments internally through the Agency's ProgramNet and externally through the Agency website to elicit individual comments. The Local Systems team also organized 18 group consultations, including 8 hosted by external organizations. As a result, more than 400 people participated in this process, providing feedback on almost every aspect of the Framework.

What They Told Us

Overall, the feedback was remarkably receptive to systems thinking in general and the Local Systems Framework specifically. Reviewers acknowledged the Framework's consistency with good development practice, its value in improving how USAID supports local development efforts and its usefulness in bringing together much of USAID's work in that direction.

Almost without exception, comments focused on eliciting clarification on how to put this Framework into practice rather than questioning the value of moving in this direction.

How We Have Responded

The most frequent request was for greater clarity on the operational implications of this Framework—what it means for each step of the Agency's program cycle, from how we define our projects to how we define and manage risk, engage with local stakeholders and measure success. There is no question that successfully embedding systems thinking and local systems into development practice will require translating a general approach and guiding principles into clear operational guidance. In the last section of the Framework, we start in that direction by laying out a set of priorities for moving forward. However, the detailed technical and operational guidance we all need will come in the guides and "how-to" notes that will follow.

Other recurring suggestions were to provide greater clarity on key definitions, such as "local" in local systems, sustainability and systems thinking; describe more clearly the connection between local systems and local solutions; articulate more precisely the role of politics and power in systems; address the incentives that USAID staff and implementing partners face in adopting this approach; and present more examples of system approaches in practice. In the final round of revisions, we have tried to address all of these issues.

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Exercise

1. Read through the case studies, review graphics, charts and videos as provided to build your background knowledge.
2. Explore Kumu Maps (see Appendix A).
3. Task 1: Review the list of questions. Refer to the 5Rs Framework to guide your thinking as you begin to construct your understanding of the context, projects, the key roles and relationships within the value chains and market systems and how these will lead toward accomplish your goals.
4. Task 2: As a team, capture the key information and build a list of clarifying questions you have, what you want to know more about.
5. As time allows, formulate analytical questions you would like to see answered as you speak with various experts this week.

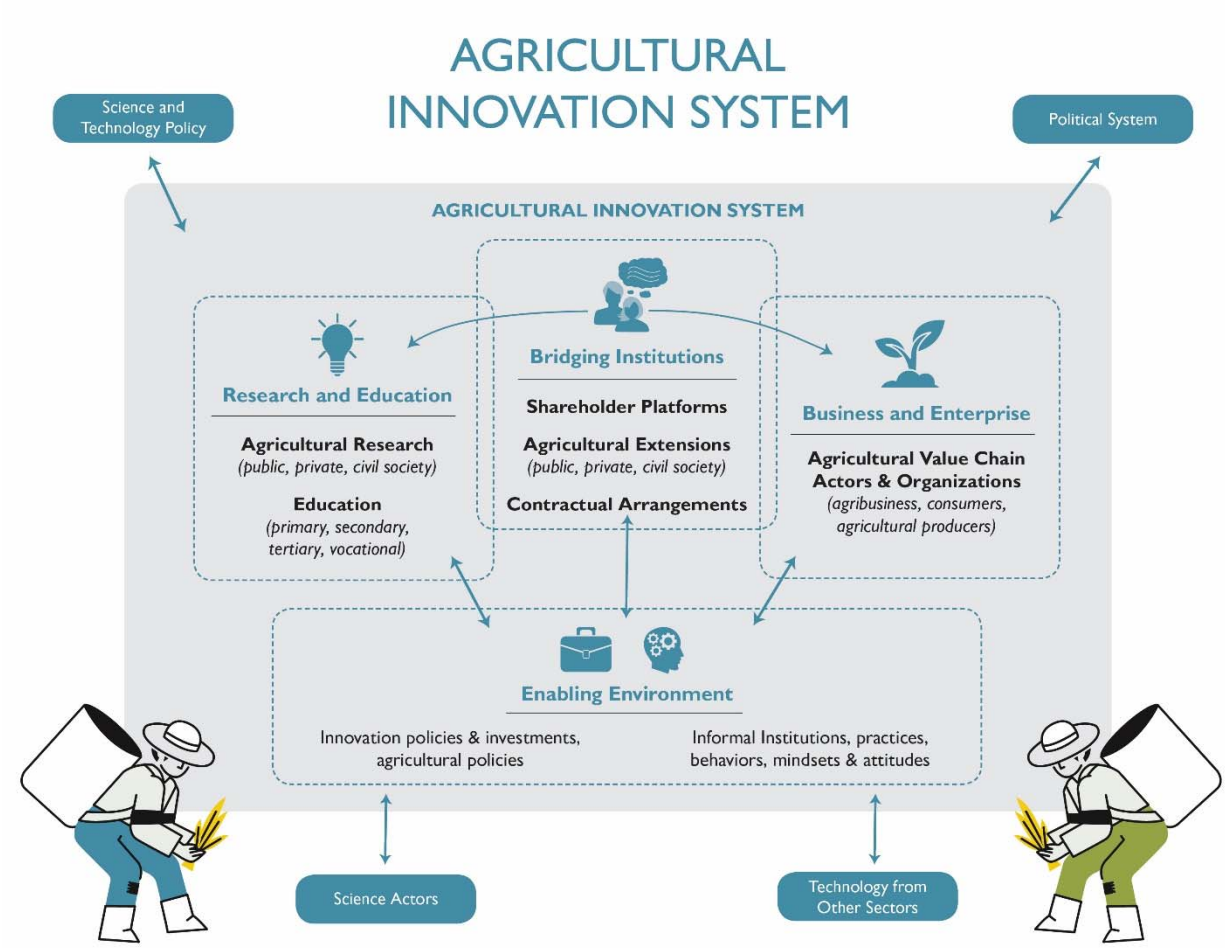
Resources

Local Systems: A Framework for Supporting Sustained Development www.usaid.gov/policy/local-systems-framework

The 5Rs Framework in the Reporting Cycle www.usaidlearninglab.org/library/5rs-framework-program-cycle

For more information: Webinar https://ac.usaid.gov/p9cqyqz8xlc/?launcher=false&fcsContent=true&pb...

Agriculture Innovation Systems



Exercise

After reviewing the diagram and the definition, record your reflections.

Term	Definition
Agricultural Innovation Systems	The process whereby individuals or organizations generate and bring existing or new technologies, practices, and forms of organization into social and economic use to increase effectiveness, competitiveness, resilience to shocks and/or environmental sustainability, thereby contributing to food and nutritional security, economic development, and sustainable natural resource management.

Exercise

1. Brainstorm a list of “generic” organizational actors and possible roles in the AIS under each domain.
2. Review Table 2.3, below, Potential roles of different actors in AIS:
    a. Compare to the actors and roles in the diagram and Table 2.3.
    b. Record your observations
3. Consider your group’s case studies:
    a. Identify the innovation niche around which their case study focuses
    b. Identify organizational actors and roles as defined in the case study
    c. Identify possible organizations that could hinder and/or facilitate innovation in their country

Term	Definition
Agriculture and Food Systems	The intact or whole unit made up of interrelated components of people, behaviors, relationships, and material goods that interact in the production, processing, packaging, transporting, trade, marketing, consumption, and use of food, feed, and fiber through aquaculture, farming, wild fisheries, forestry, and pastoralism. The food and agriculture system operates within and is influenced by social, political, economic, and environmental contexts. (Source: GFSS)
Agricultural Innovation	The process whereby individuals or organizations generate and bring existing or new technologies, practices, and forms of organization into social and economic use to increase effectiveness, competitiveness, resilience to shocks, and/or environmental sustainability, thereby contributing to food and nutritional security, economic development, and sustainable natural resource management. (Source: Tropical Agriculture Platform Common Framework on Capacity Development for Agricultural Innovation Systems)
Agricultural Innovation System	A complex network of actors (individuals and organizations) and supporting institutions and policies that generate and bring existing or new agricultural innovations (technologies, practices, and processes) into social and economic use. (Source: Tropical Agriculture Platform Common Framework on Capacity Development for Agricultural Innovation Systems)
Capacity	The ability of people, organizations, and society as-a-whole to manage their affairs successfully. (Source: Tropical Agriculture Platform Common Framework on Capacity Development for Agricultural Innovation Systems)
Capacity Development	The process whereby people, organizations, and society as-a-whole unleash, strengthen, create, adapt, and maintain capacity over time. (Source: Tropical Agriculture Platform Common Framework on Capacity Development for Agricultural Innovation Systems)
Capacity Development for Agricultural Innovation Systems	The process directed to develop the skills or competencies (both scientific and non-scientific) required for the agricultural innovation system to perform effectively. (Source: Tropical Agriculture Platform Common Framework on Capacity Development for Agricultural Innovation Systems)
Innovation	The process of putting knowledge into use, be it in the form of technology, practice, or a particular way of working. (Source: Tropical Agriculture Platform Common Framework on Capacity Development for Agricultural Innovation Systems)
Local System	Refers to those interconnected sets of actors – governments, civil society the private sector, universities, individual citizens and others – that jointly produce a particular development outcome (Source: USAID Local Systems Framework)

Resources

GFSS Technical Guidance for Capacity Development. https://feedthefuture.gov/resource/global-food-security-strategy-technical-guidance-capacity-development

Conceptual Framework on Capacity Development for Agricultural Innovation Systems. http://cdais.net/wp-content/uploads/2016/02/Conceptual-background.pd

Sustainable Agriculture Productivity Growth Introduction

Reflection

What do we need for sustainable agriculture productivity?

Notes

Term	Definition
Sustainable Agriculture Productivity Growth	Sustainably increasing the value of agricultural outputs relative to inputs by increasing efficiencies through the food system
Sustainable	The ability of a target country, community, implementing partner, or intended beneficiary to maintain, over time, the programs authorized and outcomes achieved, from an institutional and programmatic perspective without further donor assistance. Sustainability also refers to the maintenance of the factors and practices that contribute to long-term outcomes and productivity, including financial, environmental, and social sustainability.

Resources

GFSS Technical Guidance on Increased Sustainable Productivity Growth**.**
https://feedthefuture.gov/sites/default/files/resource/files/GFSS_TechnicalGuidance_IncreasedSustainableAgProductivity.pdf

Reflection

As you consider the details of the Sustainable Agriculture Productivity Growth, identify 3-4 connections you see with the Agricultural Innovation Systems and the conversations this morning?

Exercise

Put yourself back at your mission, how would you answer the set of 5Rs questions in your context?

What additional information and data would help you in the guidance and decisions you are making regarding your project(s)?

How would using these tools enhance the level of clarity and ability to design integrated system programming in the future?

Prepare for Tomorrow

Review Nutrition Sensitive Agriculture. https://agrilinks.org/training/test-nutrition-sensitive-agricultural-programming

Resilience. https://agrilinks.org/training/test-introduction-resilience-usaid-and-beyond

Day 2

Resilience

Why is resilience important?

Reflect * Pair * Share

Reflect: What does this mean for you and your experience with shocks/ stressors?

Pair: Turn to a partner and share briefly what it means for you in 1 min or less.

Share: Who wants to share their thoughts with the group? How are these similar to your experiences?

Notes

Term	Definition
Absorptive Capacity	The ability to minimize exposure or sensitivity to shocks and stresses (*ex ante*) where possible and to manage and recover quickly when exposed (*ex post*).
Adaptive Capacity	The ability to make proactive and informed choices based on changing environmental, climatic, social, political, and economic conditions
Transformative Capacity	System-level changes, such as investments or improvements in governance mechanisms, agro-ecological systems, infrastructure, formal and informal social protection mechanisms, basic service delivery, and policies/regulations
Co-variate Shocks	Similar shocks that occur across multiple households or broader scale
Idiosyncratic Shocks	A selective shock that only affects some livelihood groups, households, or individuals in a community such as an illness or death within a household
Livelihood	A livelihood comprises the assets (natural, physical, human, financial, and social capital), the activities, and the access to these (mediated by policies, institutions and social relations) that together determine the living gained by the individual or household
Resilience	The ability of people, households, communities, systems and countries to reduce, mitigate, adapt to and recover from shocks and stresses in a manner that reduces chronic vulnerability and facilitates inclusive growth
Risk Management	The set of activities, behaviors, decisions, and policies that allow individuals, households, and communities to mitigate (reduce) the likelihood or severity of a shock), transfer, or positively cope (without employing negative coping strategies, such as productive asset depletion) with shocks, stress and risk exposure, including adaptation strategies that help individuals, households, and communities manage longer-term trends and stresses
Risks	The potential for an uncertain event or trend to have adverse consequences on lives; livelihoods; health; property; ecosystems and species; economic, social and cultural assets; service provision (including environmental services); and infrastructure. Notably, risk exposure, particularly weather risk exposure, impacts behavior and livelihood decisions ex ante, regardless of whether the shock actually occurs

Shock(s)	An acute, short to medium-term episode or event that has substantial, negative effects on people's current state of well-being, level of assets, livelihoods, or their ability to withstand future shocks
Stress(es)	A longer-term pressure that undermines current or future vulnerability and well-being (e.g., population pressure, environmental degradation, etc.)

Exercise

We have discovered mid-way through implementation of your project a shock occurs. We have gathered the information for you and want to bring you up to date. Together, review the shock information provided you on the Shock card.

In your group, work through the following questions as a group and record your thoughts on the chart paper. Determine/prepare how you want to report out on answers to the group.

1. How would the shock affect project outcomes? How would the shocks/stressors affect women and men, youth, girls and boys differently, and why? What would be potential responses (including youth and gender-differentiated responses) to mitigate these shocks?
2. What are the existing resilience capacities and resources at household/community/system/country level? What are the specific capacities and resources of different gender groups, especially women and girls? What are specific capacities and resources for youth?
3. Reflecting on the earlier presentation about sources of resilience, (particularly those that transcend sectors like social capital, empowerment, aspiration and the tangible ways we can help strengthen these through how we program), what might you have done differently or what strategies/approaches would you incorporate into project design to strengthen resilience capacities? What would be the potential impacts of those changes on women, men, youth, girls and boys?

Resources

GFSS Guidance for Resilience. https://feedthefuture.gov/resource/global-food-security-strategy-guidance-resilience

GFSS Guidance for Livelihoods and Sustainable Poverty Escapes. https://feedthefuture.gov/resource/global-food-security-strategy-technical-guidance-diversifying-livelihoods-resilience-and

Overview Normative guidance on Resilience (series of technical notes as reference) Program.net

Shock Responsive Development Guidance (OAA and CFR) coming soon

Gender and Climate Exercise

Farmers at Risk: As subsistance farmers, you will play in community teams and make decisions that lead to collective patterns of choice and risk. Each farmer must make an individual decision about crop selection for the coming rainy season. You will make disaster risk reduction choices "with your feet" by walking to the area marked with an umbrella at the end of the community or to the bucket on the opposite side of the area.

The game is leaded in turns that represent planting seasons. For most turns, a large die is used to represent the probability of rainfall extremes. If a 6 is rolled, there's flooding; if a 1 is rolled, there is a drought. A roll of 2 to 5 means normal rains, no disaster.

Flood Risk Reduction

To invest in flood risk reduction (the choice to plant rice, which performs well under excessive or normal rains), a farmer must walk to the seed rice sales area near the umbrella.

Requires an upfront payment of 1 bean.

Drought Risk Reduction

To choose Drought risk reduction (the decision to plant cassava, which performs well under dry or normal conditions), a farmer must walk to the cassava cultivar sales area near the bucket.

Requires an upfront payment of 1 bean.

No Risk Reduction

No risk reduction, represented by planting maize – the "status quo," which performs very well under normal conditions but fails when there is either too much or too little rain, is indicated by standing in the center of the village.

There is no upfront cost.

Roll the dice

If there is no disaster, all farmers harvest 2 beans.

If there is a disaster, the appropriate farmers harvest 2 beans, and all other farmers pay 4 beans.

Players who do not have enough beans remaining to pay for response to a disaster must migrate to the city to find work and leave the game.

Nutrition

Exercise

Nutrition-specific interventions

1. What do nutrition-specific interventions target?
2. At what level do nutrition-specific interventions operate (e.g., individual, household, societal)?
3. What are some examples of nutrition-specific interventions?

Nutrition-sensitive interventions

1. What do nutrition-sensitive interventions target?
2. At what level do nutrition-sensitive interventions operate (e.g., individual, household, societal)?
3. What are some examples of nutrition-sensitive interventions?

Notes

Exercise

Directions:

How to apply nutrition-sensitive agriculture best practice to agricultural activity designs.

Directions

We are going to spend some time applying nutrition-sensitive agriculture best practice to agricultural activity designs. By the end of this exercise, each group will have completed two tasks and filled in the large matrix on your flip chart paper together. You will have a total of 1 hour to complete both tasks, and at the end of the exercise, I will ask each group to report out 3 key takeaways.

For **Task 1,** your will have **30 minutes** to complete the first 3 columns of this matrix. I will give the room a 15- and a 5-minute warning to help keep you on time.

Task directions:

In order to complete the first three columns of the matrix, discuss the following in your small group:

Task 1, Part A: With the GFSS goals and your case study's context in mind, take **5 minutes** to quickly brainstorm *what additional information you need to know about the market system* in order to determine appropriate market-based strategies for your case study. Capture your group's list on a separate sheet of flipchart paper. Note: This does not need to be an exhaustive list!

Task 1, Part B: Identify three "typical" market systems strategies (e.g., investments in policy reform, research, agricultural information systems, private sector partnerships, etc.) that would make sense for your case study. Add these to Column 2 of your matrix. Then, identify expected outcomes of these strategies and note these in Column 3. As you complete Columns 2 and 3, indicate what assumptions, based on the information gaps identified during your brainstorm in Part A, you are making and write these in Column 1.

During your group's discussion, consider the following questions:

1. Do your assumptions support the need for pursuing the market development strategy you've listed?

What do you want your strategies to achieve, and what are a few expected intermediate outcomes and/or higher-level outcomes associated with these?

1. Assumptions (based on what else you need to know about the market system)	2. Typical market systems strategy	3. Expected market systems outcome	4. Assumptions (based on what else you need to know about the nutrition situation)	5. Typical strategy ... made nutrition-sensitive	6. Expected nutrition-sensitive ag outcomes

Task 2: As with Task 1, you will have **30 minutes** to complete this task. During Task 2 you will determine how you would make the market systems development strategies listed in Column 2 more "nutrition-sensitive."

Refer to the Pathways and USAID framework in your Participant Manual Appendix to consider how the strategies could be modified to be made more nutrition-sensitive.

Task 2, Part A: With the GFSS goals and your case study's context in mind, quickly brainstorm *what additional information you need to know about the nutrition challenge* in order to determine appropriate nutrition-sensitive market-based strategies. Write your list on a separate sheet of flipchart paper.

Task 2, Part B: Based on the presentation and materials in your participant manual, discuss how you would modify each of the "typical" market systems strategies in Column 2 to be more nutrition-sensitive. Add the modified strategies to Column 5 of your matrix. Next, identify the new nutrition-sensitive agriculture outcomes for the modified strategies and note these in Column 6. As you complete Columns 5 and 6, indicate what assumptions, based on the information gaps identified in Part A, you are making and write these in Column 4.

During your group's discussion, consider the following:

1. What are the primary constraints or underlying causes to malnutrition in the activity target area that your market-systems development activity can help to address?
2. Availability, affordability, and desirability of diverse foods.
3. Food and environmental safety
4. Women's control of money and productive resources
5. Women's time and energy

Report back: (10 minutes): Each group will report out a maximum of three highlights or key takeaways from their case study discussion.

NUTRITION EXERCISE TABLE

1 Assumptions (based on what else you need to know about the market system)	2 Typical market systems strategy	3 Expected market systems outcome	4 Assumptions (based on what else you need to know about the nutrition situation)	5 Typical strategy... made nutrition-sensitive	6 Expected nutrition-sensitive ag outcomes

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

LINKING AGRICULTURE & NUTRITION
PATHWAYS | PRINCIPLES | PRACTICE

BRIEF 1

IMPROVING NUTRITION THROUGH AGRICULTURE TECHNICAL BRIEF SERIES

Understanding and Applying Primary Pathways and Principles

MARCH 2014

USAID
FROM THE AMERICAN PEOPLE

SPRING
Strengthening Partnerships, Results, and Innovations in Nutrition Globally

DISCLAIMER

This report is made possible by the generous support of the American people through the United States Agency for International Development (USAID) and Feed the Future, the U.S. Government's global hunger and food security initiative, under the terms of the Cooperative Agreement AID-OAA-A-11-00031 (SPRING), managed by JSI Research & Training Institute, Inc. (JSI). The contents are the responsibility of JSI and the authors, and do not necessarily reflect the views of USAID or the U.S. Government.

ABOUT SPRING

The Strengthening Partnerships, Results, and Innovations in Nutrition Globally (SPRING) Project is a five-year USAID-funded Cooperative Agreement to strengthen global and country efforts to scale up high-impact nutrition practices and policies and improve maternal and child nutrition outcomes. The project is managed by the JSI Research & Training Institute, Inc., with partners Helen Keller International, The Manoff Group, Save the Children, and the International Food Policy Research Institute. SPRING provides state-of-the-art technical support and focuses on the prevention of stunting and maternal and child anemia.

RECOMMENDED CITATION

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SPRING

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Cover photos: Woman preparing food, © Lidan Du/JSI; Man in field, © Maria Fleischmann/World Bank; Onions, © Simone D. McCourtie/World Bank

This series of briefs illustrates how a set of pathways and principles may assist Feed the Future stake holders to strengthen agriculture and nutrition linkages across and within country portfolios. The conceptual frameworks of the pathways and principles for improving nutrition through agriculture are described in this first brief. Each subsequent brief explores a different route between agriculture and nutrition: food production, income generation, and women's empowerment.

INTRODUCTION

Feed the Future is a U.S. Government initiative that explicitly aims to improve nutrition through agriculture-led activities that also strive to reduce rural poverty in 19 focus countries. The initiative strives to both improve nutrition where it works and to contribute to the evidence base demonstrating how agriculture affects diet and nutrition for rural families. Agriculture[1] is the main livelihood and employer of most of the nutritionally vulnerable households in the world (World Bank 2007; World Bank 2013). For the rural households targeted under the Feed the Future initiative, agriculture is the primary way people make a living. Agriculture, and in particular, food systems, provide food for all human beings and thus have a foundational role in nutrition. The potential for agriculture development and food systems to improve nutrition is well recognized—most importantly through providing access to diverse, nutritious diets. In general, agricultural growth is more pro-poor and is associated with greater reductions in stunting than nonagricultural growth (World Bank 2007; Webb and Block 2012). Yet the full potential of agriculture to improve the nutrition of vulnerable individuals within farming households, as well as of the general population, has yet to be realized (Ruel and Alderman 2013; Webb 2013). Recent systematic reviews have pointed to a need for more and better designed research to understand how agriculture interventions can harness the potential to improve nutrition more fully (Ruel and Alderman 2013; Hawkes et. al 2012; Herforth et al. 2012; Masset et al. 2012).

The pathways and principles explored in this brief provide a summary of the current state of knowledge of ways to use agriculture to improve nutrition. Broadly accepted among development partners, these concepts are based on the best evidence available from the literature on food security, health, and nutrition and are supported by the experiences of field practitioners, including those implementing activities under Feed the Future. These concepts can aid in the design and implementation of nutrition-sensitive agriculture programs. This brief does not assume that all agricultural development activities are "nutrition sensitive."

The pathways and principles explored in this brief provide a summary of the current state of knowledge of ways to use agriculture to improve nutrition.

However, the pathways and principles may assist Feed the Future practitioners to systematically consider both opportunities and threats to nutrition across the range of current agricultural interventions. This is particularly relevant given that Feed the Future's results framework pursues high-level outcomes for both agriculture and nutrition.

CAUSES OF MALNUTRITION AND THE NEED FOR MULTISECTORAL APPROACHES

Nutritional status is determined by three broad factors:

Food: access to sufficient, safe, nutritious food to support a healthy, active life.

Health: including (a) the health environment in terms of pathogens and environmental contaminants, water, and sanitation; and (b) access to health services.

Care: child feeding and care practices and care of women.

The United Nations Children's Fund's (UNICEF's) framework for malnutrition (Annex 2) lays out this

[1] See Annex 1 for a glossary of terms related to agriculture, food systems, and nutrition that are used in this brief.

understanding of the determinants of malnutrition, including its immediate, underlying, and basic causes (UNICEF 1990). Nutrient intake and health status at the level of the individual are the immediate determinants of nutritional status. Underlying these are the food, health, and care determinants described above; these are what one can affect through agriculture. Finally, at a basic level, political, economic, and institutional determinants underpin all of these factors. Given these multiple causes, it is clear that no single sector can address malnutrition alone; several sectors have a role to play.

The strong evidence base that links the use of maternal, infant, and young child feeding and care practices to reductions in chronic malnutrition supports the utility of integrating nutrition social and behavior change (SBC) into agriculture development activities.

There are two groups in the population that are especially vulnerable to undernutrition: pregnant/lactating women and children, especially those under two years old. Undernutrition during a child's critical period—from mother's pregnancy to age two years—can cause irreversible physical and cognitive deficits (Bhutta 2013). For this reason, mothers and young children are often the target groups for nutrition-specific interventions. In food security programs, improving the nutrition of girls and women is an important consideration not only for their own health, but also because the health and nutritional status of pregnant and lactating mothers is critical to the nutrition of children under two. Improving women's nutrition is critical to breaking the intergenerational cycle of undernutrition and is essential to sustained economic growth, given the negative impact that chronic undernutrition has on productivity, educational attainment, and income-earning potential (Bhutta 2013).

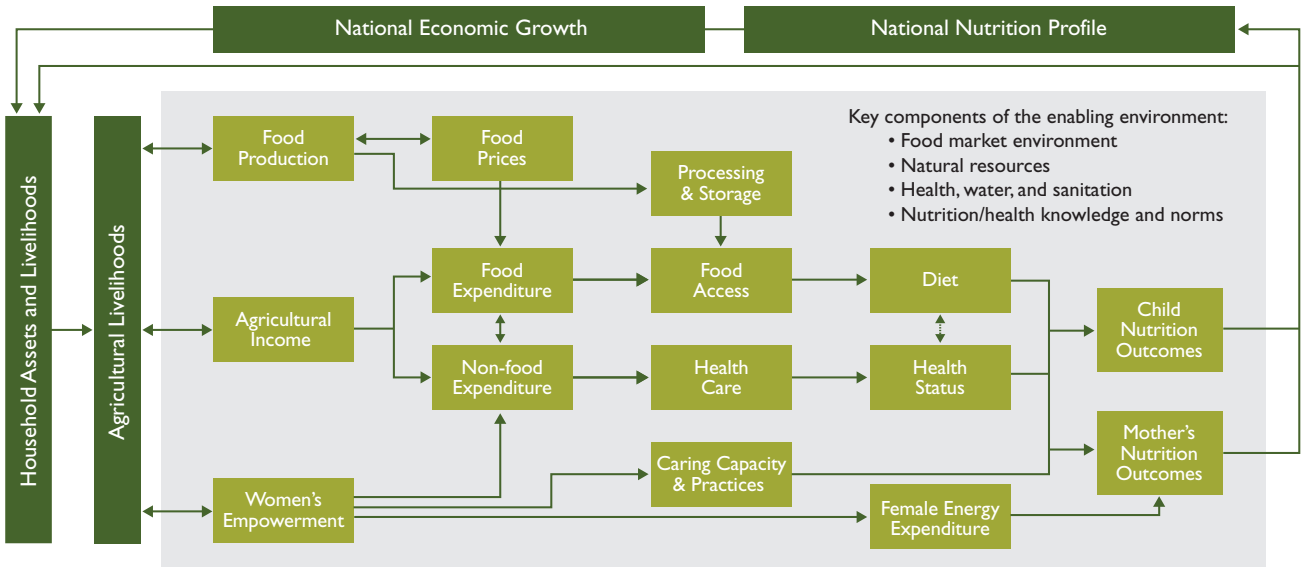
Nutrition may be protected if agricultural livelihoods guarantee a reliable and sustainable income and if that income is used to purchase diverse, nutritious food as well as to obtain health care, education, shelter, fuel, and other basic necessities required for a healthy, productive life. Agriculture has a unique role in ensuring access to and availability of diverse, nutritious food. At the same time, agricultural development projects should avoid doing unintentional harm to public health (e.g., by protecting potable water and maintaining an environment free of contaminants) and should support the care of children and families (e.g., by reducing demands on women's use of time and energy). Addressing food availability and access is critically important but may not have a measurable impact on nutritional status, especially if other factors limit child growth, such as poor sanitation, inadequate care practices, or lack of access to quality health services. The strong evidence base that links the use of maternal, infant, and young child feeding and care practices to reductions in chronic malnutrition—across all socioeconomic strata—supports the utility of integrating nutrition social and behavior change (SBC) into agriculture development activities.

HOW AGRICULTURE AND FOOD SYSTEMS AFFECT NUTRITION

Agricultural livelihoods affect nutrition of individual household members through multiple pathways and interactions. The framework depicted in the figure on page 3 helps us to understand how various agriculture investments or activities could improve access to food and health care; how they impact and are affected by the enabling environment; and how they ultimately affect the nutrition of individual women and children.

The pathways are not always linear, and there are many interactions among them. In general, they can be divided into three main routes at the household level: 1) food production, which can affect the food available for household consumption as well the price of diverse foods; 2) agricultural income for expenditure on food and non-food items; and 3) women's empowerment, which affects income, caring capacity and practices, and female energy expenditure. Acting on all of these routes is the enabling environment for nutrition, including several key components: the natural resources environment; the food market environment; the health, water, and sanitation environment; nutrition/health knowledge and norms; and other factors, such as policy and governance. These components may affect nutrition of consumers or communities, not only farmer households. Child nutrition outcomes ultimately feed back into national economic growth and household assets and livelihoods, including those that contribute to both agricultural and nonagricultural sources of income.

FIGURE. CONCEPTUAL PATHWAYS BETWEEN AGRICULTURE AND NUTRITION



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

PATHWAYS BETWEEN AGRICULTURE AND NUTRITION

This brief addresses how agricultural livelihoods and food systems may more effectively contribute to household food security and nutritional status. The following section describes how the primary pathways in the figure above enable agriculture to contribute to reductions in undernutrition.

Food Production

Household food production can be critically important to the diets and nutrition of individuals in smallholder farmer households. In general, however, it is not the primary objective of an agricultural livelihood to produce all the food a family needs; most poor rural families are net purchasers of food. However, for those with access to arable land, it is a combination of food produced for consumption, income, and local food availability and prices that determines the family's food security. Food production can affect the type, quantity, and seasonality of food available in the household for consumption. At the same time, production may also influence the availability and prices of diverse food in local markets.

The decisions farmers make about crop and livestock production are affected by many factors, including potential market prices, relative costs and risks associated with each product, the assets and endowments of land the household possesses, and family needs and preferences. If preferred foods or varieties are not consistently available, affordable, or conveniently accessible in markets, raising or growing them on the farm may be the most efficient way to obtain them. Substituting a more nutritious variety of a crop already grown for consumption (e.g., substituting yellow, vitamin A maize for white maize or orange cassava for regular cassava) may be an easy way to improve nutrition as part of the overall set of livelihood decisions. Nutrition knowledge and SBC are therefore essential to informing the range of decisions that farmers make about what they grow to consume, what they grow to sell, and what they decide to purchase with their income.

Processing and storage can affect the shelf life, safety, and nutrient content of foods in positive or negative ways for nutrition and health. These actions may also have a positive or negative effect on income-earning potential (through value addition) based on the food market environment. For example, storage conditions can affect the level of mycotoxin contamination (Yohe and Williams 2005) and drying meats, fruits, vegetables, or fish or producing cheese

can reduce losses and make nutritious foods available out of season for both home consumption and for sale in local markets (Rahman 2007).

Agricultural Income

Keys to reducing poverty in rural areas are establishing and maintaining successful small farming businesses that ensure livelihoods. Therefore, one of the primary aims of most Feed the Future activities is to increase household income through agriculture. Improved year-round income and cash flow can then be used for immediate or future household needs, including food and non-food purchases to support a healthy diet and life.

The agriculture income pathway assumes that nutritious, diverse foods are available and affordable in local markets. Appropriate inputs to grow these diverse foods must also be available so local production can meet demand. Additionally, market and transportation systems must enable year-round and/or seasonal supplies based on consumer preferences and purchasing power. Local supply and demand may also be influenced not only by market prices but also by SBC, nutrition knowledge, and social marketing, which may help drive consumer preferences.

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At the same time, household investments in health, including potable water sources and toilets, preventive care, and other basic necessities, are crucial to supporting good nutrition, especially for women and young children. All rural farm households must balance their spending decisions between farm production and marketing investments and the immediate purchases of food, health, and care necessities. The effect of income on nutrition is not direct or easily predictable; it is always modified by what is available, affordable, and convenient to purchase; who decides what is purchased; and the myriad factors that drive that decision.

Women's Empowerment

Women's empowerment incorporates multiple aspects, including the decision-making power related to income, time, labor, assets, and knowledge or preferences of female community members.

Increasing the agricultural income that women can control strengthens the income pathway to nutrition. Women's income enables expenditures on food and health care, affecting diet and health status. Research shows that in many places around the world, income controlled by women is more frequently used on food and health care for the family, particularly for children (UNICEF 2011; Smith et al. 2003). Often, the best way for women to influence how household income is spent is by earning their own income. For women in rural areas, an agriculture-related livelihood is the most common way a family makes a living. Women's decision-making also affects what is produced on the farm, and women's control of income and assets can affect productivity based on their spending decisions and on the social networks and cultural norms that influence those decisions (Food and Agriculture Organization of the United Nations [FAO] 2011). Training female and male farmers in farm management and business skills can optimize the income earned with the available time, labor, assets, and capital.

Agricultural development interventions can strongly affect women's use of time as well as their labor burden. Women are typically responsible for a wide range of household and agricultural tasks, including child and infant care and feeding and their own self-care. Activities that influence the amount of time or labor women spend on agriculture-related tasks can affect their own health and energy expenditure, and in turn their capacity to feed and care for

...a vital step in improving nutrition in a household with an agricultural livelihood requires that farming business decisions give attention to how women are involved...

infants, young children, and themselves. For this reason, a vital step in improving nutrition in a household with an agricultural livelihood requires that farming business decisions give attention to how women are involved in agriculture activities. For example, if agriculture development activities strive to promote the production of various nutritious foods with high market value to help increase women's income, they must be designed and monitored to also ensure they are not contributing to women's time and labor burdens.

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THE ENABLING ENVIRONMENT

The pathways between agriculture and nutrition are influenced by several key contributors to the enabling environment, which are factors at the community, regional, or national level affecting the household-level pathways. The enabling environment is shown as the shaded box behind the pathways in the figure on page 3. Its key components include the food market environment; the natural resources environment; the health, water, and sanitation environment; and knowledge and norms. It should be noted that agricultural interventions and policies can affect these components. The interaction between the various components of the enabling environment and the agriculture-to-nutrition pathways are described in the following section.

Food Market Environment

Feed the Future promotes inclusive agriculture sector growth that expands markets and trade for smallholder farmers. The food market environment affects the kinds of foods that are available and likely to be purchased, as well as those that are likely to be produced by farm households as a response to price signals and market incentives. Farm households determine what gets sold in markets and what is consumed at home largely as a response to the food market environment.

Both government policies and the actions of the private sector impact the availability and affordability of food in the market. For example, open international trade policies may increase the availability in local markets of imported food and beverages that can significantly affect local diets. By the same token, favorable tax policies may increase household access to nutrient-dense food products. Public and private investments in food value chains meanwhile determine the processing, storage, and marketing of food, affecting the quantity and quality (including safety) of food in the market.

Finally, agriculture and food systems contribute greatly to the food market environment in how nutrition messages are conveyed to consumers. Labeling and social marketing, for example, are tools that have been used by the food marketing industry and other value chain actors to influence food purchase decisions and consumption habits. This type of marketing may influence what people eat more extensively than nutrition education. Purchase decisions are affected not only by the relative price of different foods, but also factors such as convenience of purchase and preparation, available information about foods, and related perceptions of quality and safety. The last two factors in particular are influenced by marketing efforts of the private and public sectors. The food environment therefore interacts with household decision-making and food purchases in many ways and has a significant influence on household and individual nutrition.

Natural Resources Environment

All pathways between agriculture and nutrition are affected by natural resources: water, soil, climate, and biodiversity. Natural resource endowment affects agricultural production potential and, therefore, management strategies for income generation and food availability. Appropriate management of often scarce natural resources, such as sustainable harvesting, use and drainage of water, soil fertility management, and managing access to productive land, is critical to a successful farming business. Rainfall patterns directly impact production cycles of farms without access to irrigation; and water availability, often a cause of human conflict, determines the type of viable farming systems. Access to potable water is essential for human health and nutrition—for sustenance, food preparation, and hygiene and sanitation. Irrigation for agriculture can impact human health, especially in areas of intensive cultivation that use chemical inputs.

Soil quality directly affects the quality and yield of crops, and maintaining its fertility over time is a primary consideration in farming as a source of food and income. Additionally, access to productive lands is often contested due to cultural norms and/or political influence, often to the detriment of women's access to land resources, especially in the context of growing populations. Therefore, the appropriate management of scarce natural resources has direct consequences for the livelihoods of food insecure and nutritionally vulnerable families. With changing climate patterns, the predictability of farm production cycles is also affected. Early or late onset of rains, floods, droughts, shortened crops seasons, and premature harvests are causing yield declines, which lead to decreased food availability and/or income for farming households. These challenges require farmers to continually adapt their agricultural livelihood strategies to maintain the viability of crops and livestock. Therefore, successful interventions along any of the pathways will require purposeful planning toward nutritional goals while mitigating ever-changing natural resource constraints.

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... successful interventions along any of the pathways will require purposeful planning toward nutritional goals while mitigating ever-changing natural resource constraints.

Health, Water, and Sanitation Environment

Nutritional status is strongly influenced by the health, water, and sanitation environment and access to health services. Agricultural production interacts with the health, water, and sanitation environment. For example, some agricultural practices may contaminate water available for household use (e.g., with agrochemicals or microbes from livestock); water management may contribute to waterborne diseases (e.g., when standing water creates reservoirs that harbor disease vectors); and exposure to zoonotic disease or agrochemicals poses risks to human health, particularly during pregnancy. Infants and young children may be at risk of illness when livestock or agricultural production diminishes household sanitary conditions. With compromised systems, children are unable to properly absorb the nutrients they are consuming, thus negating any potential positive nutrition outcomes from increases in agriculture production or income. A key component of nutrition-sensitive agriculture therefore includes consideration of the activities' potential effects on the health, water, and sanitation environment.

Illness and poor health, whether resulting from agricultural practices or not, may affect household agricultural productivity as a whole. For example, in households or communities experiencing chronic or seasonal illness, food production and income generation are compromised by a lack of labor.

Nutrition/Health Knowledge and Norms

The knowledge held by key family and community members has a major bearing on the decisions made within households related to agriculture and nutrition. For example, Feed the Future activities that promote knowledge of nutrition and health may affect decisions around food production, purchase, and consumption to enhance positive outcomes for both the agriculture and nutrition sectors while avoiding negative impacts. An example of this can be seen in activities that promote farm management and business planning skills, as these have proven to be essential for successful farmers. Business planning should take household expense and cash flow needs, both planned and unplanned, into account. Including costs for the purchase of a healthy diet, antenatal care, or unforeseen illness as a part of a smallholder's business plan is not only beneficial to the family's livelihood but also to its nutrition, health, and well-being.

Decisions that result in improved market access and income for farm households require knowledge and skills in production, storage, processing, selling, and marketing, to name a few of the many areas in which farmers are expected to be "experts." The knowledge and use of key agricultural practices and skills can also easily include information that builds awareness and protects against harm to health and nutrition. For example, nutrition-sensitive livestock-raising practices may change how animals are kept in relation or proximity to the home, or nutrition-sensitive irrigation practices may affect how water is managed for agriculture to avoid household consumption of contaminated water. SBC activities promoting nutritious diets and healthy practices—whether provided within an extension system or as part of a collaboration with other sectors—can further enhance the impact of agriculture activities on nutrition.

PROGRAMMING PRINCIPLES

1. Incorporate explicit nutrition objectives and indicators into design.
2. Assess the local context.
3. Target the vulnerable and improve equity.
4. Collaborate and coordinate with other sectors.
5. Maintain or improve the natural resource base, particularly water resources.
6. Empower women.
7. Facilitate production diversification, and increase production of nutrient-dense crops and livestock.
8. Improve processing, storage, and preservation of food.
9. Expand market access for vulnerable groups, and expand markets for nutritious foods.
10. Incorporate nutrition promotion and education that builds on local knowledge.

POLICY PRINCIPLES

1. Increase incentives (and decrease disincentives) for availability, access, and consumption of diverse, nutritious, and safe foods.
2. Monitor dietary consumption and access to safe, diverse, and nutritious foods.
3. Include measures that protect and empower the poor and women.
4. Develop capacity to improve nutrition through the food and agriculture sectors.
5. Support multisectoral strategies to improve nutrition.

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KEY PRINCIPLES FOR IMPROVING NUTRITION THROUGH AGRICULTURE

The current global consensus of *Key Recommendations for Improving Nutrition through Agriculture* reflects the agriculture-nutrition pathways identified in this brief. The United States Agency for International Development contributed to the identification and sharpening of these recommendations within a broad consultation process[2] that included discussions and country presentations at regional Agriculture and Nutrition Global Learning and Evidence Exchange workshops.

This collaborative process yielded a consensus list of 10 key principles for programming and five principles for policy (excerpted on page 7, and in full in Annex 3).[3] The 10 programming principles include broadly supported priorities for nutrition-sensitive agriculture that seem to be common among activities that have shown a positive impact on nutrition.

APPLICATION OF THE PATHWAYS AND PRINCIPLES

The pathways framework is envisioned as a conceptual tool for activity planners to explore ways in which interventions may impact human nutrition. The framework outlines key theoretical steps needed to reach outcomes on dietary consumption or women's income or to have an impact on nutritional status. While these pathways are not linear, and the interactions in some contexts are quite complex, the framework can be a useful tool in activity design. It is also useful for making decisions about how best to measure the success of an approach on its intended outcomes.

The key principles can be used as a broad checklist in the design of nutrition-sensitive activities. The contribution of agriculture to nutrition goals will be different depending on the context and the type of activities undertaken. The first two principles, however—having a nutrition objective and context assessment—will be critical in all cases. Assessing the local context is essential to understanding constraints and opportunities in agriculture and nutrition from all points of view, including the viewpoint of beneficiaries. For example, context assessment can:

- Identify causes of undernutrition and which pathway(s) are primarily implicated.
- Aid in defining target groups (e.g., the poorest of the poor or vulnerable but viable farmers) for activities.
- Help identify activities of government and nongovernmental organizations in the same areas and other donors' investments to identify synergies and avoid duplicating efforts.

The pathways can also inform the choice of activity-specific indicators for measuring positive impact on nutrition. Appropriate indicators will vary according to which pathways are relevant to the activity design. However, indicators of food access and diet quality and diversity are key to linking agriculture investment to nutrition outcomes for vulnerable groups.

CONCLUSION

Reductions in undernutrition can be achieved through simultaneous cross-sectoral attention to food, care, and health determinants of nutrition. Interventions in the food system can support farm systems and agricultural livelihoods while also improving diets. This is especially true if the interventions do no harm to health or care practices and support integrated and multisectoral programming. The pathways and principles outlined in this brief can guide agriculture activity planning to improve nutrition.

[2] The complete original document is available from the Ag2Nut Community of Practice at: http://unscn.org/files/Agriculture-Nutrition-CoP/Agriculture-Nutrition_Key_recommendations.pdf.

[3] This process included feedback from the 800-member Agriculture-Nutrition (Ag-2Nut) Community of Practice, the FAO, the United Nations Standing Committee on Nutrition, and the Comprehensive Africa Agriculture Development Programme workshops to mainstream nutrition.

ANNEX 1: ASPECTS OF NUTRITION AND AGRICULTURE: TERMS TO KNOW

NUTRITION TERMS

Malnutrition:	A catch-all term, including undernutrition, overweight, and micronutrient malnutrition.
Micronutrient malnutrition:	Deficiency of vitamins and minerals (for example, iron and vitamin A); can occur alongside undernutrition or obesity.
Nutrition-sensitive:	Interventions or programs that address the underlying determinants of fetal and child nutrition and development—food security; adequate caregiving resources at the maternal, household, and community levels; and access to health services and a safe and hygienic environment—and incorporate specific nutrition goals. Nutrition-sensitive programs can serve as delivery platforms for nutrition-specific interventions, potentially increasing their scale, coverage, and effectiveness. Examples: agriculture and food security; early child development; women's empowerment; social safety nets; and water, sanitation, and hygiene.
Nutrition-specific:	Interventions or programs that address the immediate determinants of fetal and child nutrition and development—adequate food and nutrient intake, feeding, caregiving and parenting practices, and low burden of infectious diseases. Examples: adolescent and maternal health and nutrition; maternal and child dietary or micronutrient supplementation or fortification; promotion of optimum breastfeeding; complementary feeding; treatment of severe malnutrition; and nutrition in emergencies.
Nutritious, nutrient dense:	Foods with a high micronutrient and/or protein content per calorie.
Overweight and obesity:	Weight that is above normal for an individual's height, measured as weight-for-height for children 6–59 months and as body mass index (BMI) for older children, adolescents, and adults. Can lead to chronic disease, disability, and birth outcome risks.
Social and behavior change:	Social and behavior change (SBC) is a behavior-centered approach to facilitating individuals, households, groups, and communities to adopt and sustain improved, evidence-based practices. The approach draws upon social science and behavior change theories to design policies and interventions that address behavior and the environment within which behavior change occurs.
Undernutrition:	Inadequate intake and/or absorption of calories and essential nutrients, manifested as: **Acute undernutrition:** The result of recent and acute deprivation and measured as wasting (low weight for a child's height), mid-upper arm circumference, and clinical signs of bipedal edema. **Chronic undernutrition:** Occurs over time and is measured as stunting (low height for a child's age). **Underweight:** Low weight for a child's age or low BMI in adults. Can result from chronic and/or acute undernutrition.

AGRICULTURE TERMS

Agricultural income:	Income derived from agricultural livelihoods, that is, livelihoods involving the production, processing, marketing, distribution, utilization, and trade of food, feed, and fiber.
Agricultural livelihoods:	Means of support or subsistence derived from agriculture, that is, the production; processing; marketing; distribution; utilization; and trade of food, feed, and fiber.
Agriculture:	The science and practice of activities related to production; processing; marketing; distribution; utilization; and trade of food, feed, and fiber. This definition, cited in the 2004 USAID Agriculture Strategy and derived from the 2000 Famine Prevention and Freedom from Hunger Improvement Act, also includes family and consumer sciences, nutrition, food science and engineering, agricultural economics and other social sciences, forestry, wildlife, fisheries, aquaculture, floriculture, veterinary medicine, and other environmental and natural resource sciences. It also encompasses efforts to develop agricultural policies and institutions, such as research and extension services, that support agriculture and improve productivity to catalyze rural economic growth.
Agriculture-Nutrition:	Concept, ideas, strategies, and activities that aim to enhance the nutrition outcomes and eventual nutrition impact of food systems.
Farming system:	The dominant pattern of farm activities and household agricultural livelihoods, taking into account the available natural resource base, farm size, tenure, organization, and main technologies used, which determine the intensity of production and integration of crops, livestock, and other activities.[4]
Food security:	When all people at all times have physical and economic access to sufficient, safe, and nutritious food to meet their dietary needs and food preferences for a healthy and active life.[5]
Food systems:	Food systems encompass the entire range of activities involved in the production, processing, marketing, consumption, and disposal of goods that originate from agriculture, forestry, or fisheries, including the inputs needed and the outputs generated at each of these steps. Food systems also involve the people and institutions that initiate or inhibit change in the system as well as the sociopolitical, economic, and technological environment in which these activities take place.[6]
Household income:	All income derived by household members from all sources.
Market systems:	Complex webs of interconnected relationships among market actors and within and across industries, firms, and households; a system operating within policy environments, cultural norms, social and economic incentives, levels of loyalty and trust; and interfacing with other systems, such as education, health, and nutrition.[7]
Value chain:	The full range of actors, activities, and services required to bring a product or service from its conception to sale in its final markets, including input suppliers, producers, processors, and buyers, as well as support services and enabling environments that form a dynamic market system.

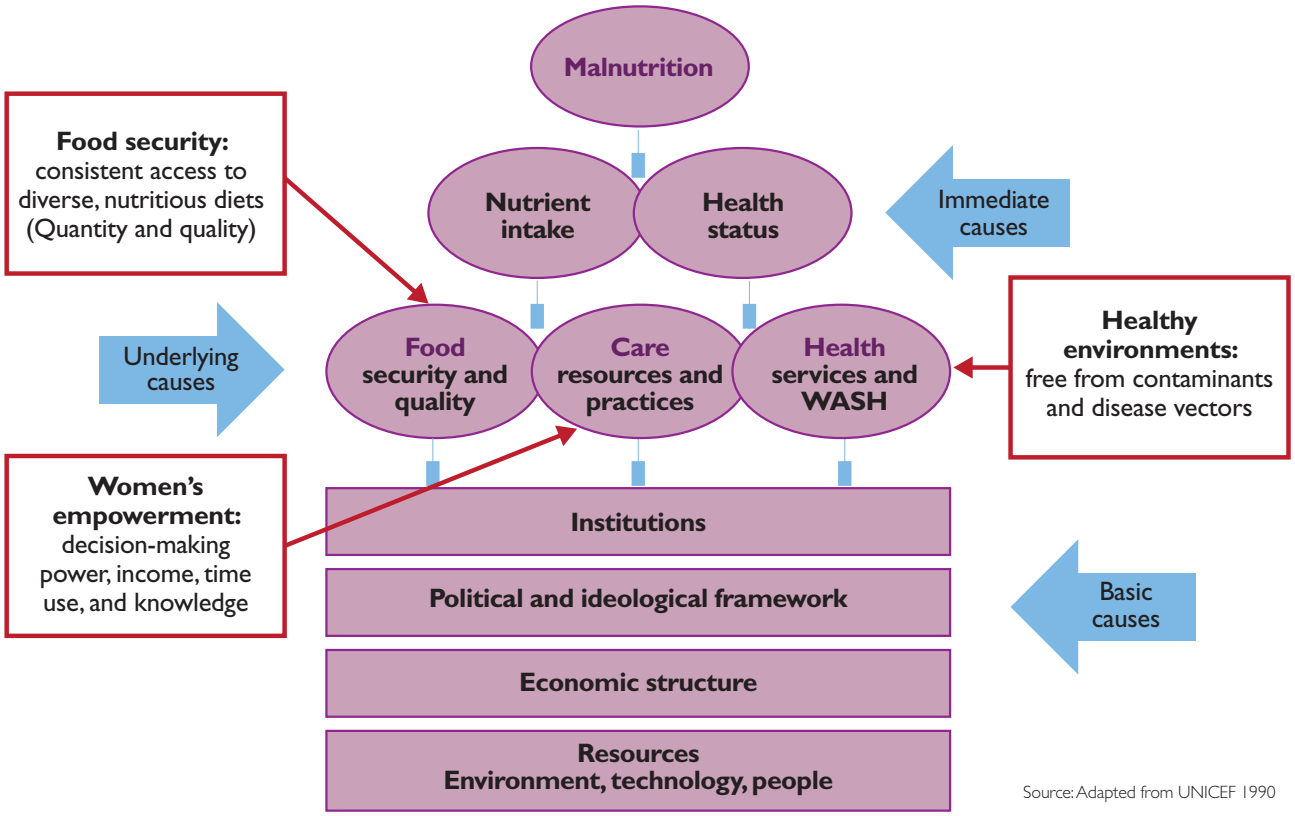
[4] Adapted from FAO. "Analysis of Farming Systems." Farming Systems and Poverty. http://www.fao.org/farmingsystems/description_en.htm (accessed December 31, 2013).

[5] Food and Agriculture Organization of the United Nations (FAO). 1996. "Rome Declaration on World Food Security," November 13. World Food Summit. http://www.fao.org/docrep/003/w3613e/w3613e00.HTM (accessed December 31, 2013).

[6] ———. 2013. *The State of Food and Agriculture: Food Systems for Better Nutrition*. Rome: FAO. http://www.fao.org/docrep/018/i3300e/i3300e00.pdf

[7] Adapted from Downing, Jeanne. 2013. "Market Systems Development- USAID-DFID-SDC Collaboration." *Promoting Inclusive Markets and Financial Systems*, October 31. http://www.seepnetwork.org/blog/market-systems-development-usaid-dfid-sdc-collaboration (accessed December 31, 2013).

ANNEX 2: UNICEF FRAMEWORK FOR MALNUTRITION



Source: Adapted from UNICEF 1990

ANNEX 3: KEY POLICY AND PROGRAMMING PRINCIPLES FOR IMPROVING NUTRITION THROUGH AGRICULTURE

PROGRAMMING PRINCIPLES

Agricultural programs and investments can strengthen impact on nutrition if they:

1. Incorporate explicit nutrition objectives and indicators into their design and track and mitigate potential harms while seeking synergies with economic, social, and environmental objectives.

2. Assess the context[8] at the local level to design appropriate activities to address the types and causes of malnutrition.[9]

3. Target the vulnerable[10] and improve equity through participation, access to resources, and decent employment.

4. Collaborate and coordinate with other sectors (health, environment, social protection, labor, water and sanitation, education, and energy) and programs through joint strategies with common goals to address concurrently the multiple underlying causes of malnutrition.

5. Maintain or improve the natural resource base (water, soil, air, climate, and biodiversity), which is critical to the livelihoods and resilience of vulnerable farmers and to sustainable food and nutrition security for all. Manage water resources in particular to reduce vector-borne illness and to ensure sustainable, safe household water sources.

6. Empower women by ensuring access to productive resources, income opportunities, extension services and information, credit, and labor- and time-saving technologies (including energy and water services) and by supporting their voice in household and farming decisions. Equitable opportunities to earn and learn should be compatible with safe pregnancy and young child feeding.

7. Facilitate production diversification, and increase production of nutrient-dense crops and small-scale livestock (for example, horticultural products, legumes, livestock and fish at a small scale, underutilized crops, and biofortified crops). Diversified production systems are important to vulnerable producers to enable resilience to climate and price shocks, more diverse food consumption, reduction of seasonal food and income fluctuations, and greater and more gender-equitable income generation.

8. Improve processing, storage, and preservation to retain nutritional value, shelf life, and food safety; reduce seasonality of food insecurity and post-harvest losses; and make healthy foods convenient to prepare.

9. Expand markets and market access for vulnerable groups, particularly for marketing nutritious foods or products vulnerable groups have a comparative advantage in producing. This can include innovative promotion (such as marketing based on nutrient content), value addition, access to price information, and farmer associations.

10. Incorporate nutrition promotion and education around food and sustainable food systems that builds on existing local knowledge, attitudes, and practices. Nutrition knowledge can enhance the impact of production and income in rural households, which is especially important for women and young children, and can increase demand for nutritious foods in the general population.

[8] Context assessment can include potential food resources, agro-ecology, seasonality of production and income, access to productive resources, such as land, market opportunities and infrastructure, gender dynamics and roles, opportunities for collaboration with other sectors or programs, and local priorities.
[9] Malnutrition includes chronic or acute undernutrition, vitamin and mineral deficiencies, obesity, and chronic disease.
[10] Vulnerable groups include smallholders, women, youth, the landless, urban dwellers, and the unemployed.

POLICY PRINCIPLES

Food and agriculture policies can have a better impact on nutrition if they:

1. Increase incentives (and decrease disincentives) for availability, access, and consumption of diverse, nutritious, and safe foods through environmentally sustainable production, trade, and distribution. Focus on horticulture, legumes, and small-scale livestock and fish—foods that are relatively unavailable and expensive but nutrient rich and vastly underutilized as sources of both food and income.

2. Monitor dietary consumption and access to safe, diverse, and nutritious foods. The data could include food prices of diverse foods and dietary consumption indicators for vulnerable groups.

3. Include measures that protect and empower the poor and women. Safety nets that allow people to access nutritious food during shocks or seasonal times when income is low; land tenure rights; equitable access to productive resources; and market access, including information and infrastructure, for vulnerable producers. Recognizing that a majority of the poor are women, ensure equitable access to all of the above for women.

4. Develop capacity in human resources and institutions to improve nutrition through the food and agriculture sectors, supported with adequate financing.

5. Support multi-sectoral strategies to improve nutrition within national, regional, and local government structures.

These recommendations have been formulated following an extensive review of available guidance on agriculture programming for nutrition conducted by FAO (see: http://www.fao.org/docrep/017/aq194e/aq194e00.htm), and through consultation with a broad range of partners (CSOs, NGOs, government staff, donors, UN agencies), in particular through the Agriculture-Nutrition Community of Practice. These recommendations are available from the Agriculture-Nutrition Community of Practice at http://www.unscn.org/en/nut-working/agriculture-nutrition-cop/.

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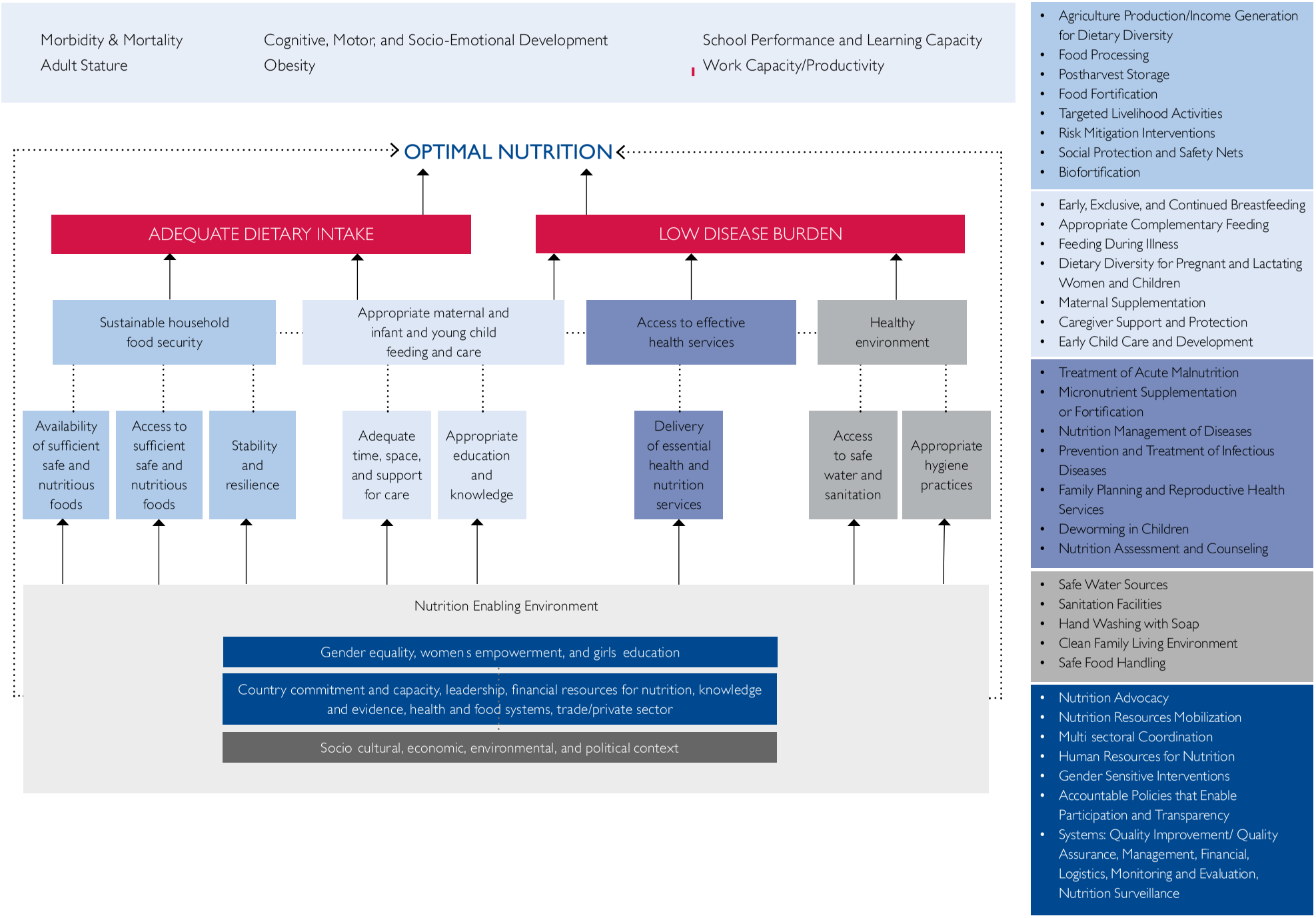
FIGURE 1: USAID MULTI-SECTORAL NUTRITION CONCEPTUAL FRAMEWORK

Adapted from UNICEF, 2013[15] and Black et al., 2013[2]



Resources

GFSS Technical Guidance – Nutrition. https://feedthefuture.gov/resource/global-food-security-strategy-technical-guidance-nutrition

Multi-sector Nutrition Strategy. https://www.usaid.gov/sites/default/files/documents/1867/USAID_Nutrition_Strategy_5-09_508.pdf

Convergences and Tension in Nutrition-Sensitive agriculture market Development Activities. https://www.usaid.gov/sites/default/files/documents/1864/Convergence_and_tension-508.pdf

Understanding and Applying Primary Pathways and Principles. https://www.spring-nutrition.org/publications/briefs/understanding-and-applying-primary-pathways-and-principles

Reflection

Exercise

Record 3-4 key facts, challenges and experiences you've had regarding resilience and nutrition sensitive agriculture:

Resilience	Nutrition Sensitive Agriculture

What are 2 takeaways from today?

How will you use this new knowledge in your role?

Day 3

Policy, Governance and Standards

Reflection

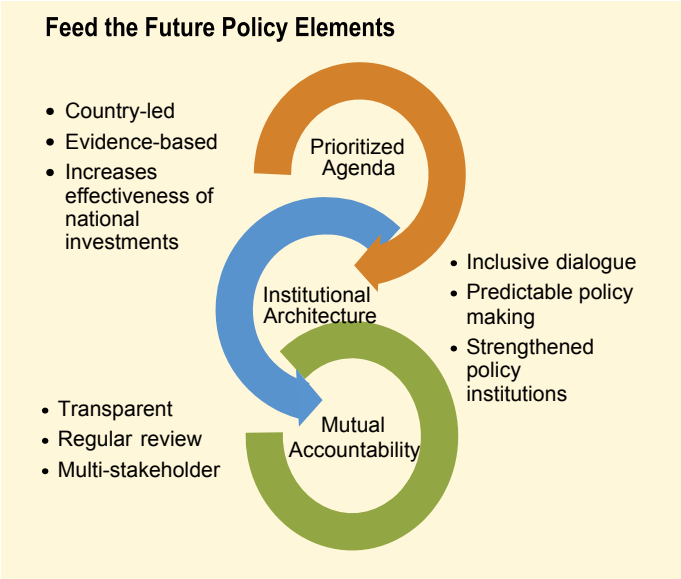
1. What is the most pressing policy issue in the countries where you work?
2. How have you been working to address that issue, if at all?
3. What factors support and work against the desired policy change?

Notes

A. Policy Agenda

B. Institutional Architecture

C. Mutual Accountability



Exercise

1. What questions do you need to answer to develop effective programming for your element?
2. What tools and resources exist to help analyze the context and develop best fit programming?
3. What activities or partnerships might you consider?

Policy, Governance and Standards Breakout Groups

Notes

Resources

GFSS Technical Guidance – Policy Programming. https://feedthefuture.gov/resource/global-food-security-strategy-technical-guidance-policy-programming

Feed the Future Policy guide Overview. https://www.feedthefuture.gov/sites/default/files/resource/files/Feed_the_Future_Policy_Overview_Brief.pdf

Feed the Future Policy Brief - Mutual Accountability (see Appendex B)

Joint E3 – BFS Statement on Land Governance in the context of Food Security and Agricultural Investment (see Appendex B)

Institutional Architecture for Food Security Policy Change: Cross-Country Study. https://agrilinks.org/sites/default/files/resource/files/EAT_CrossCountry_Study_031815_web.pdf

Land and Food Security Brief: Land Policy for the Next Generation. https://www.land-links.org/wp-content/uploads/2016/09/USAID_Land_Tenure_Land_Food_Security_Briefer_0.pdf

Sustainable Intensification

Reflection

1. How do we sustainably increase agricultural productivity growth without causing imbalances in the resource base and environment?
2. How do we structure a development agenda that is not based on extraction of nutrients form the land/waters, but one that supports cycling of the critical ingredients that food security requires?

Notes
Assessing Sustainable Intensification

Trade-Offs

- Within a domain
- Across domains
- Across spatial scales
- Across time
- Across groups in a typology

Notes:

Resources

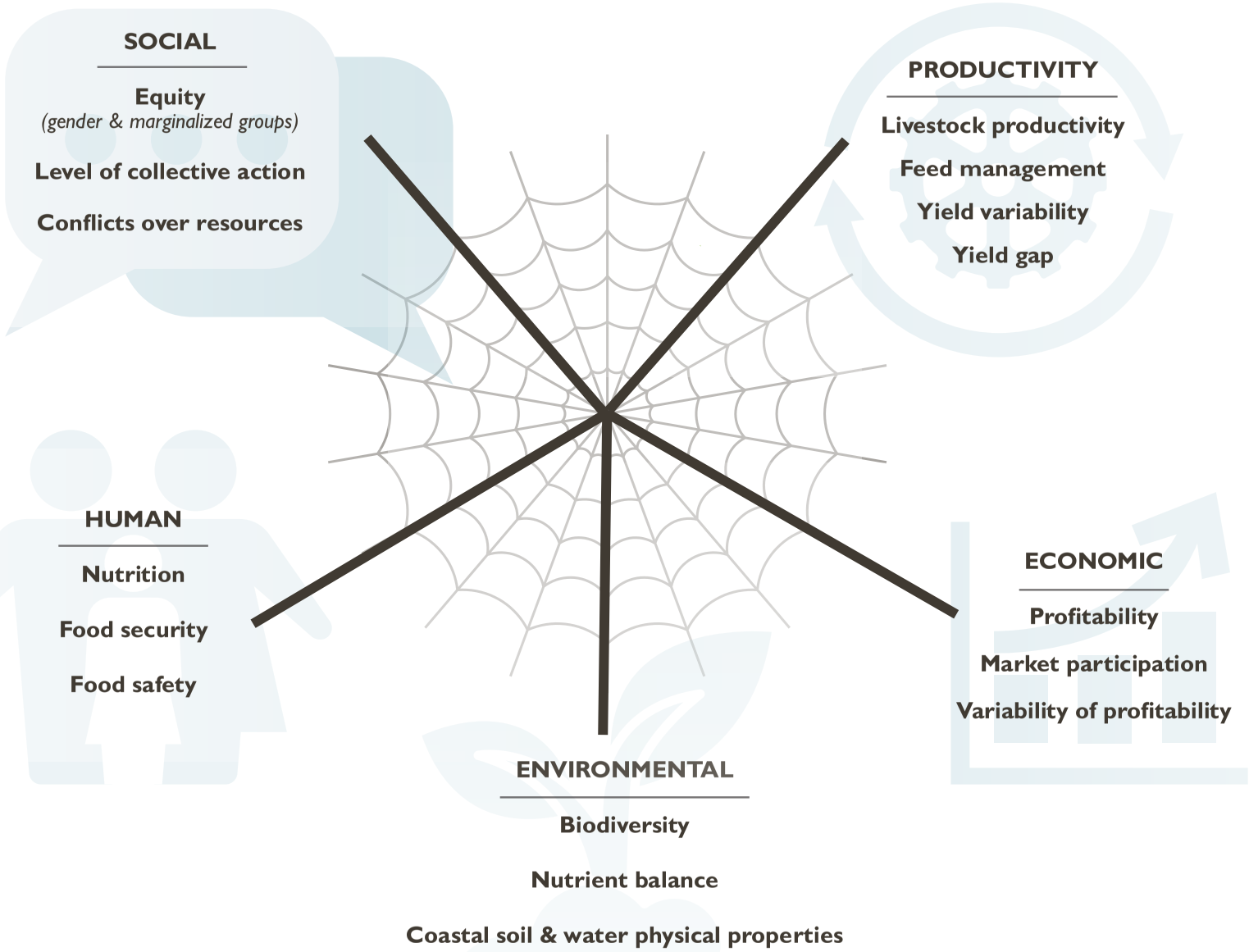
GFSS Technical Guidance – Increasing Sustainable Agricultural Productivity.

https://feedthefuture.gov/resource/global-food-security-strategy-technical-guidance-diversifying-livelihoods-resilience-and

GFSS Technical Guidance – Investing in Livestock Production and Animal Source Food Market Systems.

https://feedthefuture.gov/resource/global-food-security-strategy-technical-guidance-investing-livestock-production-and-animal

SUSTAINABLE INTENSIFICATION INDICATORS BY DOMAIN



Application of Digital Tools

> *"Agricultural Development is rightly recognized as a key pathway out of poverty for countries in which missions of people live off their labor on the land. But for agriculture to succeed in sowing prosperity across Africa, we need to look at the industry holistically. Without solving the most important components of the supply chain, powerful technology and communications tools and solutions will flounder." – Jamila Abass, CEO and founder of m-Farm*

Notes


ADVANCING DIGITAL FINANCIAL INCLUSION FOR SMALLHOLDER FARMERS
SUSTAINABLY REDUCE GLOBAL POVERTY AND HUNGER
ROADBLOCK
Smallholder farmers not competitive in commercial supply chains
DFS can enable: Digitizing payments throughout the value chain to lower costs for buyers (and farmers) and increase price transparency
ROADBLOCK
Appropriate credit products don't exist for smallholder farmers
DFS can enable: Lower transaction costs to lend to smallholder farmers, making credit more available
ROADBLOCK
Women disempowered in decision-making in agriculture
DFS can enable: Improved access to markets and better control of funds
ROADBLOCK
Limited ability to manage post-harvest loss and speculate for higher prices for harvests
DFS can enable: Access to storage facilities with inventory-based credit
ROADBLOCK
Cost of buying quality and quantity inputs is prohibitive and risky
DFS can enable: Increased purchasing power, reduced risk, decreased transaction costs
ROADBLOCK
Smallholder farmers cannot save for long-term investments
DFS can enable: Savings products and services
ROADBLOCK
Managing and mitigating weather risks to crops
DFS can enable: Weather-indexed microinsurance, purchase of weather risk-mitigating farm equipment (i.e., drip irrigation, climate resilient seeds)

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

Digitizing the agricultural value chain | WHY

PLANNING

- Help farmers plan what, when to plant
- Tighten relationship with buyers, processors
- Adapt to climate change
- Provide data for farmers to make business decisions on cash flow and maximizing profit

INPUTS

- Reduce counterfeits
- Reduce costs and risks for buyers
- Increase access to quality inputs
- Enable sellers to know demand in advance
- Provide convenient and secure ways for farmers to purchase, save, and receive credit inputs

ON-FARM PRODUCTION

- Help extension services reach more farmers
- Provide timely reminders/alerts
- Use behavior change media to promote best practices among farmers
- Increase precision and/or adaptability of farming interventions and crop choices through applied data

POST-HARVEST

Storage

- Improve links between farmers, processors
- Reduce post harvest loss with digitally-enabled harvest loans and digitally warehouse receipts
- Inform harvest practices to reduce post harvest losses.
- Monitor storage conditions

Processing

- Increase farmer negotiating power by providing market prices
- Track provenance for supply chain optimization and grading

Transport

- Reduce costs of transport
- Increase choice of different types of transport for farmers
- Increase access to timely information so that farmers know if and when transport is arriving

ACCESS TO MARKETS

- Increase ability of smallholder farmers to sell to larger markets by allowing buyers to track crops to source (certification and provenance)
- Increase market information available to farmers so that they have more choices

<---------- USING CONNECTED DIGITAL TOOLS TO BETTER INTEGRATE THE ENTIRE MARKET SYSTEM ---------->

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

Digitizing the agricultural value chain | WHERE

	PLANNING	INPUTS	ON FARM PRODUCTION	POST HARVEST Storage	POST HARVEST Processing	POST HARVEST Transport	ACCESS TO MARKETS
Data Collection	• Farm mapping • Climate change predictive models • Farm/farm group financial management	• Seeds • Pesticides/ Fertilizers • Payments • Rating service quality • Soil/water testing	• Pesticides / Fertilizers • Weeding • Soil / Water • Sharing Machinery, services • Weather info	• Warehousing • Pests • Preservation	• Crop varieties, quantities planted • Timing of planting, harvesting	• Preservation • Climate Control • On-demand transport/selling services	• Sales • Payments • Quality control • Market prices
Transactions	• Savings • Basic credit • Insurance premiums	• Merchant payments • Subsidies • Savings and layaway plans • Basic credit • Leasing	• Payments for • Info services - Vaccinations - Certifications • Salary Payments	• Warehouse receipts • Certifications • Additional Inputs • Loans	• Payments • Insurance Payouts	• Transport fees • Coop fees	• Payments from buyers to producers • Savings • Layaway
Information Exchange	←---------- Extension Delivery ----------→				←---------- Market prices ----------→		
	←---------- Farmer Profiles to Enable Custom Info to be Delivered ---------->						
	←---------- Feedback to/from farmers, other stakeholders ---------->						
Risk Management and Verification		• Seeds • Fertilizers • Counterfeiting	• Weather insurance • Better agriculture practices • Market Prices	• Traceability	• Traceability	• Traceability	

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

Digitizing the agricultural value chain | HOW

	PLANNING	INPUTS	ON FARM PRODUCTION	POST HARVEST Storage	Processing	Transport	ACCESS TO MARKETS
PRODUCTS	• FarmBook Business Planner • mFarm • CocoaLink • iCow	• MyAgro • Yelp for Cows • GES eVouchers Nigeria	• Farm Radio Int'l (FRI) • Digital Green • Avaaj Otalo • Health Network International (HNI)'s IVR service • Hello Tractor (Nigeria) • Farmerline	One Acre Fund harvest loans, East Africa	Nataal Mbay, Senegal	Loop transport/selling service (India, Ethiopia)	• Esoko market price service(Ghana, more) • FreshPro, Kenya
PROJECTS	• CIAT Columbia • Climate Change and ICT (CHAI) Uganda • Satellite-Assisted Pastoral Resource Management, Ethiopia	• E-Verification, Uganda • Index-based livestock insurance, Ethiopia • AVANSE Haiti e-vouchers	• Kenya Simple SMS reminders • Kenya Livestock Insurance Program		Senegal farmers cloud app with processors		Rural Distribution Network (RUDI), India

←---------- RELEVANT DIGTAL TOOLS ACROSS THE VALUE CHAIN----------→

DATA COLLECTION
Mobile Surveys
Sensors (ground, aerial, aquatic)
Low-Orbit Satellite Imagery
UAVs (Drones)
Farmer Profiles
Big Data Analytics

TRANSACTIONS
Mobile Money
Payments/Storage
Bulk Payments
Savings Groups
Digital credit
E-Vouchers
POS Devices
Savings, Basic credit
Insurance premiums

INFORMATION EXCHANGE
Video
Mobile (voice, text; push pull; IVR)
Radio/TV

RISK MANAGEMENT
Insurance
Satellite Imagery
Sensors
Digital Payments

VERIFICATION
RFID Tags
Bar Codes
QR Codes
SMS/USSD

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

Digitizing the agricultural value chain | EVIDENCE

PLANNING	INPUTS	ON FARM PRODUCTION	POST HARVEST Storage | Processing | Transport	ACCESS TO MARKETS

There are at least 40 quantitative studies proving the impact of digitizing the value chain. For example:

CIAT used multiple sources of big data to predict when to plant, what to plant. Farmers who listened avoided losing US$3,000.

CHAI reduced crop loss by 40-65% by getting timely localized weather

In a one-year pilot of using **satellite imagery to support pastoral resource management** in Ethiopia, herd deaths fell by half.

Yelp for Cows: Crowd-sourced reviews led to 26% better service

18,000 farmers in Mali/Senegal use mobile layaway via **myAgro** to save for seeds and fertilizer. They're seeing yield increases of 50% to 100%. That translates into around $150 more income a year

Digital Green: low cost video helped increase cost effectiveness, adoption of new technologies

FRI participatory radio led to 5 fold increase in adoption

Livestock Insurance meant households were 36% less likely to anticipate relying on distress sales of livestock and 25% less likely to reduce meals.

One Acre Fund: loan led to significant increases in farmer storage and subsequent farm profits.

Naatal Mbay, the farmer-owned cloud database, resulted in better prices for higher quality fertilizer, more sharing of better agricultural practices, and ultimately a 25 percent increase in maize yields.

IDEO.org prototyped **Spoilage Sensor**,a $4 temperature and-humidity sensor, which allows farmers time to act to prevent spoilage.

Loop farmers pay roughly 25% less to traders due to consolidation

With **Esoko**, all farmers get 8-9% price increase (not just subscribers), increasing income by $170.

RUDI's mobile ordering has allowed 3,000 women retailers to increase their income by up to 300%, and farmers receive prices 20-30% higher.

In Haiti, a mango exporter saved more than $1,600 per year by shifting purchases from cash to mobile.

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Exercise

Digital Tools for Agriculture Exercise: Scenarios I–III

Scenario

Agricultural extension services are traditionally performed by agronomists, who work in person – typically one-on-one or in small groups – with smallholder farmers to teach them the latest and greatest agricultural techniques. However, this system is slow and limited in its reach. Could ICT-enabled extensions be a viable alternative? Let's consider a few scenarios.

Scenario I

Extension agents are already operating in a rural village in India with low mobile phone penetration, limited broadband/internet connectivity, and poor literacy. The agronomists have limited proficiency in the local language/dialect. They report difficulty engaging with the community especially with women's groups, as extension agents are generally highly educated men from cities far from the rural community.

- What digital tools can increase the reach of these extension services?

Scenario II

Extension agents in Ghana are formulating a strategy for reaching different regions of the country, as different parts of the country operate in different contexts. They want to make a plan for two communities:

1. The first is a community in the south with high literacy, high connectivity/smartphone penetration, and high-tech savviness.
2. The second is a community in the north with a moderate degree of mobile penetration, few smartphones, and variable literacy rates.

Scenario III

In the Sundarbans region of Bangladesh, a group of farmers meet regularly to exchange advice and best practices. They are having trouble adapting to the increasing salinity of the water. Here, some farmers have mobile phones and 3G/4G connections, but the vast majority of the population does not. In addition to having poor connectivity, it is difficult to access the region, so farmers generally gather and exchange knowledge among themselves without the opportunity to gain outside expertise. How can technology address these problems?

Resources

GFSS Technical Guidance – Towards Digitally enabled Global Agriculture and Food Systems.
https://feedthefuture.gov/resource/global-food-security-strategy-guidance-digital

Guide to the use of Digital Financial Services. https://www.globalinnovationexchange.org/guide-use-digital-financial-services-agriculture

Reflection

"The illiterate of the 21st century will not be those who cannot read and write, but those who cannot learn, unlearn, and relearn." – Alvin Toffler

Think back through today….

1. What questions are you asking yourself based on today's sessions?
2. What challenge are you currently facing, what question would you like to ask of others?
3. What are you unlearning and relearning this week?

Review for Tomorrow

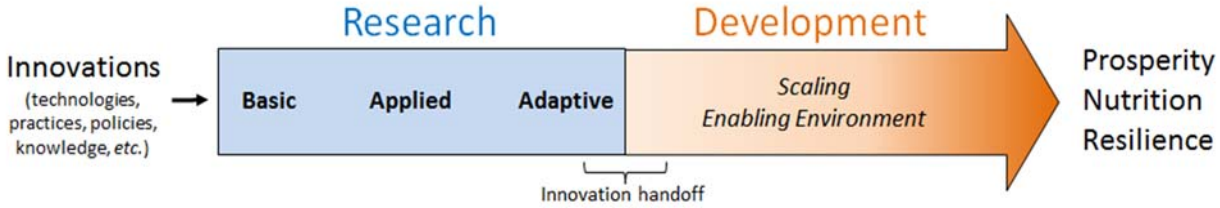
Research and Development: Prey and Masters Paper on impact of R&D Criteria for Research Agendas. https://drive.google.com/file/d/0B6dAWyQIkxpLVERhcHFlaGdhOGc/view

Fintrac: From Smallholder to Shareholder. http://www.partneringforinnovation.org/docs/Fintrac_PIModels_Toolkit_14Oct14_fin_web.pdf

Day 4

Research and Development

The Process of Research and Development



4 Key Takeaways about FTF Research Investments

1. Research takes time!

2. The most efficient geographic scope for research will vary.

3. Reality is more complicated.

4. The R&D process occurs in the context of overlapping national, regional, and global Agricultural Innovation Systems.

Exercise

In Agricultural Innovation Systems session on Monday, your group identified key "innovation niches" for your case study.

1. In your case study groups, list 2-4 research priorities that could help fill these "innovation niches."
    - What technologies, practices, policies, or knowledge do you need (but do not have) in order to achieve your food security goals?
2. Review the research dossier for your case study. Does this additional information address any of the outputs you identified? Did it identify any new ideas?
3. Refine and prioritize your list to your top three research priorities.
4. Select someone from the group to report back to the class.
    - What research priorities did you identify?
    - How do these research priorities relate to your food security development agenda?
    - What next steps could you take in order to address these research priorities?

Reflection

Reflect: How do identified or potential research priorities relate to your food security development agenda? What next steps could you take to address these priorities?

Share: Share your reflection with one person at your table or in the same region.

Term	Definition
Research	Systematic and creative activities undertaken to increase the knowledge base, including understanding of humankind, culture, environment, and society, and the application of this knowledgebase to devise new interventions (OMB definition). Being hypothesis-driven, testable, and independently replicable are typical qualities of the research process. While the scope of research, and thus this Scientific Research Policy, is not absolute, as a general guideline, research incudes: 1) Experiments; 2) Observational studies; 3) Implementation research including pilot studies; 4) Qualitative studies; 5) Population-based surveys that provide data for global results monitoring, small area variation analyses and cross-national comparisons and analyses for example; 6) Product development activities including market research and acceptability studies. (USAID Scientific Research Policy, December 2014)
Basic Research	The systematic study directed toward fuller knowledge or understanding of the fundamental aspects of phenomena and of observable facts without specific applications toward processes or products in mind.
Applied Research	The systematic study to gain knowledge or understanding necessary to determine the means by which a recognized and specific need may be met. Applied research is undertaken to determine possible uses for the findings of basic research or to determine new methods or ways of achieving specific objectives. The results are intended primarily to be valid for possible applications to products, operations, methods or systems.
Development Research	The systematic application of knowledge or understanding, directed toward the production of useful materials, devices, and systems or methods including design, development, and improvement of prototypes and new processes to meet specific requirements. One example of development research is supporting the use of chlorhexidine for umbilical cord care to reduce neonatal sepsis, a leading cause of newborn death. USAID's investments are directed toward applied research and development, and not in basic research, which is the domain of federal science agencies such as the National Science Foundation, National Institutes of Health, U.S. Department of Energy, and others.
Operational Research	The use of advanced analytic methods to make better decisions or research that provides optimal solutions to complex decision-making/ the term "implementation research" is also commonly used and has been defined by some as the scientific study of methods to promote the systematic uptake of research findings and other evidence-based practices into routine practice, and hence to improve the quality (effectiveness, reliability, safety, appropriateness, equity, efficiency) of an objective.

Resources

Prey and Masters Paper on impact of R&D.
https://drive.google.com/file/d/0B6dAWyQIkxpLVERhcHFlaGdhOGc/view

Framing Criteria for Research Investment.
https://drive.google.com/file/d/0B6dAWyQIkxpLODBpMmZLc2NFMTQ/view

Impacts of Agricultural Research on Poverty, Malnutrition and Resilience

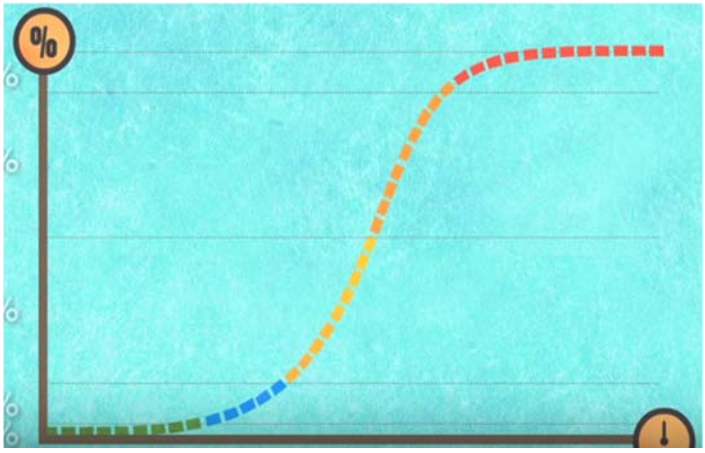
https://sites.tufts.edu/willmasters/files/2017/04/AgRschImpactsOnPovertyNutritionResilience_7April2017.pdf

Scaling

Notes

Adoption Process

- Awareness
- Interest
- Evaluation
- Trial
- Adoption



Delivery Pathways

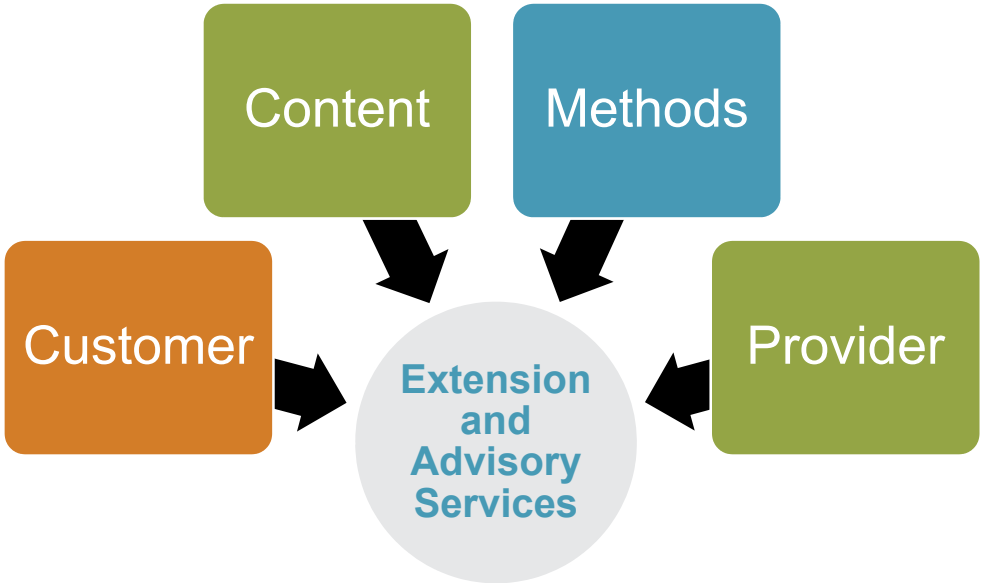
Scaling for widespread adoption of proven technologies and practices: The process of sustainably increasing the adoption of a credible technology or practice or a package of technologies and practices, with quality to retain or improve upon the demonstrated positive impact and achieve widespread use by stakeholders. (Technical Guidance, 2017)

Resources

GFSS Technical Guidance on Scaling Adoption of Technologies and Practices
https://feedthefuture.gov/lp/guidance-and-tools-global-food-security-programs

Extension

4 Building Blocks of EAS



The story of extension, looking back to the past to where we are now (pluralistic, holistic) to New Extensionist

The story of extension starts a long, long time ago – probably in the Garden of Eden! But the first formal record of extension advice comes from Mesopotamia in 1800 BC, where **clay tablets** were found advising on agricultural methods such as irrigation and control of rats.

What I'm going to do is to take you from those ancient roots and **tell the story** of how extension has *changed*, adapted, modified in response to changing conditions and needs of men and women farmers and other rural dwellers. We'll highlight some "*good guys*" and some "bad guys" who contributed to the story. I'll talk about some of the highlights and the low points. And, we'll end up to where extension is today.

But, I'll give you a clue now: The **moral** of the story is that extension never goes out of fashion. It has been used over the millennia and will continue to be a critical institution in rural development. Extension is important for productivity, incomes, resilience, and improved livelihoods. And gender and nutrition are critical components of all of these areas.

But going back to the history: Modern extension was really born in the **British Isles** in the 1800s. Oxford and Cambridge were the first universities to think about "extending" knowledge to nearby communities. This educational approach to extension has been one of the important approaches that has been taken up the U.S. land grant university/extension system, and by the famous educationist Paolo *Friere* from Brazil who talked about "concientization" in his book "Pedagogy of the Oppressed."

But extension really took off in the developing world in the mid-1900s as **colonial governments** withdrew and new governments (together with the World Bank and other investors) focused heavily on providing services to improve the lives of small-scale farmers, who had previously been unserved. These approaches were very much focused on transfer of technology to get farmers to adopt modern farming practices and technologies. There were strong links with research.

This brings us to one of the major protagonists of the story (or antagonists, depending on your perspective!). The **World Bank** provided lots of funding to new governments, who invested in building large civil service institutions such as extension to serve the farmers. One of the main programs – and another major player in our story – was the infamous training and visit extension, or *T&V. Daniel Benor* from the World Bank was the person behind this system, which meant to professionalize and improve extension. It began in Turkey and then was put in place in many countries in Africa and Asia. It was a quite rigid, top down system with set messages and regular trainings for extension agents, who met regularly with farmers and had the requisite resources to do so.

Unfortunately, the World Bank decided to implement **structural reforms** to try to liberalize economies in the 1980s, which led to huge reductions in funding for extension and other programs. At the same time there was a backlash against T&V and other top-down and financially unsustainable extension approaches. At the same time, *farming systems* research and extension and other participatory extension approaches such as farmer to farmer and farmer first emerged.

(And I have to stop here and give a word for Dr. Pete Hildebrand from the University of Florida, one of the founders of the approach in Latin America, who just passed away.)

Many of these were used in programs and projects, by non-governmental organizations (NGOs) and universities, rather than by entire governments. This was also the start of *pluralism* in extension, where there were many different types of extension providers, including the private sector.

This led to a **paralysis** of public systems, where most of the funding went solely to pay salaries but there were not operational costs for going out to the field, mounting demonstrations, etc. This caused even more NGO and project extension, and is still the status of many countries today.

Then the 1990s brought a new protagonist on the scene: the **farmer fields school (FFS)** approach of the Food & Agriculture Organization (FAO). FFS originally started as a way to reduce pesticide use in rice fields in Indonesia, and was developed to teach the complicated integrated pest management approach. As such, it was very much a *group-discovery*, adult education, empowerment approach. FFS have changed to cover many more topics and are in over 90 countries around the world. Many research organizations, NGOs, and governments use the approach now; some countries even use it as a main approach.

That brings us to today. Extension today is a much more **complex** institution than in the old transfer-of-technology days. Pluralism is here to stay, in part to deal with the diversity of extension needs. Extension is expected to be and do everything: help farmers deal with climate change, advise on nutrition, deal with markets, form groups, find inputs, get advice on crops and livestock and NRM … the list goes on. Is today's extension officer meant to be a *superwoman*?

This brings us to our last protagonist, the **New Extensionist**. This concept was brought forward by the Global Forum for Rural Advisory Services and describes the role of extension in today's complex agricultural innovation system. It focuses on the role of brokering between farmers and other innovation system actors and emphasizes the capacities needed not only by individuals but organizations, too, in order to meet the needs of men and women farmers.

The New Extensionist lays out the strategies, roles, and capacities of extension today. But it keeps us to the age-old mandate of extension: to improve the lives of rural dwellers, male and female, in many ways. So again, the **take-home message** is the importance of extension for rural development, for agricultural productivity, for improved livelihoods, for better gender and nutrition outcomes.

Extension is here to stay, and it is only going to improve as we **move it forward together** in our own spheres of influence. In terms of action, we all need to *advocate* for extension, to understand its potential but also its limitations (this is why the history is important). We need to work to *improve* it in the areas of policy, governance, capacity, methods, and community reach to all types of diverse male and female farmers.

Hallmarks of Modern EAS System

Term	Definition
Decentralization	Decentralized services may be able to better address regional differences in terms of agro-ecological conditions, socio-economic structures, and market opportunities. Challenges include potentially having to coordinate work with multiple local government entities.
Farmer Led	Services will be more effective if they are provided in response to producer's actual needs and interests. Requires formation of farmer interest groups and farmer representation in advisory boards.
Market Oriented	Advising farmers to produce for the market, rather than marketing what is produced. With economic growth, will come more opportunities for high value crops, livestock, fish and other products.
Tailored	Needs and opportunities for improving rural livelihoods will differ by target groups depending on gender roles, educational level, land ownership, etc. Examples include limited literacy and cultural restrictions impacting women's access to extension services.
Pluralistic	Different types of organizational actors (public, NGOs, input supply dealers and other private sector, etc.) have different comparative advantages in providing different types of extension services. Because public services are difficult to sustain, focus is on building partnerships.
Innovative	In a more innovative extension system, the filed extension workers become facilitators and knowledge brokers for both process and product innovations. Emphasis on gender equity and equality.
Financially Sustainable	Services provided are not dependent on donor funding. Typically, sustained by a revolving budget for the public and private sector provider. Examples include fee for service (animal para-vets) or producer group funds used for extension services.
ICT Enabled	Modern ICT services are well positioned to expand the reach of the extension service provider with high quality, up to date, relevant content. Examples include radio, IVR, SMS, videos and print media.

Exercise

1. At your table are models of EAS systems. As a group, examine the differences in the systems and evaluate them based on the criteria we just discussed. Are they farmer-led, financially sustainable, etc.?
2. As you review each EAS system, select one that most closely fits your case study and then evaluate it based on all of the 8 hallmark criteria.
3. Decide what changes to the model you selected would be needed to enhance its potential for success and sustainability. You can use the full set of possible actors (public, private, civil society organizations, NGOs, etc.) to make it as sustainable as possible using these criteria.
4. We will come back together in 15–20 minutes to discuss. Please have someone ready to report out for your group.

Reflection

Take a few minutes to think about the agricultural innovation system – and especially extension actors – and the information and resource flows in the local sector for your Mission portfolio.

1. How does information, resources and funding flow within that system?
2. Where/with whom do they begin and end?
3. What connections need to be made/strengthened/supported between and among actors in that system?
4. What changes might be beneficial in the flow of information, resources and funding?
5. What tools might be helpful in disseminating innovation within that system?

Term	Definition
Extension	First used to describe adult education programs in England during the second half of the 19th century. These programs helped extend the work of universities beyond the campus and into neighboring communities. In the early 20th century, this extension function was transferred to the Ministry of Agriculture and renamed as "advisory services." The term "extension" was adopted in the United States during the late 19th century and integrated into the Land Grant Universities as a central function of these institutions and in their role as partners in the cooperative extension system.
Agricultural Extension	Once known as the application of scientific research, knowledge and technologies to improve agricultural practices through farmer education. The field of extension now encompasses a wider range of communication and learning theories and activities (organized for the benefit of rural people) by professionals form different disciplines. There is no generally accepted definition of agricultural extension, but the one provided above is widely used and is the one promoted by the Global Forum for Rural Advisory Services, GFRAS. There are different schools of thought about how agricultural extension systems should be organized and function.
Advisory Service(s)	Commonly used as an alternate for "extension services." These systems involve a broad spectrum of market and non-market entities, and agents are expected to provide useful technical information about new technologies that can improve the income and welfare of farmers and other rural people. Apart from their conventional function of providing knowledge and technology to improve agricultural productivity, agricultural advisory services are also expected to fulfill a variety of new functions, such as linking smallholder farmers to high-value and export markets, being inclusive and sensitive to the needs and unique challenges of women in agriculture, promoting environmentally sustainable production techniques, adapting to climate change, and coping with the effects of HIV/AIDS and other health challenges that affect rural people.
Pluralistic Extension	Encompasses a range of service providers, approaches, funding streams, and sources of information available to farmers and clients. This model can allow farmers the opportunity to choose the most appropriate extension services and providers for their needs. Collaborating extension service providers could include governments/public systems, private companies, international or domestic non-governmental organizations, non-affiliated community extension workers, or other actors (World Bank 2012). Governments or public extension systems often serve as facilitators and help coordinate extension actors to deliver services that utilize the relative strengths of each entity. When pluralistic systems work well, they are well equipped to deal with the diversity of conditions, needs, audiences, and farming systems that make up the

	agricultural landscape by providing an equally diverse array of services and service providers. (Feder, Willet and ZiJp, 1999)
Extension Functions	• Raise general awareness of opportunities • Provide mass advisories • Provide technical information, demonstrate or train • Diagnose problems and recommend solutions • Respond to follow up questions raised by clients • Facilitate access to credit and inputs • Assist with business planning • Linking farmers to markets • Knowledge management • Conduct surveys, enumerations, or for monitoring and evaluation

Resources

Developing Local Extension Capacity (DLEC). https://www.digitalgreen.org/connect/usaid-dlec/

Integrating Gender and Nutrition within Agriculture Extension Services (INGENAES) http://www.meas-extension.org/home/associate-awards/ingenaes and http://ingenaes.illinois.edu/

Modernizing Extension and Advisory Services (MEAS). http://www.meas-extension.org/

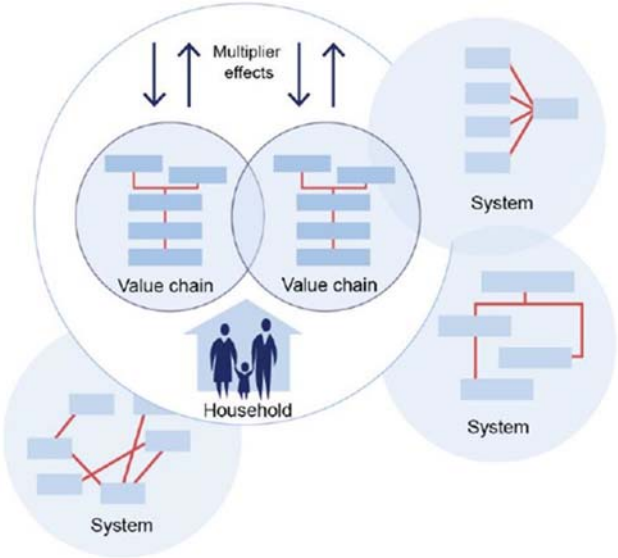
Global Forum for Rural Advisory Services. http://www.g-fras.org/en/

Market Systems and Value Chains

Challenges

Strengthening Market Systems

Value Chain Approach



Guiding questions

1. In which end markets and commodities do small-scale producers in the targeted regions and/or demographics have, or could they have, a competitive advantage?

2. What is the current state of cross-agricultural market functions, including inputs systems, logistics and transport, infrastructure, information services, financial services and other relevant elements of the formal and informal enabling environment?

3. What is the capacity of research, education, and extension systems (including both public and private actors) to support innovation across the agricultural market?

4. Implementing Through Facilitation

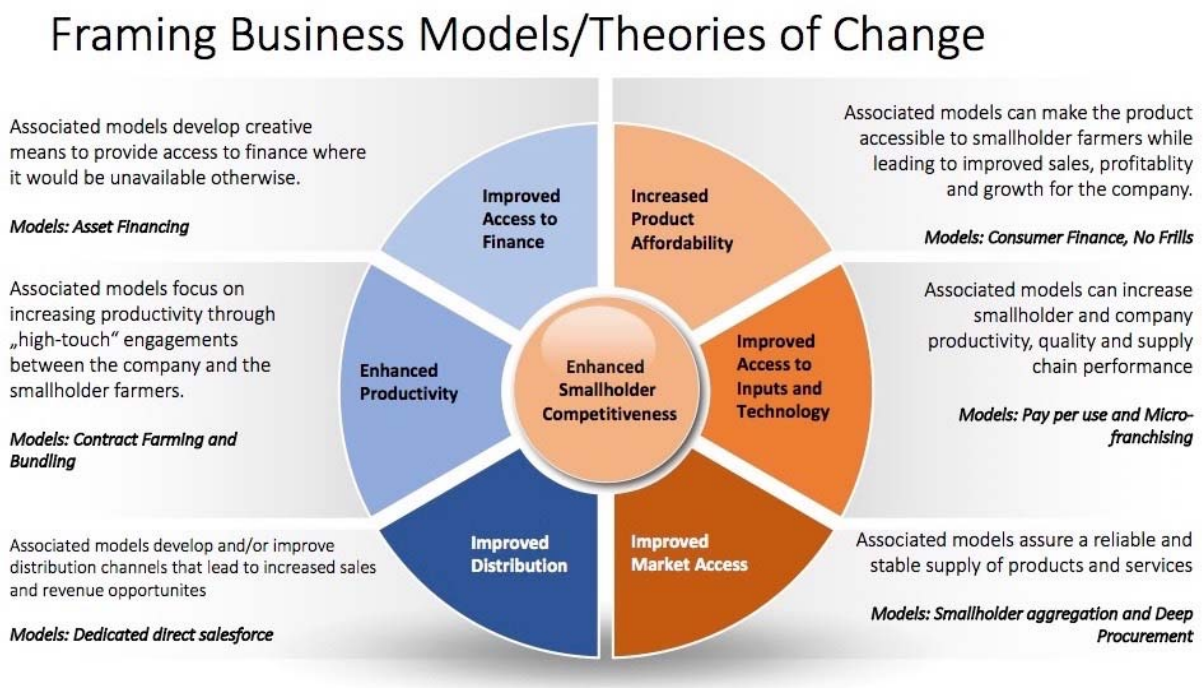
Term	Definition
Value Chains	One way actors organize themselves is within market systems. Value chains refer to the actors and functions connected by a series of value-addition transactions from production to consumption for provision of particular goods and services. A value chain for dairy, for instance, may include input suppliers, farmers, processors, traders, wholesalers, and national retailers selling into end markets. Value chains, in turn, depend on "cross-market functions," such as veterinary, cold chain, and financial services and the broader enabling environment, including policies and regulating safety standards and social and cultural norms that affect access to resources.
Value Chain Programming	Recognizes the importance of market systems and value chains in creating sustainable opportunities for small-scale producers, SMEs and others. Market systems changes that affect value chains can catalyze new market value opportunities that result from gains in primary productivity on farm, value preservation and addition, and new relationships formed in the marketplace where private investment meets opportunity. It refers to efforts to strengthen the relationships across actors in ways that make value chains more competitive, resilient and inclusive.
Market Systems	Spaces in which private and public actors collaborate, coordinate, participate and compete for the production, distribution and consumption of goods and services at local, regional and international levels. Small-scale market-oriented producers seek improved inputs and buyers with a market systems context to make their production profitable. Small and medium-sized enterprises (SMEs) explore how to provide marketable goods and services. Workers labor across farms and other rural enterprises. Households purchase foods and other necessities. A critical market system actor is the consumer, whose demand largely helps ensure the sustainability of markets. (GFSS Technical Guidance, Market systems and Value Chains)
Inclusive Market Systems Approach	Using value chain principles, this approach relies on facilitation of a local system; the interconnected sets of actors, including governments, civil society, the private sector, universities, individual citizens and others.
Inclusive Market System Development	The objective is to catalyze a process that results in a market system that is: *Competitive* – system actors are able to effectively innovate, upgrade and add value to their products and services to match market demand and maintain or grow market share *Inclusive* – delivering a sustainable flow of benefits to a range of actors, including the poor and otherwise marginalized, as well as to society as a whole *Resilient* – system actors are able to address, absorb and overcome shocks in the market, policy environment, resource base or other aspects of the system (A Framework for include market system development)
Market Systems Orientation	Implies that all interventions be designed with a market demand in mind but also that such systems accommodate multiple input and output value chains that complement each other. Thus, a market systems approach, like a

	production systems approach, goes beyond a single commodity or value chain and seeks to harness and foster complementarity and momentum that more efficiently link producers to market actors (service providers, aggregators, transporters and processors) to consumers. In aggregate, profit incentive and improved policy help improve predictability and transparency, attracting additional investment and strengthened market systems (GFSS Technical Guidance, Objective 1)
Light Tough Programming	In a market systems approach, programming focuses on efforts that facilitate sustainable market development and leverage relationships across market actors instead of directly intervening in particular value chains. Programming thus strives to sustainably develop the capacity of local actors to take advantage of opportunities, respond effectively to shocks and stresses, and solve their own problems. Programming also addresses systemic constraints that can unlock growth in multiple value chains by intervening in, for example, cross-market input supply systems, information services, financial services, logistics and enabling environment.
Enabling Environment	Consists of all formal and informal rules that help define the context within which decision-makers operate. Examples of significant influences in the enabling environment range from international food safety standards to national trade policy, inflation rates, natural disasters, municipal regulations and cultural.
Supporting Markets	Includes firms and organizations that provide business support services to firms in the value chain. Many are cross-cutting services, such as financial transportation and communication services, in that they provide services to firms in more than one value chain. Other supporting markets are sector-specific, such as firms providing technical advice and specialized services.
Vertical Linkages	Market and non-market interactions and relationships between firms performing different functions (i.e., operating at different levels) in the value chain. (from Expanded markets, Value Chains, and Increased Investments, p. 13)
Horizontal Linkages	Market and non-market interactions and relationships between firms performing the same function (i.e., operating at the same level) in the value chain. (from Expanded markets, Value Chains, and Increased Investments, p. 13)
Value Chain Governance	“The inter-firm relationships and institutional mechanisms through which non-market coordination of activities in the chain takes place. This coordination is achieved through the setting of enforcement of product and process parameters to be met by actors in the chain.” (from Expanded markets, Value Chains, and Increased Investments, p. 13)
Components of Market Systems	All market systems have vertically- and horizontally-linked firms, and the relationships embedded in these linkages, end markets, input and support service markets; and the environment in which they operate, which may

	include social-cultural, geographic and political factors, infrastructure and institutions.
GFSS Vision/Endpoints	Aim for agricultural growth that is inclusive and sustainable; facilitating inclusive and sustainable agricultural growth lifts people out of extreme poverty and hunger, giving them the ability to move beyond subsistence and engage in their local, national and/or global economies. All partners and collaborators need to focus their efforts toward this objective.

Private Sector Engagement

"There are literally trillions of dollars that could be mobilized for development if we learn to better leverage partnerships, catalyze private-sector investments and amplify the efforts of foundations and non-profits." – Mark Green, USAID Administrator, testimony to congress



Exercise

Briefly review the case study. As a group:

- Analyze partnership.
- Identify stakeholders.
- Identify business model (private sector) and theory of change (USAID).
- What were the issues/obstacles/imperfections of the partnership?
- Where all the right stakeholders at the table?
- How would you renegotiate or what would you do differently?
- Draft the structure of a new partnership and provide your reasoning for how it's an improvement on its predecessor?

Resources

GFSS Technical Guidance on Market Systems and Value Chain Programming https://feedthefuture.gov/sites/default/files/resource/files/GFSS_TechnicalGuidance_MarketSystemsValueChains.pdf

GFSS Technical Guidance on Private Sector Engagement. https://feedthefuture.gov/sites/default/files/resource/files/GFSS_TechnicalGuidance_Private%20Sector%20Engagement.pdf

GFSS Technical Guidance on Agriculture Trade. https://feedthefuture.gov/resource/global-food-security-strategy-technical-guidance-trade

Fintrac, Partnering for Innovation. http://www.partneringforinnovation.org/docs/Fintrac_PIModels_Toolkit_14Oct14_fin_web.pdf

Field Report No 18: Smallholder and Inclusive Growth in Agriculture Value Chains, see participant's manual. https://www.microlinks.org/library/field-report-no-18-smallholders-and-inclusive-growth-agricultural-value-chains

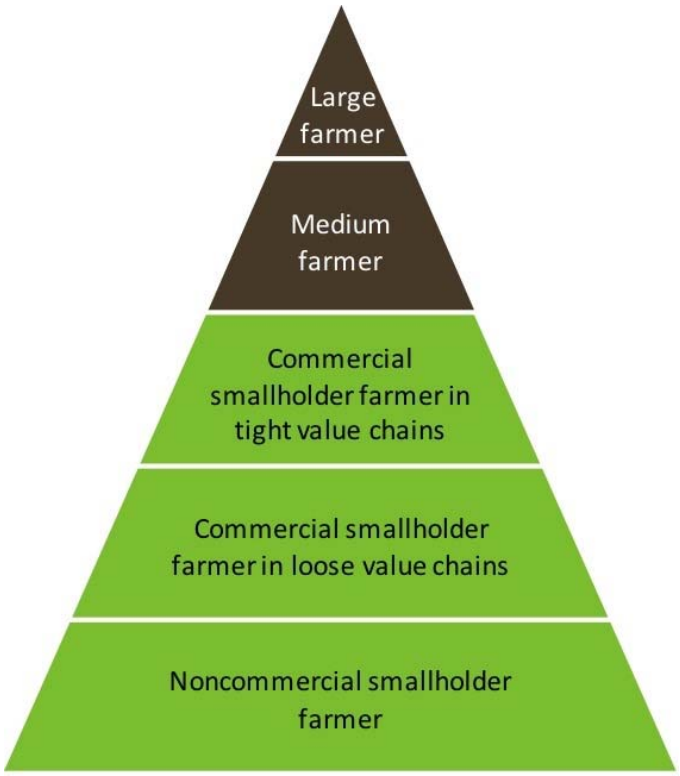
A Framework for Inclusive Market System Development. https://www.enterprise-development.org/wp-content/uploads/Market_Systems_Framework.pdfValue Chain Wiki https://www.microlinks.org/good-practice-center/value-chain-wiki/key-information-those-new-value-chain-approach

Developing Your Activity Theory of Change and Results Framework Session 2 https://agrilinks.org/sites/default/files/pm_course_power_point_session1-9_1.pdf

Illustrative Statement of Work for Market Systems and Value Chains Selection Analysis.https://docs.google.com/a/usaid.gov/document/d/15XvimEsO6cxenAtYGu-6VPuXOB5io5Wlio0DRzlJ59o/edit?usp=sharing

LEO Brief Designing a Value Chain Project. https://www.microlinks.org/sites/default/files/resource/files/Designing_a_VC_project.pdf

Notes


Large farmer
Medium farmer
Commercial smallholder farmer in tight value chains
Commercial smallholder farmer in loose value chains
Noncommercial smallholder farmer

Exercise

On the following page, you will find a blank Financial Tools Table. Together you will be completing tables similar to this on your flip charts. Your group will be completing three charts in this exercise.

Chart 1: Identify Multiple Instruments within Debt-Based and Non-Debt-Based.

1. Brainstorm various instruments and divide the financial instruments in the follow 3 categories:
    a. Producer productivity
    b. Firm growth
    c. Risk management/resilience

These can be instruments you have used, heard about, or what to use and would like to know more about.

Chart 2: Lessons Leaned

1. Number the instruments on your first chart
2. Using only instruments that you have used, provide the number of the instrument and record lessons you learned.
3. Think from the perspective of what you want someone else to know before they get started
4. If you are willing, add your name to the lesson learned, so others can follow up with you.

Chart 3: Challenges

1. Using the same number references, list challenges you encountered and how they deterred the implementing financial components.
2. At the bottom of the chart, or on another chart if necessary, list questions would you like to ask others who have faced similar challenges and successfully navigated them.

Galley Walk Notes

Financial Tools Table

	Productivity Enhancing	Growth Enhancing	Resilience Enhancing
Debt-Based Instruments			
Non Debt-Based Instruments			

Resources

GFSS Technical Guidance – Finance: Unlocking Capital Flows. https://feedthefuture.gov/resource/global-food-security-strategy-guidance-finance

Inflection Point: Unlocking Growth in the Era of Farmer Finance, Initiative for Smallholder Finance, 2016. https://www.raflearning.org/sites/default/files/inflection_point_april_2016.pdf?token=OS8hc14U

National Survey and Segmentation of Smallholder Households in Tanzania, CGAP, May 2016. https://www.cgap.org/sites/default/files/Working-Paper-Smallholder-Survey-Tanzania-May-2016.pdf

Study on Mapping the Market Potential and Accelerating Finance for Women Entrepreneurs in Bangladesh, IFC, 2016. http://documents.worldbank.org/curated/en/354971490957587126/pdf/113908-WP-IFC-600234-PUBLIC-Abstract-sent.pdf

A Roadmap for Promoting Women's Economic Empowerment. http://www.womeneconroadmap.org/sites/default/files/WEE_Roadmap_Report_Final_1.pdf

Reflection

"Walk gently and be brave." – Eleanor Brownn

What is one thing you can apply or would like to apply immediately to a current project?	**How do you anticipate it having a positive impact?**
How has this information challenged your assumptions?	**Who in the group here might you talk with about this challenge or idea, considering their experience, expertise?**

Review for Tomorrow

Case Studies

Day 5

Data and Analysis

Notes

U.S. GLOBAL DEVELOPMENT LAB

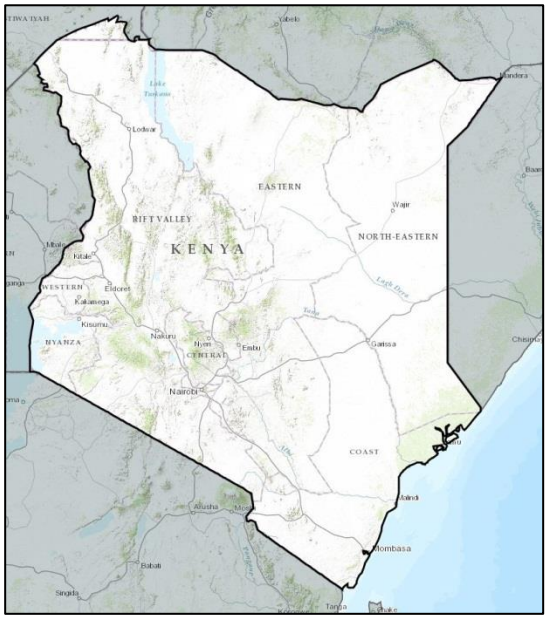
GEOCENTER

GIS Training, Hands-On Exercise 1

Kenya: Improving Resilience to Expanding Tsetse Fly Distribution

The effects of global climate change are causing the rapid expansion of Tsetse flies in Kenya. Tsetse flies feed on both cattle and humans, leading to the most common cause of two fatal diseases: Human African Trypanosomiasis, also referred to as sleeping sickness, and Nagana, a disease that afflicts cattle.

To reduce the increased incidence of this disease, the Kenya Mission is designing a Project that will incorporate a set of activities focused on:



1. Siting Tsetse fly traps;
2. Providing preventative care training to health clinics;
3. Building new clinics in high risk areas.

Part 1

Step 1

Using the data you have collected, identify the areas where there is greatest concentration of development need and in which your interventions will achieve the greatest measurable impact.

Step 2

Your total budget for these activities is $25 million! Strategically allocate your resources for each activity by prioritizing among the areas that you identified in the steps above. Using the colored stickers provided, depict where you will allocate your funding according to the following:

Red Sticker = $10 million
Yellow Sticker = $5 million
Blue Sticker = $1 million

Step 3

As you allocate funding to priority locations, determine what type of activity will be implemented there and why it will be effective in addressing the type of development need that identified in that area.

Part 2

Discuss the following questions with your team:

1. Where did you get the data that you used?

2. What background information about the data layers would be beneficial?

3. What additional data would useful in the process of identifying areas of high priority?

Part 3

Present your findings to the group and be prepared to discuss the following questions:

1. How did you decide which areas were in greatest need?

A. Which data did you use?
B. Where did you get this data?
C. What other data would have been helpful during this process?
D. What background information about this data would be beneficial?

2. How did you prioritize the areas that received your funding?

3. How did you determine the locations in which you will implement the three different types of activities?

4. How did using geographic data and maps affect the decision-making process for your team?

U.S. GLOBAL DEVELOPMENT LAB

GEOCENTER

Applying the Geographic Approach to Development

Bangladesh: Improving Resilience to Contaminated Groundwater

Consuming arsenic-contaminated food and beverages has adverse health effects on humans, ranging from skin lesions to cancer. USAID/Bangladesh has concluded that increasing resilience to this persistent problem will greatly complement the programming currently allocated to Water, Sanitation, and Hygiene (WASH) activities. These cross-cutting efforts intend to reduce vulnerability to arsenic poisoning while enhancing WASH outcomes.

To reduce prolonged exposure to and consumption of arsenic contaminated groundwater, USAID/Bangladesh is designing a project that will incorporate a set of activities focused on:

1. Preventative education and awareness training;
2. Community-level physical and chemical filtration systems;
3. New access points that ensure safety and improve resilience (e.g. multiple use water distribution schemes, rainwater harvesting)

Part 1: Identifying the development need

Step 1: Using the data products your GIS specialist created, identify areas with the greatest concentration of development need and determine which of your interventions will achieve the greatest measurable impact in different locations across the country.

Step 2: Your total budget for these activities is $25 million! As you strategically allocate funding to priority locations, determine how much of your budget will be implemented in each area and decide why it will be effective in addressing the type of development need that you identified in that area. Using the colored Post-its provided, depict where and how much of your funding you will allocate according to the following:

Orange Post-it = Preventative education training
Yellow Post-it = Household-level filtration systems
Blue Post-it = New access points for rainwater harvesting.

Prepare to use the data to defend your decisions to the group in a short presentation.

Part 2: Exploring your data

Discuss the following questions with your team:

1. Where did you get the data that you used?

2. What background information about the data layers would be beneficial?

3. What additional data would useful in the process of identifying areas of high priority?

4. What pieces of data were most/least useful? Why?

Part 3: Justifying your decisions

Present your findings to the group and be prepared to discuss the following questions:

1. How did you decide where the greatest need was?
    A. What data did you use?
    B. Where did you get this data?
    C. What other data would have been helpful during this process?
    D. What background information about this data would be beneficial?

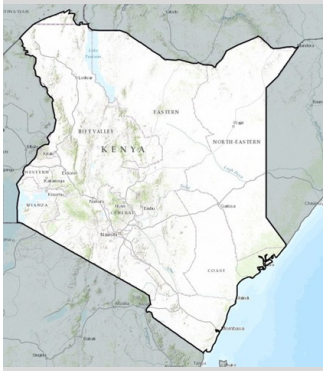
2. How did you prioritize the areas that received your funding?

3. How did you determine the locations in which you will implement the three different types of activities?

4. How did using geographic data and maps affect the decision-making process for your team?

2014 KENYA HEALTH REPORT

EXPANDING TSETSE FLY DISTRIBUTION CAUSES INCREASED THREAT TO HUMANS

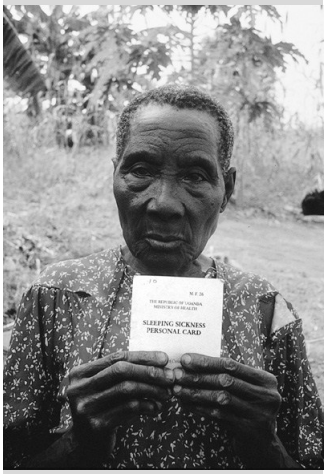


OVERVIEW

Each year in Africa the tsetse fly causes more than US$4 billion in agriculture income losses, kills three million livestock and infects up to 75,000 people with trypanosomiasis (UN). Tsetse flies, through the cyclical transmission of trypanosomiasis to both humans and their livestock, greatly influence human health, food production, natural-resource utilization, and the pattern of human settlement throughout much of sub -Saharan Africa (Hursey).

THE IMPACT ON KENYA

The effects of global climate change are causing the rapid expansion of Tsetse flies in Kenya. Tsetse flies feed on both cattle and humans, leading to the most common cause of two fatal diseases: Human African Trypanosomiasis, also referred to as sleeping sickness, and Nagana, a disease that afflicts cattle. Humans and cattle acquire trypanosomiasis following the bite of a tsetse fly infected with the protozoa *Trypanosoma brucei*. The disease manifests itself when and where humans and their livestock are placed at risk of infection which generally occurs in areas where crop production, rainfall, cattle, and humans are most concentrated.



In Kenya, the recent impact of tsetse flies on both human and livestock is primarily concentrated in the districts of the following areas:

Central County, Nairobi County, Nyanza County, the southern-central area of Rift Valley County, and Western County. The alarming rate of tsetse fly expansion is beginning to impact other areas throughout the nation.

LOOKING AHEAD

To mitigate further impact, it is critical that a coordinated effort is implemented to control the expansion of tsetse flies and their effect on the health of humans and animals as well as Kenya's overall economic prosperity. This effort should include but not be limited to setting tsetse fly traps, providing preventative training in health clinics, and building new health clinics in priority areas.

2016 BANGLADESH HEALTH REPORT

ARSENIC IN DRINKING WATER PERSISTS

OVERVIEW

The most densely populated country in the world, Bangladesh is home to 162 million people -- many of whom (between 35 - 75 million) are at risk to arsenic exposure in drinking water. To put it in context, the World Health Organization (WHO) says "the scale of this environmental disaster is greater than any seen before; it is beyond the accidents at Bhopal, India, in 1984, and Chernobyl, Ukraine, in 1986." Though progress has been made in recent years, high levels of arsenic in drinking water are still a problem. Additionally, despite aggressive campaigns to clearly mark contaminated tube-wells with red X's, many people still use the tainted wells.

THE IMPACT ON BANGLADESH

Arsenic contamination in groundwater has been a persistent public health issue in Bangladesh. Arsenic is a naturally occurring element located in the earth that can seep into groundwater. When tube-wells access underground water aquifers, they are particularly susceptible to arsenic contamination. In the 1970s, millions of tube-wells were installed to provide an alternate source to surface water contaminated with diarrhea-causing microbes. Unfortunately, the water in these wells was not tested for arsenic, resulting in millions of people exposed. Arsenic is tasteless and odorless but can be easily detected with field kits and in the laboratory.

Bangladesh's exposure to unsafe levels of arsenic contamination in drinking water is consistently cited by public health experts as a long-term source of vulnerability to health problems.

LOOKING AHEAD

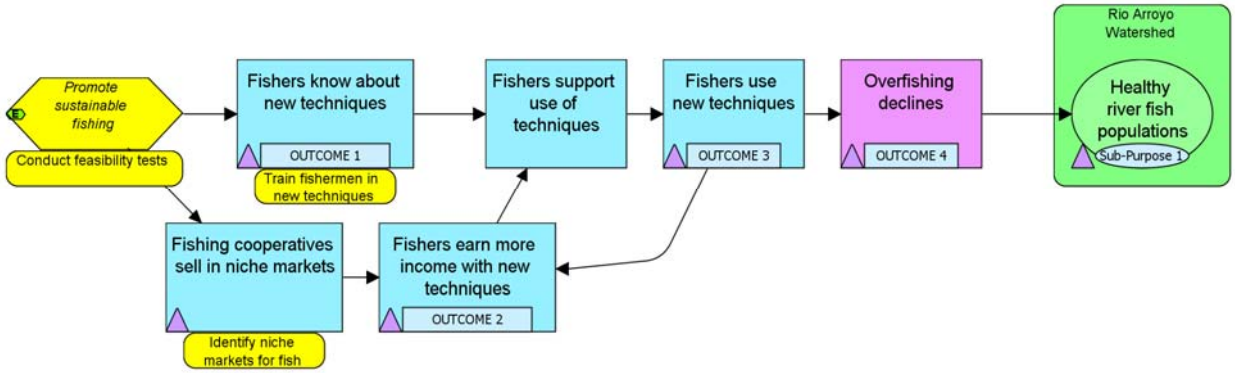
Divisions with the highest number of reports of arsenic poisoning are: Khulna, Barisal, Chittagong, Rajshahi and Sylhet.

WHO has implemented a renewed response effort in the north of Chittagong division. To reduce additional exposure, it is critical to coordinate efforts among donors to increase resilience across communities. This effort should include but not be limited to increased education and preventative awareness training, community water filtration resources, and construction of multi-use water distributions systems that include rainwater harvesting systems in priority areas.

Monitoring and Evaluation

Results Chain

- Results oriented graphic representations of a theory of change
- Useful to assess the appropriateness of strategic approaches and actions
- Dynamic tool that assists in adaptive management
- Only as good as the information and effort that goes into developing them



Outcome Statement:

A formal statement that defines in specific terms what a design team hopes to achieve for the selected key results.

Exercise

Each person or small group will need:

1. Chart paper
2. Envelope of colored pieces
3. Double stick tape
4. Black Thin marker

Developing a results chain for a project of your choice

Select a project at any stage of implementation. You may choose to develop a results chain for an anticipated project. Developing a results chain for a project that has already been awarded and is currently being implemented can contribute to insights useful for monitoring and evaluation.

Note: if you are considering a complex project with multiple objectives, select just one objective to focus on for the exercise.

1. Develop the logic of the results chain, articulating the theory of change while minimizing gaps and assumptions.
2. Add the activities that should be implemented to achieve each result, continuing to assess their logic and considering the possibility of unintended consequences.
3. Add the monitoring components (outcome statements and indicators) to the results chain.

You may choose to draft your results chain on the backside of this page before building your final version on the colored pieces.

Position your colored pieces on the chart paper representing the different results chain elements on the chart paper. Be sure to label each piece clearly. When you are fairly certain of where each element is in relation to the others, adhere the colored shape pieces to the chart paper.

Check your results chain with others to ensure the purpose of the program is clearly articulated, the programming logic is clear, and indicators are adequate to inform a measureable understanding of programmatic results and progress.

Using Situation Models and Results Chain-Based Theories of Change in USAID Food Security Programming

(adapted from materials produced by USAID's Office of Forestry and Biodiversity)

RESULTS CHAINS-ASSISTED MONITORING

KEY MESSAGES

- Proper selection of key results from a results chain will assist in testing a program's theory of change and practicing adaptive management.
- A well-articulated outcome statement for a key result will give design teams a good indicator.
- Indicators should originate from a theory of change, not a pre-set list of indicators.
- Only good indicators derived from well-selected key results will serve multiple purposes (monitoring, reporting, evaluation, and learning).
- Results chain-based monitoring complies with USAID's Program Cycle.

KEY TERMS

A **theory of change** is a description of the logical causal relationships among a strategic approach and multiple levels of conditions or interim results needed to achieve a long-term result.

A **results chain** is a diagram or graphic representation of a theory of change.

IDENTIFYING KEY RESULTS AND INDICATORS FROM RESULTS CHAINS

Using a **results chain** enables design teams to select indicators directly tied to their (sub) purposes and outcome statements to measure the achievement of key results explicitly laid out in their theory of change. This approach supports the development of relevant and useful indicators.

Step 1 – Revisit the program purpose and sub-purpose(s)

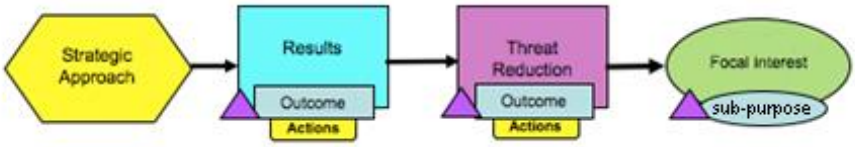
Step 2 – Select key results from the result chain

Step 3 – Write outcome statements for the key results

Step 4 – Define indicators from the outcome statements

Step 5 – Review indicators and add others as needed

RESULTS CHAIN WITH MONITORING COMPONENTS



Focal Interest (Impact): The desired status of the biodiversity focal interest that the program has chosen to focus on

Threat Reduction Result: The targeted status of a specific threat

Result: Preliminary or interim results organized sequentially with the goal of achieving a threat reduction result

Strategic Approach: A set of actions with a common focus that work together to achieve a series of results in a results chain

Action: A specific intervention or set of tasks undertaken in order to reach one or more results

Outcome Statement: A detailed description of a desired key result

Indicator: A measure of a particular characteristic or dimension of a program's results (purple triangle)

USAID CATEGORIES OF INDICATORS

Performance Indicators can include:

- **Standard Foreign Assistance Framework ("F") Indicators**: Indicators used in the annual Performance Plan and Report required of all State and USAID Operating Units that program U.S. foreign assistance. Some are required, others are recommended. As of December 2015, there are no required biodiversity standard indicators.
- **Custom Indicators**: Indicators selected at the Mission level that are relevant within that setting for measuring performance.

CRITERIA FOR OUTCOME STATEMENTS

1. **Results-Oriented** – Represents necessary changes in critical threat, driver, and opportunity factors that affect one or more biodiversity focal interests
2. **Time-Limited** – Achievable within a specific period of time
3. **Measurable** – Definable in relation to some standard scale
4. **Specific** – Clearly defined so that all involved in the program have the same understanding of what the terms mean
5. **Practical** – Achievable and appropriate within the context of the program site, and in light of the political, social, and financial contexts

CRITERIA FOR INDICATORS

1. **Measurable** – Can be recorded and analyzed in quantitative and qualitative terms
2. **Precise** – Defined the same way by all people
3. **Consistent** – Does not change over time; always measures the same thing
4. **Sensitive** – Changes proportionately in response to the actual changes in the condition being measured
5. **Objective** – Conducive to impartial and independent data collection, management, and analysis
6. **Practical and Useful** – Data measured will be useful for management decision-making
7. **Disaggregated** – Can be disaggregated by gender, age, location, or other relevant dimensions

USES

Mission staff can use the entire results chain, outcomes, and associated indicators to:

- Monitor implementation of the project and mechanisms
- Link mechanism-level monitoring to project- and PMP-level monitoring
- Inform preparation of annual PPRs and contributions to Portfolio Reviews

Implementing Partners can use the results chains, outcomes, and indicators to:

- Prepare work plans
- Inform their annual and quarterly reporting to USAID
- To communicate unexpected results or developments

Using Situation Models and Results Chain-Based Theories of Change in USAID Food Security Programming

(adapted from materials produced by USAID's Office of Forestry and Biodiversity)

RESULTS CHAINS-BASED THEORIES OF CHANGE

KEY MESSAGES

Result chains are:

- results-oriented, with selected actions linked to specific results
- good at making a theory of change's assumptions explicit
- useful to assess the appropriateness of strategic approaches and actions
- a dynamic tool that assists in adaptive management
- supportive of the USAID Program Program Cycle
- a great communication tool, but but still need narrative explanations
- only as good as the information and effort that goes into developing them

KEY TERMS

A **development hypothesis** describes describes the theory of change, logic, and causal relationships among the building blocks needed to achieve a long-term result.

A **theory of change** is a description of of the logical causal relationships among a strategic approach and multiple levels of conditions or results needed to achieve a long-term result. It can be presented in text or diagrammatic form, or both.

A **results chain** is a diagram or graphic representation of a theory of change.

DEVELOPING A RESULTS CHAIN FROM A SITUATION MODEL

Step 1 – Define the purpose and sub-purpose(s) statements

Step 2 – Select and separate relevant components from the situation model (SM)

Step 3 – Add key missing drivers (if needed)

Step 4 – Brainstorm strategic approaches (SAs)

Step 5 – Prioritize strategic approaches

Step 6 – Select and separate prioritized SA components

Step 7 – Convert selected SA components into desired results

Step 8 – Re-think results logic and add important missing results

Step 9 – Add selected actions (as needed)

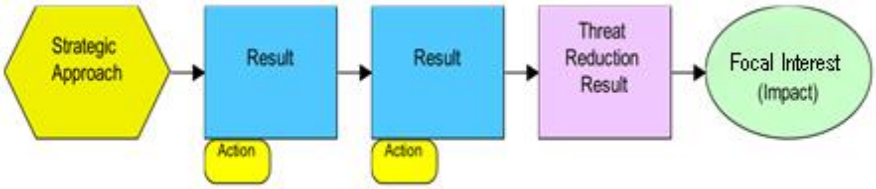
Step 10 – Verify results chain criteria

Step 11 – Link to other SAs to clarify logic (as needed)

Step 12 – Add critical assumptions (if needed)

Step 13 – Are they the right strategic approaches?

CORE COMPONENTS



Focal Interest (Impact): The desired status of the food security-related focal interest that the program has chosen to focus on

Threat Reduction Result: The targeted status of a specific threat

Result: Preliminary or interim results organized sequentially with the goal of achieving a threat reduction result

Strategic Approach: A set of actions with a common focus that work together to achieve a series of results in a results chain

Action: A specific intervention or set of tasks undertaken in order to reach one or more results

RESULT CHAINS SUPPORTING THE USAID PROGRAM CYCLE

- Supports brainstorming and prioritization of strategic approaches with a focus on results, not actions
- Builds an articulation of the theory of change
- Documents assumptions
- Defines the expected results at multiple levels (purpose, sub-purpose, etc.)
- Assists in defining realistic timeframes
- Serves as a framework for collaboration, learning and adapting
- Supports identification of the conditions under which strategic approaches work, do not work, and why (learning)

RESULTS CHAIN CRITERIA

1. **Results-oriented:** Boxes contain desired results (e.g., reduction of hunting), and not actions (e.g., conduct a study).
2. **Causally linked:** There are clear connections of if/then between each pair of successive boxes.
3. **Demonstrates change:** Each box describes how you hope the relevant factor will change (e.g., improve, increase, or decrease).
4. **Reasonably complete:** There are sufficient boxes to construct logical connections but not so many that the results chain becomes overly complex.
5. **Simple:** There is only one result per box.

RESULTS CHAIN DESIGN TIPS

- Design team members proactively identify and fill out information gaps.
- Encourage innovation when brainstorming strategic approaches.
- Reduce the number of strategic approach ideas by groupings, merging, nesting, editing, and clarifying.
- When prioritizing strategic approaches, consider feasibility and potential impact as criteria.
- Complement the results chain with narrative explanations.
- Document discussion highlights and decisions.
- Keep it simple: Retain a manageable balance of results and actions.

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USING SITUATION MODELS IN FOOD SECURITY PROGRAMMING

KEY MESSAGES

Situation models can help:

- Bring key findings from assessments and analyses together
- Identify gaps in knowledge and areas for additional assessment
- Promote collaboration and build a common understanding of context with stakeholders
- Get broader context of where USAID programs and partners are working
- Provide tools to communicate with and engage donors, partners and stakeholders
- Organize and distill information that goes into a problem analysis
- Synthesize and prioritize complex information in a simple, visual form that illustrates the interrelation of factors in a problem scenario

KEY TERMS

Situation Model: A diagram or graphic representation of the problem analysis that portrays:

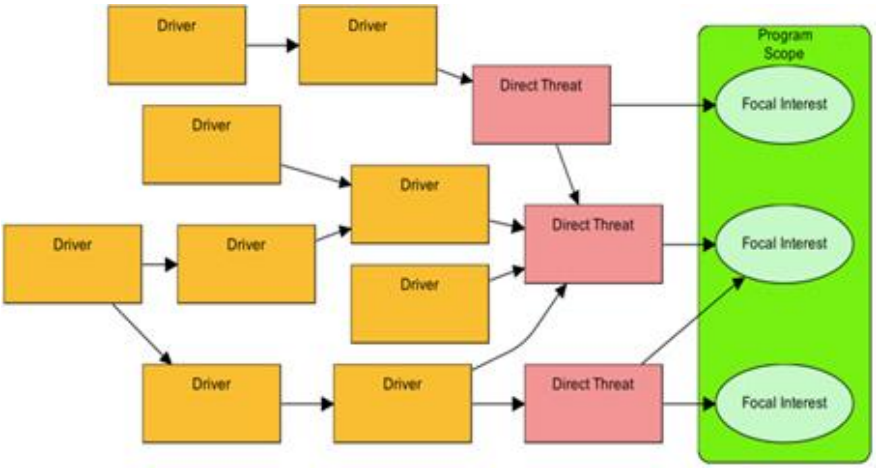
- the program's food security-related focal interests
- the major forces that influence the focal interests
- the causal relationships among those forces.

Problem Analysis: A process that helps design teams create a common understanding of the program's context and the factors that affect the program's focal interests.

OVERVIEW OF SITUATION MODEL DEVELOPMENT

Step 1 – Assemble team with range of stakeholders included
Step 2 – Define the program scope
Step 3 – Define focal interests (desired impacts)
Step 4 – Identify agricultural and human well-being focal interests
Step 5 – Define and rate threats (or proximate determinants)
Step 6 – Define drivers
Step 7 – Discuss, complete and document model
Step 8 – Use and revise the situation model

CORE COMPONENTS



Program Scope: Definition of the broad parameters or rough boundaries (geographic or thematic) for where or on what a food security program will focus

Focal Interest: An element of food security, within the defined program scope, on which a program or project will focus

Direct Threat: A human action or unsustainable use that immediately degrades one or more food security focal interests

Driver: A constraint, opportunity, or other important variable that positively or negatively influences direct threats

Constraint Driver: A factor that contributes to direct threats and is often an entry point for programmatic actions. Also called a "root cause" or "indirect threat"

Opportunity Driver: A factor that potentially has a positive effect on food security interests, directly or indirectly; often an entry point for programmatic actions

SITUATION MODEL DESIGN TIPS

- Design team members should proactively identify and fill out information gaps
- Ensure the scope uses CDCS Results Framework language
- Ensure food security focal interests are clear and discrete
- Focus on prioritized threats
- Don't mix proposed solutions into this model.
- Complement the situation model with narrative explanations
- Document discussion highlights and decisions
- Keep it simple: Retain a manageable balance of relevant factors and key causal relationships

USAID USES

- To identify additional assessments needed to complete the problem analysis
- As a communication tool with stakeholders
- To inform design of projects and activities
- To inform procurement of a mechanisms
- To assist program adaptive management
- To develop the theories of change and strategic approaches needed to address the problem

Mechanism Faire

Notes

Case Study Application

Return to your initial questions and observations of the programs and projects and how they might meet desired targets and outcomes.

1. What have you had answered?
2. What new questions did it raise?
3. How do we learn from our monitoring?
4. How did you identify integration that could lead toward meeting desired results?

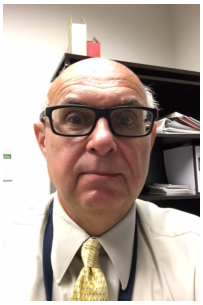
Review actual mid-term reports.

1. What aligned with your expectations?
2. Based on your learning this week, how would you respond with an Implementing Partner regarding some of the data you received and how it did or didn't document practices?
3. What surprised you and why?
4. What might you advise this project?
5. How does what you know now change your approach to program planning?

Prepare to share out your key findings and what key points you would emphasize with the implementing partner, based on your learning this week.

Biographies

Mark Visocky



Mark Visocky is an Agronomist on the Climate-Smart Agriculture team in the Bureau for Food Security and has been with USAID for 13 years, working in Bangladesh, Guatemala, Iraq and Malawi. He has been with Feed the Future from its inception and was a key author for the Feed the Future programs in both Bangladesh and Malawi. In addition, he significantly reshaped Guatemala's Feed the Future program to better address climate change and nutrition. Mr. Visocky holds a B.S. in Agronomy from the University of Wisconsin and an M.S. in Plant and Soil Science from Texas A&M University.

Daniel Bailey

Daniel Bailey joined USAID as an Agriculture Development Officer in 2012 and served his first post in Guatemala managing projects in soil management, farm-level resilient maize breeding, and home garden irrigation. He is now managing the Peanut and Mycotoxin Innovation Lab in the Bureau for Food Security Office of Agriculture Research and Policy. He has a Master's Degree in Water Resources Engineering from Oregon State University.

Barakat Mahmoud

Dr. Mahmoud is a Training Specialist at the USAID Bureau for Food Security. Prior to that, he was an Associate/Assistant Professor & Food Safety Extension Specialist at MSU, held a Postdoctoral Research Associate position at Purdue University, was a visiting scientist at University of Lisbon (Portugal), and held a Researcher position at the National Research Center (Egypt). Dr. Mahmoud earned his Ph.D. in Marine Biosciences (Food Safety) from Hokkaido University (Japan) and received his BSc/MSc degrees in Agricultural Sciences from Cairo University. Dr. Mahmoud has 25 years of experience in research, technical assistance, teaching and outreach in applied food safety, food microbiology, food security and development, food processing, post-harvest, value-added products, sensory evaluation, and food quality and shelf-life. He has written numerous publications for international journals and conferences, two book chapters and edited a book entitled *Salmonella-A Dangerous Foodborne Pathogen*. He served as an editor-in-chief and editor/editorial board member for 12 international journals including *Food Microbiology*, *Journal of Food Protection*, and *Foodborne Pathogens and Disease*. Dr. Mahmoud has worked in many developing countries including the Dominican Republic, Guatemala, Egypt, Lebanon, Malawi and Mozambique.

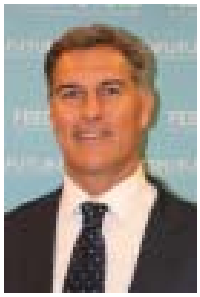
Josue Lopez

Dr. Josue Lopez recently joined USAID as a Training Specialist with the Bureau of Food Security. Josue worked for seven years at USDA's National Institute of Food and Agriculture (NIFA) in the Division of Community and Education as an Education Specialist. He managed education grants from Minority Serving Institutions. Before working at USDA/NIFA, Josue held a Horticulture Specialist position with the University of Maryland Extension in which he directed urban agriculture programs focused on community food production and greening initiatives in Baltimore City and County, Maryland. Josue holds a Ph.D. from Pennsylvania State University in Agricultural Education and Extension. He conducted his doctoral thesis on traditional knowledge of small-scale farmers in the Venezuelan Andes.

Zachary Baquet

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, where he 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, Tennessee, where he researched how the immune system affects the progression of Parkinson's disease.

Andrew Bisson



Andrew Bisson is a Livestock Advisor for the Bureau for Food Security. He worked in small holder private veterinary practice before completing an MSc in Tropical Veterinary Medicine and Epidemiology at Edinburgh University. He has field experience in emergency and developmental programing working with pastoral and small holder livestock production systems, strengthening animal health service delivery including community-based animal health, transboundary, and zoonotic disease control, Avian Influenza and One-Health initiatives, livestock market system development and resilience building with a focus on dryland agro-ecosystems. He has lived and worked in a number of countries in East and West Africa, Asia and the Middle East through appointments with DFID, Tufts University, FAO, ACDI-VOCA, FHI, and Mercy Corps prior to joining BFS.

Baboyma Kagniniwa

Baboyma Kagniniwa is a Program Officer/Geospatial Analyst with USAID's Bureau for Food Security. He provides technical support to Feed the Future programs and also manages the Gender, Climate Change, and Nutrition Integration (GCAN) mechanism. Before joining the Bureau for Food Security, Baboyma Kagniniwa worked at USAID's LAB where he focused on Food Security issues and the use of Digital Tools in agriculture. He also worked at Concept-Solutions LLC as Geospatial Applications Developer where he supported the Federal Aviation Administration's National Airspace System Unit, USGS's Patuxent Wildlife Research Center, and the Department of Veterans Affairs. Baboyma Kagniniwa is a certified Geospatial Information Systems Professional and holds a Master's Degree in Geospatial Information Sciences from University of Maryland and a Master's Degree in Geography of Commerce. Baboyma Kagniniwa is passionate about web mapping and open source geospatial technologies. He is fluent in French and enjoys coding.

Gregory Collins

Greg Collins is the Director of the USAID Center for Resilience and serves as the Agency's Resilience Coordinator. Collins is a recognized global thought leader on resilience and has played a lead role in developing and operationalizing a strategic vision for resilience at USAID. Collins was based in Kenya during the 2011 drought emergency there and helped lead the development of USAID's Horn of Africa resilience strategy in 2012 and the Sahel resilience strategy in 2012–2013. He continues to provide strategic guidance and technical support on resilience to missions in Africa, Asia and the Middle East, including the Agency flagship resilience portfolios in Ethiopia, Kenya, Somalia, Uganda, Niger, Burkina Faso, Mali and Nepal. Prior to coming to USAID in 2010, Collins worked for more than a decade as a strategy and technical advisor on food security, monitoring and evaluation, and vulnerability assessment and analysis to various UN agencies (FAO, WFP, UNICEF) and NGOs in east and southern Africa and the Middle East. Collins holds an MPH from Tulane University with a specialization in food security and monitoring and evaluation, and a Ph.D. in Economic Sociology from the University of California Davis where his research explored Somalia's telecommunications industry as an instance of development (and resilience) "without state."

James Oehmke

James F Oehmke is a Senior Food Security and Nutrition Policy Adviser at the USAID Bureau for Food Security. The Bureau has responsibility for leading the U.S. Government's Feed the Future Initiative to end hunger and extreme poverty. Dr. Oehmke is the point of contact for agricultural and rural transformation, mutual accountability, nutrition policy and gender policy. Selected documents are available on ResearchGate, including outputs from The Rural Economic Transformation and Mutual Accountability ResearchGate projects. Dr. Oehmke previously served as the CEO of the George Morris Centre for Agricultural Policy in Guelph, Ontario, Canada, and he is Professor Emeritus at Michigan State University. He has a B.A. in Mathematics and Economics from Yale University and a Ph.D. in Economics from the University of Chicago.

Jami Montgomery

Jami Montgomery serves as a resilience advisor for the USAID Center for Resilience where she focuses on integrating resilience into USAID's implementation of the Global Food Security Strategy. Prior to joining the Center, she served as the Climate Change Coordinator for USAID's Bureau of Democracy, Conflict and Humanitarian Assistance (DCHA) from 2011–2017. Her experience prior to joining USAID includes many years managing both domestic and international environmental programs and projects for the non-profit, academic, and private sectors. She holds advanced degrees in marine science and environmental engineering, with a focus on water resources.

Jerry Glover

Jerry Glover is a National Geographic Society Explorer and Senior Sustainable Agricultural Systems Advisor for USAID. He earned bachelor degrees in soil science and philosophy, then a Ph.D. in Soil Science at Washington State University in 2001. Prior to his work at USAID, Jerry studied native grasslands and farming systems, including no-till, perennial, organic and integrated systems. He has published the results of his work in *Science*, *Nature*, Proceedings of the National Academy of Sciences, and *Scientific American*. His work in soil science and perennial-based farming systems has been highlighted in *National Geographic*, *Nature*, and three documentary films. Most recently, *Scientific American* included Jerry's work in its December 2011 special issue on the "Top Ten World Changing Ideas."

Jessica Bagdonis

Jessica M. Bagdonis joined the Bureau for Food Security as a Project Design Fellow and now serves as a Human and Institutional Capacity Development Advisor in BFS. She has more than 15 years of experience working at the intersection of higher education, global engagement, agricultural extension and global development. Previously, she was the Director of Program Quality and Impact of the Higher Education for Development Program, which was funded by USAID and implemented by the American Council on Education; a Senior Evaluation Officer in the Bureau of Educational and Cultural Affairs at the U.S. Department of State; a Strategic Initiatives Assistant in the Dean's Office of the College of Agricultural Sciences at Penn State University; and a Senior Program Officer at the International Research and Exchanges Board. Bagdonis earned a dual-degree doctorate in Agriculture and Extension Education and Comparative and International Education as well as a Master's Degree in Rural Sociology from Penn State.

John Peters

John Peters is an Extension and Technical Services Advisor at the Bureau for Food Security and also works with general agricultural production issues with an emphasis on soil fertility and plant nutrition. Prior to joining BFS, John was an extension soil specialist with the University of Wisconsin – Madison for 36 years. While with UW, he provided long-term technical assistance for two USAID-funded projects in The Gambia and later in India where he served as Chief of Party. Currently, he manages the Developing Local Extension Capacity (DLE C) Project, Integrating Gender and Nutrition into Agricultural Extension Services (INGENAES) Project, and the International Fertilizer Development Center (IFDC) Cooperative Agreement, as well as a number of ICT extension projects.

Kiersten Johnson

Kiersten B. Johnson, Ph.D., 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 U.S. 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 U.S. 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.

Laura Schreeg

Laura Schreeg is with the USAID Bureau for Food Security. She is an Agricultural Productivity Adviser in the Country Strategies and Implementation Office. Laura is interested in how to program for widespread adoption of technologies and practices to achieve reductions in poverty, strengthened resilience and improved nutrition of smallholder producers. She started at USAID as a fellow through the American Association for the Advancement of Science and is trained as an ecosystem ecologist. Before moving to Washington, she was a postdoctoral research assistant at Brown University, received a Ph.D. in Interdisciplinary Ecology from University of Florida, worked in Panama with the Smithsonian, and served as an agro-forestry Peace Corps volunteer in the Andes of Ecuador. She's also an alumna of Michigan State University and Saint Mary's College.

Madeleine Gauthier

Madeleine Gauthier is currently a monitoring, evaluation, and learning advisor with the Bureau for Food Security at USAID. She has more than 25 years of professional experience in various areas of international development, as a researcher, analyst, project manager, policy advisor, and now as monitoring, evaluation, and learning specialist, which means that she spends a lot of time reviewing and analyzing data. She first joined USAID in Washington in 2000 as a trade and policy analyst, and then worked in Madagascar in 2004 managing the economic growth portfolio, focusing on value chains such as spices, essential oils, gemstones, and ecotourism. Back in Washington in 2006, she joined the Millennium Challenge Corporation as a monitoring and evaluation advisor, where she touched on different sectors. She came back to USAID in 2014, also as a monitoring and evaluation specialist, focusing on food security issues. Food security is where it all started, when freshly out of graduate school, she was hired by a research team at Laval University in Quebec City, to work on household surveys and food security issues in the Sahel. Madeleine has a Ph.D. in Agricultural Economics from Cornell University.

Moffat Ngugi

Moffatt K. Ngugi is an Agriculture Development Officer at USAID's Bureau for Food Security and works as a senior advisor on climate and environment for food security. He is a geospatial ecologist by training with a background in rangeland management, physical land resources and agroecology. He studied at the University of Nairobi (BSc), Ghent University (MSc) and Colorado State University (Ph.D.) and has worked in diverse settings worldwide. Examples of his research and work experience include dissertation research in Kenya on social and ecological characterization of herbivore key resource areas, postdoctoral research at University of California Davis using GIS/remote sensing to constrain biogeochemical modeling of greenhouse gases; working as a consultant for terrestrial carbon science; and inventory of forage resources in Dakota grasslands at USDA-Agricultural Research Service. His current role at USAID is to collaborate with all stakeholders to address climate change concerns in the sustainable intensification of agricultural production in order to improve food security and nutrition.

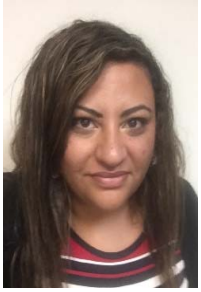
Patrick Starr

Patrick Starr is a Financial Specialist with Bureau for Food Security's Office of Market and Partnership and Innovation where he focuses on coordinating Feed the Future's implementation of the financial components of the Global Food Security Strategy. He is a native of the Washington, DC, area, and joined the Bureau from Connexus Corporation, a boutique consulting firm specializing in rural and agricultural development and access to finance issues. Prior to Connexus, Patrick was a Peace Corps volunteer in Benin, West Africa, as well as a management consultant with PwC's Washington Federal Practice. He holds a degree in Finance from the University of Notre Dame and an MBA from Cornell University.

Paul Tanger

Currently, Paul Tanger is an Agriculture Research Advisor in USAID's Bureau for Food Security where he manages biotechnology and crop improvement investments. Previously as an AAAS S&T Fellow at USDA NIFA, Paul led the launch of a new initiative focused on data science in agriculture, as well as developing open data policies, examining and visualizing impacts of research funding, and coordinating plant breeding investments. Paul's Ph.D. work at Colorado State University in collaboration with the International Rice Research Institute pioneered the use of advanced techniques to measure crop traits in the field for improved agricultural crop breeding. Previously, Paul worked in the technology transfer space, as well as a project manager in the financial services industry.

Rana El Hattab



Rana El Hattab joined the Agency in January 2017 as a Commercialization and Scaling Advisor for the Bureau for Food Security's Markets and Partnering Innovations Office. She provides technical assistance on approaches for technology commercialization, scaling and market driven programming. Prior to joining the Agency, Rana was a policy advisor for the Mayor of the City of Atlanta focusing on infrastructure and affordable housing. Rana also previously ran the social enterprises agribusiness portfolio of Nuru International out of rural Kenya, which focused on poultry, dairy and cash crops. Rana holds a Master’s of Public Policy from the Harvard Kennedy School of Government and a Bachelor of Science in Computer Science from the American University in Cairo.

Rob Bertram

Rob Bertram is the Chief Scientist in USAID’s Bureau for Food Security, where he serves as a key adviser on a range of technical and program issues to advance global food security and nutrition. In this role, he leads USAID’s evidence-based efforts to advance research, technology and implementation in support of the U.S. Government’s global hunger and food security initiative, Feed the Future. He previously served as Director of the Office of Agricultural Research and Policy in the Bureau for Food Security, which leads implementation of the Feed the Future research strategy and related efforts to scale innovations in global food security efforts, working with a range of partners. Prior to that, he guided USAID investments in agriculture and natural resources research for many years. Dr. Bertram’s academic background in plant breeding and genetics includes degrees from University of California, Davis; the University of Minnesota; and the University of Maryland. He also studied international affairs at Georgetown University and was a visiting scientist at Washington University in St. Louis. He has been especially active in plant genetic resources policy as it relates to research for development, including applications of biotechnology in food security-related research. Before coming to USAID, he served with USDA's international programs as well as overseas with the Consultative Group on International Agricultural Research (CGIAR) system.

Sabeen Dhanani

Sabeen V. Dhanani is the Team Lead, Digital Development for Feed the Future, U.S. Global Development Lab, USAID. Sabeen has over a decade of experience in the public, private and development sectors. Prior to joining USAID, Sabeen was a consultant with both the Innovation Lab and the Special Economic Zones Group at the World Bank and a Senior Strategy Consultant with the Monitor Group (now Monitor Deloitte), based in Dubai, where she advised government and private sector clients across the Middle East and Africa on policy, business strategy, organizational development, competitiveness and innovation. From 2005–2006, she was a Program Assistant with the Aga Khan Development Network, based in Damascus, Syria. Sabeen received her MA from Harvard University and BA, with distinction, from Cornell University.

Sarah Leonard

Sarah Blanding Leonard is a Foreign Service Officer currently serving as the Nutrition Division Chief in the Bureau for Food Security. Prior to joining BFS in early 2017, Sarah completed an assignment at the U.S. Army War College (USAWC) in Carlisle, Pennsylvania, where she represented USAID to senior military and interagency colleagues. Other previous USAID assignments include tours in Jordan (as the Health Office Director), Afghanistan (as a Civilian/Military Liaison), Peru (as the Deputy Health Office Director), and USAID/Washington (in the Global Health Bureau as a Nutrition Team Leader, and in the Office of Foreign Disaster Assistance as a Nutrition Advisor in the Technical Advisory Group). She has also done TDYs to Bolivia, Colombia, Cambodia, Ethiopia and Tajikistan. Sarah brings a wealth of experience across the interagency from various perspectives – she is a military veteran (former U.S. Air Force Officer) and also worked at the U.S. Centers for Disease Control and Prevention. She is a Registered Dietitian and received a Master's of Strategic Studies from the USAWC, a Master's of Public Health (Global Health/Infectious Disease) from Emory University, and a Bachelor of Science (Nutrition) from the University of Tennessee.

Tracy Powell

Tracy Powell serves as an agricultural research advisor for USAID, where she manages a portfolio of research programs in the areas of agricultural biotechnology and legume productivity. Currently based in Washington DC, she also previously worked at USAID's Mission to Ethiopia in Addis Ababa. She holds a Ph.D. in Plant Biology from the University of California Berkeley, where she researched molecular interactions between plants and their resident bacteria, and has additional research experience in molecular breeding, weed biology, and human immunology. Prior to joining USAID, she worked as a science writer for *The Economist*, *The Berkeley Science Review* and Fred Hutchinson Cancer Research Institute.

Laura Clancy

Laura Clancy has more than 25 years' experience as an educator and capacity building professional in both private and public sectors. She has lived and worked overseas in multiple countries across Asia, Africa and Europe. Laura is currently working as a Training Specialist with QED Group, LLC, for USAID's Feed the Future Knowledge-Driven Agricultural Development (KDAD) project. She brings her background in non-profit program management and leadership to build experiential learning opportunities designed around practical application for organizational outcomes. While working in the education sector, Laura brought her skills and strengths in curriculum design and data analysis to design teacher capacity development and online learning environments. She holds a Master's Degree in Education, Curriculum Design with an emphasis in Computer Science.

Stacy Cummings

Stacy Cummings has served for more than 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 U.S. Peace Corps where she led the Agency in instructional systems designed to enhance volunteer training and technical assistance to field staff in more than 70 countries. She has worked with Academy for Educational Development, 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.

Appendix

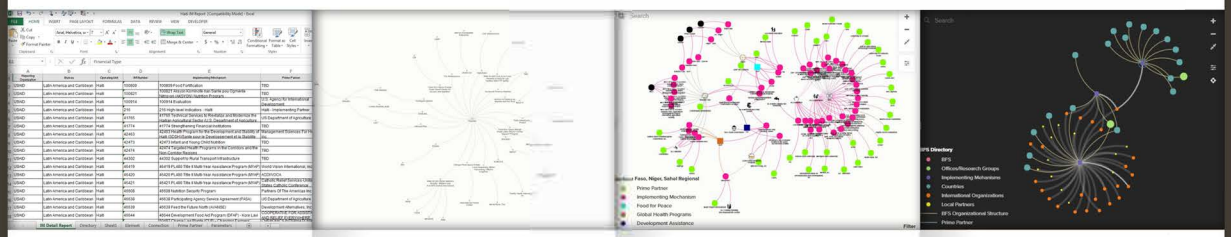
Appendix A: Visual Mapping with Kumu

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

MAPPING DATA FOR VISUAL IMPACT

IMPROVING COORDINATION, RESOURCE USE AND DECISION MAKING

The Feed the Future Monitoring System (FTFMS) consolidates reporting data on USAID Feed the Future development programs. It is a foundation for decision making that tracks activities, organizations, locations, funding, partners, governments and more.



Improve Coordination

Mapping creates a comprehensive visual tool that shows:

- Which implementing mechanisms are operating where and the activities they focus on.
- Which partners, governments, institutions and organizations are at work.
- Where relationships exist.
- Where data or program coverage is incomplete.
- Where opportunities for stronger collaboration can be found.

How it's done

- Export data from FTFMS into a excel file.
- Clean and format data to Kumu® standards.
- Kumu® creates a map from your spreadsheet.
- Use a Google spreadsheet to ensure updated data is presented in each map.
- Create simple or complex maps that focus on different characteristics and data. Illustrate as few or as many data elements as you desire.

Rules for Good Results

- Incomplete data in FTFMS limits the benefits of mapping.
- Network mapping provides effective data management opportunities.

The Feed the Future Knowledge-Driven Agricultural Development Program manages the FTFMS.

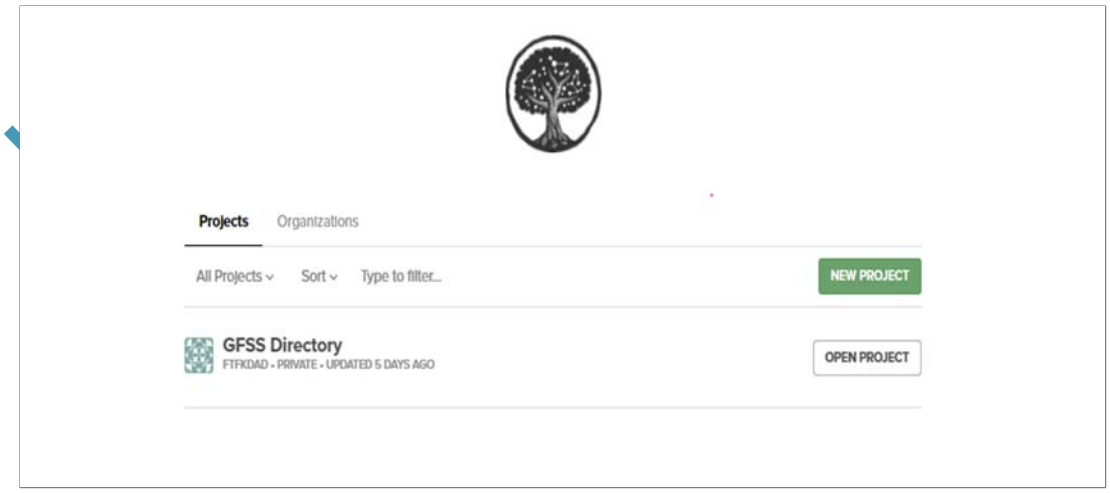
Impact of Mapping

KDAD will be integrating mapping into BFS's upcoming FTF training, "Food Security and Agriculture Core Course," to build analysis capacity within different case studies.

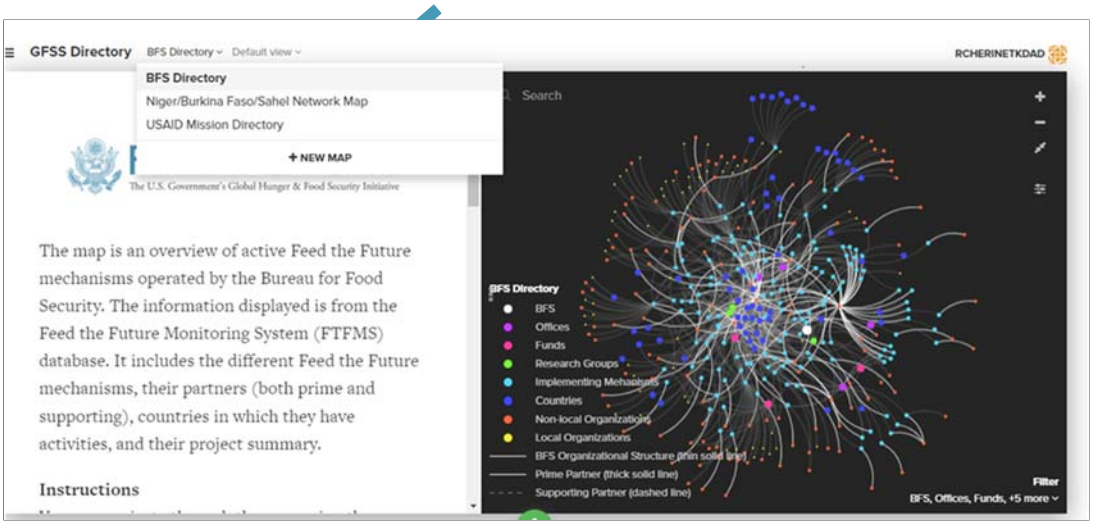
Mapping Data for Visual Impact Using Kumu®

1. Go to www.kumu.io
2. Sign in:
    a. User name: FSAGCORE
    b. Password: iloveag

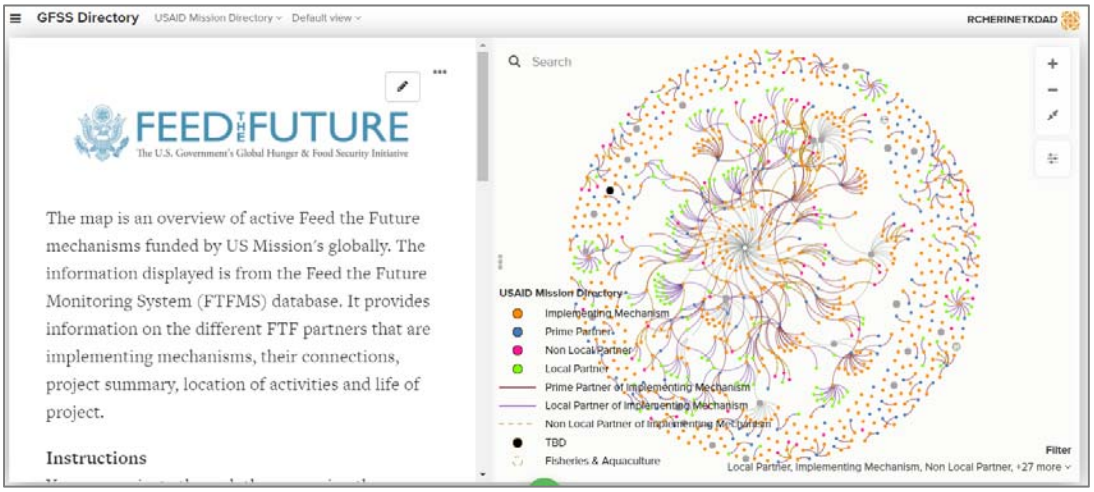
3. Once you have signed in click on GFSS Directory.



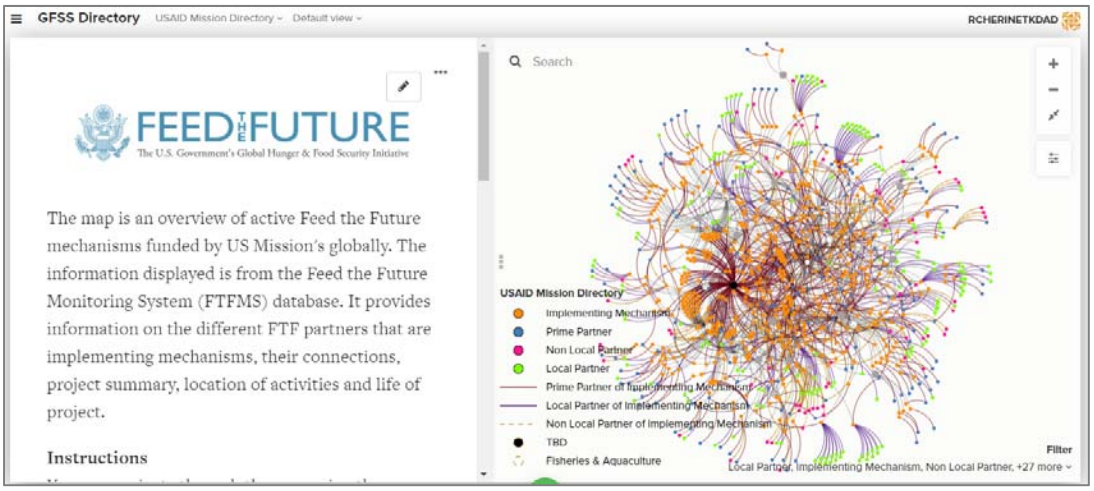
4. Your screen will open up to the BFS Directory as shown in the image below. Click on the BFS Directory drop down menu and select USAID Mission Directory.



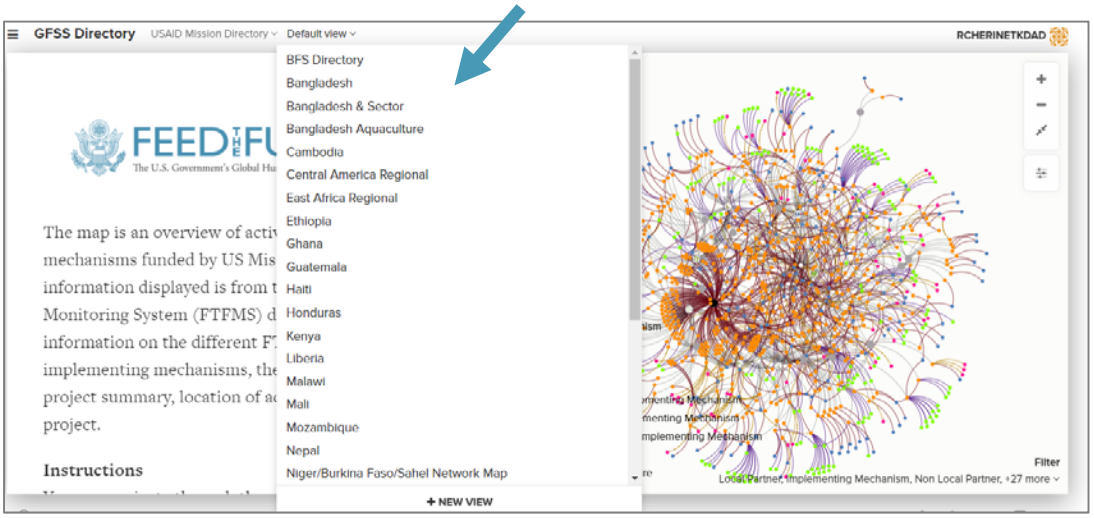
5. The screen below will appear. Select the refresh button on your screen to show all connections.



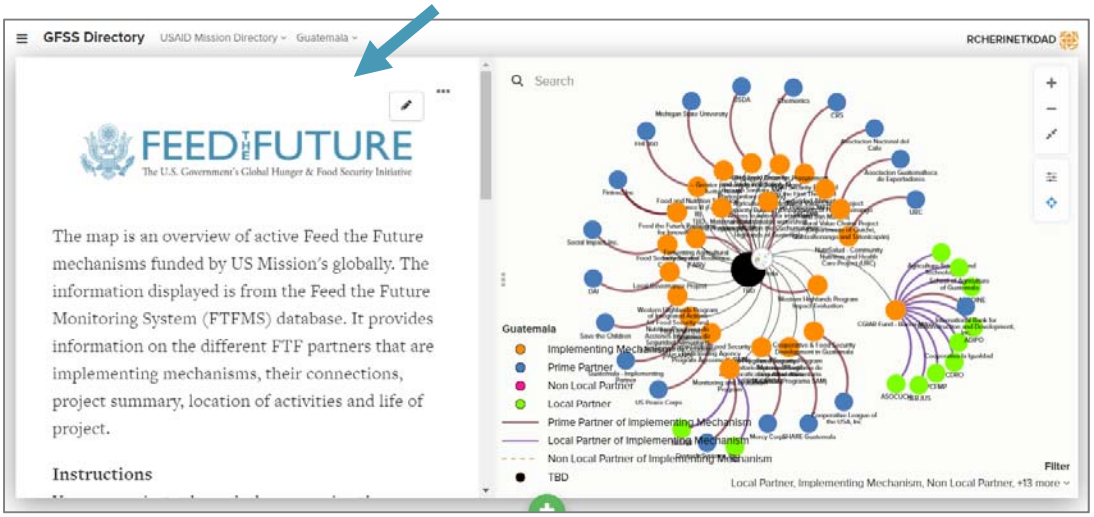
6. After you refresh the screen, the image below will show all elements connected.



7. Each Mission (Operating Unit) has its own view that displays its partners. Users can navigate through each view by clicking on the default view drop-down menu and selecting the Mission of interest.



8. The view below shows the Guatemala Mission and all the partners that are working on Feed the Future mechanisms. The narrative on the left side provides instructions on how to explore the map.



Appendix B:

Policy Brief: Mutual Accountability

Joint E3 - BFS Statement on Land Governance in the Context of Food Security and Agricultural Investment

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

POLICY BRIEF

MUTUAL ACCOUNTABILITY

Mutual Accountability (MA) is an innovative and highly effective strategy to unite key stakeholder groups behind a development agenda. It improves design and delivery of agricultural programs and policies and increases their impact on reducing poverty and hunger. Mutual Accountability is more than a concept. It is a structured and collective process built on transparency, evidence, inclusion, and predictability.

Like other professional relationships, Mutual Accountability depends on trust, shared benefits, and common vision. Stakeholders voluntarily commit to and align their resources and programs in support of national agendas, and communicate sector perspectives that contribute to more effective development approaches. They become accountable to furthering national goals and to each other through interdependent efforts that are focused on results. Review and reporting processes help ensure that stakeholders follow through on their commitments and that actions achieve measureable progress. Benefits include:

- Greater capacity to craft and manage policy changes
- Improved collaboration among diverse groups that leads to greater and more focused synergies
- Better policies and programs
- Enhanced financial and programmatic efficiencies that reduce waste and redundancy and attract more investment
- Accelerated impact that brings change more quickly to more people
- Stronger capacity for informed decision making that puts knowledge to work.

Improving Policy

The Feed the Future policy approach to advance food security focuses on countries with policy priorities most likely to reduce poverty and hunger. Using evidence-based research, this approach sets forth a framework for U.S. Government support using principles of good governance, efficient markets, sustainable rural livelihoods, risk reduction for vulnerable people, better coordination, and greater accountability. These efforts:

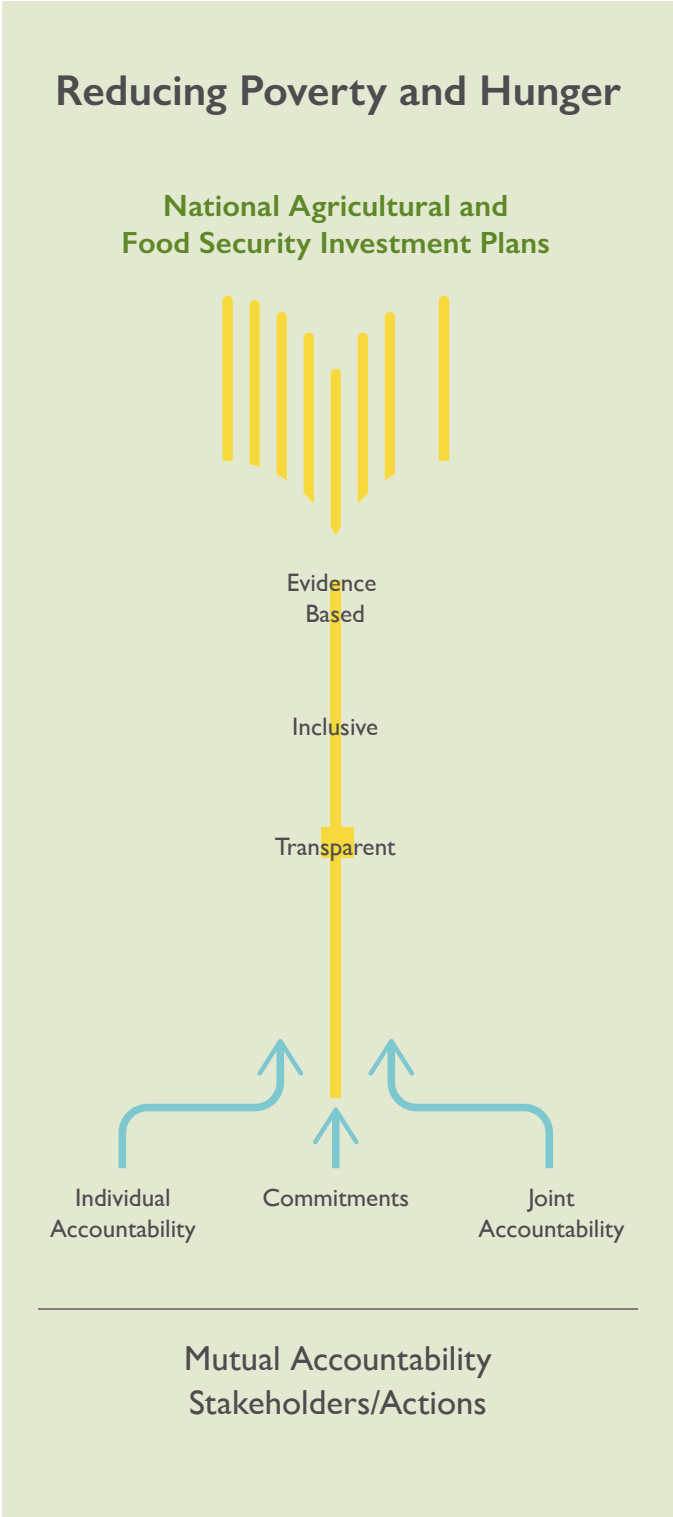
- Strengthen partner-country policy institutions;
- Increase country ownership of policy change processes and outcomes; and
- Support greater civil society and private sector participation.

The framework is detailed in a Policy Guide to complement country-specific priorities and foster collaboration among agencies. A series of policy briefs supports the Guide and explores topics critical to advancing food security.

The real winners are beneficiaries who have the policies, tools, information, and access they need to contribute to inclusive agricultural growth.

A pioneering approach, Mutual Accountability is endorsed by high-level global forums such as the Busan Partnership Agreement, continental efforts of the African Union, and the U.S. Government Feed the Future initiative. It is recognized as an integral component of the development process and one that can accelerate and drive long-term agricultural progress in unprecedented ways. The Feed the Future initiative works with governments, civil society institutions, the donor community, and the private sector to plan for and implement MA and integrate it with other national development efforts.

Mutual Accountability rests on National Agricultural and Food Security Investment Plans (NAFSIP) or similar country-owned strategies that are the cornerstones of development efforts. The involvement of stakeholders in developing national agendas demonstrates leadership and a commitment to assuring that plans address the needs and priorities expressed by diverse groups and sectors. Importantly, the contributions of these groups lead to more successful development approaches with recommendations based on firsthand knowledge and enhanced implementation by organizations that have a deep obligation to their constituencies.



THE PRINCIPLES OF MUTUAL ACCOUNTABILITY

Transparency, Evidence-Based, and Inclusive

Transparency is a fundamental principle that addresses development's need for clear and open dialogue, policies, and processes. It reduces the challenges that compound, confuse, and stymie forward momentum. Transparency leads to greater trust and collaboration, increased commitment to shared goals, and reduced stakeholder frustration.

Decisions and policies based on solid empirical evidence and analysis advance development goals more quickly. Research gives stakeholders the proof and verification they need to understand the state of agricultural affairs and the factors that influence: production and productivity, markets and trade, funding and investment, and the conditions that must be addressed before progress can be achieved.

Inclusion is an absolute prerequisite for development success because no single group — government, donors, or others — can accommodate the full range of actions necessary to end poverty and hunger. Inclusive accountability processes help generate a comprehensive portfolio of collective work, coordinated and vetted across all stakeholders, to help assure that combined initiatives are necessary and sufficient to achieve results. Critical to this step is incorporation of youth women's perspectives, and those of other marginalized groups. Discussion promotes broad commitment to address complicated and often overlooked issues that surround gender and other sensitive topics.

Mutual Accountability is recognized as an integral part of the development process and one that can accelerate and drive long-term agricultural progress in unprecedented ways.

Actions Taken to Increase Development Effectiveness

In the early 2000s, a movement began to identify ways to improve the effectiveness of donor funding and increase the speed at which development progress could be achieved. Mutual Accountability was one of 5 principles deemed essential to furthering progress that resulted from the Paris Declaration on Aid Effectiveness in 2005. At that time broad consensus among the international community was achieved, a framework established, and a greater commitment made to helping governments create their own national development plans. Other critical principles in the Paris Declaration included: ownership (countries should take leadership in their development), alignment (donors should align funding support with national priorities), harmonization (development assistance should be coordinated among donors), and managing for results (greater attention should be placed on achieving tangible results).

The Accra Agenda for Action followed in 2008, adding more definition to the process, and in 2011, the Fourth High Level Forum on Aid Effectiveness held in Busan, South Korea, focused on assessing progress in pursuit of Millennium Development Goals. Also in 2011, the Comprehensive Africa Agriculture Development Programme (CAADP) launched the Mutual Accountability Framework and the Joint Sector Review to provide structure and guidelines for assessing country-level performance and results.

The Malabo Declaration on Accelerated Agricultural Growth and Transformation for Shared Prosperity and Improved Livelihoods, the result of the 23rd Ordinary Session of the African Union in June 2014, takes countries even further with a commitment to a systematic and regular review process to achieve both country and continental goals. Using MA principles, the Malabo Declaration specifies an intense and detailed biennial agricultural review process that involves tracking, monitoring, and reporting on progress. An annual review of budgets and investment commitments keeps work on track. The Malabo Declaration promotes alignment, harmonization, and coordination among multi-sector and multi-institution platforms for peer review and learning. Additionally it strengthens national and regional capacity for knowledge and data generation and management to support evidence-based planning, implementation, monitoring, and evaluation.

Engaged Stakeholder Participation

Unparalleled involvement of stakeholders defines a new way to advance development. The Mutual Accountability process encompasses government, civil society, donors, and the private sector. Each brings to the table a set of resources, tools, interests, and perspectives. Working independently, they can achieve results, but working in tandem through the MA process they can achieve progress at a scale not previously seen, accelerating development nationally to end poverty and hunger and building productive, long-term relationships.

Some nations have well-defined and mature stakeholder groups that are active participants. In other instances, stakeholders benefit from capacity building and training that enables them to contribute more fully to the development process. The U.S. Government supports large and small-scale programs to increase the ability of stakeholders to work together effectively for greater outcomes, gather and use information to make sound decisions, assess needs and set priorities, and operate inclusively representing all their publics.

National governments assume a convening and coordinating role, embracing the need to work cooperatively, share information and access, and rally stakeholders. It begins with a cross-ministry approach to assemble the agencies and resources responsible for agricultural development, research, policy, trade, nutrition, and gender. Research and data available from governments helps inform the MA process at all levels. Collaboration brings government the perspectives it needs to address the changing conditions under which the agriculture sector functions and helps forge alliances with the individuals and groups that will participate in, and benefit from, change. Mutual Accountability adds value by encouraging stakeholders to make voluntary commitments in support of NAFSIPs and to execute those commitments responsibly. Stakeholders are individually accountable for these and other voluntary pledges and jointly responsible for sector progress.

Donors representing national, bilateral and multilateral organizations, and private foundations are invested in helping nations address social, economic, and environmental needs. Mutual Accountability helps them stretch their investments through greater efficiencies. With improved transparency, their private sector and civil society partners are able to engage more of their organizational resources. This creates a powerful and encompassing development impact. The MA process asks donors to make their investments based on the defined priorities of NAFSIPs, and they are held accountable for the

promises they make. Closer interaction with governments and stakeholders generates a new level of trust that can translate into longer-term support and more targeted funding.

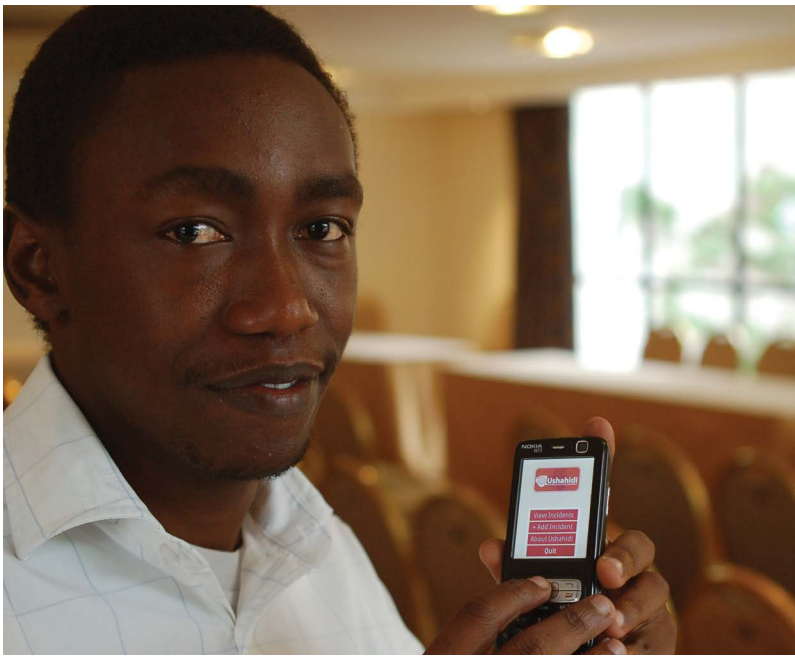
Civil society organizations (CSO) give voice to those they represent and serve as a conduit to programs and services. They have a deep understanding of the challenges their publics face and the solutions they need. By representing their members in government development processes and through engagement with the private sector, they contribute to setting national agendas and help ensure that those plans are more responsive to the needs of those they serve. Civil society involvement extends beyond advocacy to become a key part of national agenda implementation – providing access to inputs, offering extension services through farmer organizations, and generating new income opportunities to women's business groups. Through effective participation, civil society groups gain credibility and recognition for the contributions they make, helping form solid alliances with other participants and ensuring future involvement.

Transparency is a fundamental principle that addresses development's need for clear and open dialogue, policies, and processes. It leads to greater trust and collaboration, increased commitment to shared goals, and reduced stakeholder frustration.

To achieve greater food security and poverty reduction, Mutual Accountability processes and approaches should identify and address gender issues, ensuring representation and response to the interests and needs of women and men. It is critical that all stakeholders take responsibility for addressing gender and regularly assess their progress. Women make up 43 percent of the agricultural labor force in developing countries and are less productive than men due to restricted access to land, water, seeds, training, and credit. With the same access to productive resources as their male counterparts, women could increase their farm yields by 20 to 30 percent, increasing agricultural output and potentially reducing the world's hungry by up to 150 million people, according to the Food and Agriculture Organization (FAO).

Critical roles for civil society often include building capacity of women's groups and other local-level organizations to represent and interact effectively with government, donors, and the private sector. They educate women and men on the content of policy and its implications and bring credible and objective evidence into conversations among stakeholders. Civil society organizations help close the gender gap by providing training and tools, building new skills and confidence, and facilitating access to resources.

In addition to aligning efforts with NAFSIPs, many governments have developed and committed to national gender strategies that should be considered as part of donor and private sector agricultural development planning. Priorities for using policy to address gender disparities in agriculture include:



- Increase access to credit, which is among the most important constraints to successful agricultural livelihoods for both rural women and men
- Eliminate barriers women face in access to land, education, extension, and financial services
- Facilitate the participation of women in flexible, efficient, and fair rural labor markets
- Invest in labor-saving and productivity-enhancing technologies and infrastructure to free time, especially women's time, for more productive activities.

Feed the Future's *Gender Brief* discusses a range of policy implications for this cross-cutting development priority.

The private sector — large national or international enterprises and domestic businesses and smallholder farmers — is a major driver of agricultural productivity and farmer income, with greater impact than governments and international donors combined. Private sector investment in rural areas not only stimulates agricultural growth but also non-farm income opportunities for smallholders and others. Backed by market momentum, the sector can deliver improved products and services more efficiently and at a better price. Its investment can reduce the burden on government for everything from infrastructure investment to research and development. But for optimum private sector participation, government must enact policies that open the door to markets and finance, creating an environment favorable for investment, expansion, and profit. The private sector counts on civil society, donor, and government stakeholders to provide programs that enable farmers and other agricultural parties to contribute through the purchase of equipment and inputs and the supply of farm products.

BANGLADESH

Mutual Accountability in Action

The Government of Bangladesh has undertaken an in-depth and consultative process of food security policy reform since the 1996 World Food Summit and has established an inclusive monitoring and review process to track and report on progress. Government and donor commitments to food and nutrition security, and resulting outputs and outcomes, are contained in a report produced as part of the annual review process.

The Bangladesh Food Policy Monitoring Unit (FPMU) coordinates with as many as 19 government agencies that share responsibility for food security and follows implementation progress of 12 programs that further the National Food Policy (NFP) and the Country Investment Plan (CIP). Participants in the process receive training and are building on the experience and growing body of knowledge that has accumulated since monitoring began. This fine-tuned monitoring and reporting approach synchronizes deadlines and reporting timelines for greater efficiency, includes robust participation in review of data and emerging results, and engages FPMU staff in more valuable ways — interpreting findings and interacting with stakeholder groups.

Monitoring Report findings are first presented to donor groups that support agricultural initiatives and key government agencies, and then are shared with additional stakeholders representing civil society, the private sector, and the public. Bangladesh is benefitting from a process that engages stakeholders at multiple levels, focuses attention and financial commitments on national goals to ensure tangible results, and is assembling credible data and program tracking that will be useful in setting a new agenda when existing policies and plans expire.

The results of this more coordinated and accountable approach to agricultural development are significant. World Bank Development Indicators show agricultural value added doubled from 1992 to 2013, and agricultural contributions led to an increase in per capita income from $780 per day in 1992 to $2,810 in 2013. Additionally, poverty rates decreased from 70 percent in 1992 to 43 percent in 2010 (based on $1.25 per day).

The Joint Sector Review (JSR)

Pivotal to Mutual Accountability is the Joint Sector Review that gives new meaning to collaboration and guides the process. It promotes accountability and alignment, and tracks commitments, actions, and outcomes. It may be timed to coincide with other national planning and budgeting efforts. The JSR provides an open platform to discuss performance, giving stakeholders direct access to information and an opportunity to evaluate collective and individual progress on policies, programs, and financial activity. Stakeholders identify and make plans to meet individual and collective needs and take steps to address challenges. This is a time when relationships are built and collective and honest dialogue emerges as stakeholders find common cause to tackle these challenges.

Stakeholder groups generate reports for their individual sectors and contribute to the reports developed by their counterparts. Solid, verifiable data and analytics are an integral part of evidence-based reporting and review of past actions and present conditions. Commitment, sector impact, and special topic reports provide the details needed to make informed decisions, reduce risk, and monitor and adjust actions to maintain focus on national targets. The capacity to generate these reports is often built on mechanisms that support other high-level efforts, for instance New Alliance requirements.

Commitment reports demonstrate follow-through on pledges made by stakeholders to further NAFSIP goals. They include reports on: public investments and expenditures on agriculture, public policy (development, implementation, systems, and change), donor investments and expenditures including budget support and off-budget funding, private sector (domestic and international) alignment, intensions, and needs; and civil society alignment with country priorities, needs, and capacity to support and engage.

Sector impact reports use selected indicators to track and communicate development status and progress toward national objectives: poverty and hunger reduction, nutrition, agricultural growth, trade, production and productivity, employment and income, and gender, among others. They highlight the effectiveness of programs and progress made, as well as the speed and reach of that progress. These reports provide a tool stakeholders can use to refine processes, address impediments, and mitigate risks.

When important issues or interests arise, special topic reports are generated to inform stakeholders and improve discourse.

The JSR Forum

Like other aspects of Mutual Accountability, the JSR forum is a leading-edge approach that advances transparency, accountability, and trust. Each year, the process culminates in a forum where stakeholders and other audiences come together to review individual and joint commitments, measure progress and impact, and identify ways to improve areas of weakness. Reports are shared and open discussions held. This is a time when relationships are built and the collective and honest appraisal of stakeholders comes into play. Peer pressure for poor performance is a useful tool in solidifying alignment with the goals and objectives of the NAFSIP and speeding action. Peer collaboration assists in overcoming obstacles and solving problems.

THE JOINT SECTOR REVIEW PROCESS

Adjust to Annual Budget Cycle

Call for Mutual Accountability

Introduce JSR Process
- Inventory Existing Information
- Assess Gaps & Needs
- Plan for Inclusive, Transparent, Evidence-Based Commitments

Prepare for JSR Annual Forum
- Engage Stakeholders
- Determine Information Needs
- Generate & Analyze Data
- Publish Findings

Hold JSR Forum
- Involve Stakeholders & Others
- Measure Commitments, Progress & Impact
- Share Reports (Commitments, Impact, Special Topics)
- Disseminate Information

Analysis & Action Following Forum
- Government Budgeting
- Donor Budgeting
- Policy Actions
- Civil Society Actions
- Private Sector Actions
- Review Lessons Learned
- Call for Next JSR

Challenges and Opportunities

The benefits of Mutual Accountability are game changing, but obstacles do exist even for the most experienced countries that have established multi-stakeholder participatory processes. Feed the Future is providing support to countries that are working to:

- Increase political will, enthusiasm, and commitment at the highest levels by demonstrating innovative and successful approaches and processes for achieving national goals
- Improve government capacity to create opportunities for improved dialogue
- Build the capacity of private sector and civil society organizations to engage with each other, and with government, in productive and evidence-based dialogue to accelerate inclusive agricultural growth
- Strengthen data collection, management, and use to support evidence-based actions.

Improving Mutual Accountability

Feed the Future supports national governments, regional economic communities, and continental bodies to use Mutual Accountability as a tool to accelerate the end of hunger and poverty and improve the processes on which that goal depends. This support includes:

- Strengthening data and evidence systems
- Improving inclusiveness and transparency of accountability procedures
- Building capacity among the private sector and civil society organizations to engage productively in Mutual Accountability processes
- Increasing country ability to establish, facilitate, and enhance all components of Mutual Accountability and adopt best practices
- Assisting emerging individual MA champions.

REVIEW AND REPORTING

Mutual Accountability Actions in Africa

Burkina Faso. The Cadre Sectoriel de Dialogue (MA process) platform, awaiting formalization, is fully operational as a review and coordination mechanism in support of the country's agricultural investment plan.

Ethiopia. The Rural Economic Development and Food Security Sector Working Group leads review of the country's investment plan — structure, content, and best practices.

Ghana. An agriculture joint sector review has been carried out annually since 2008, and improvements to the MA process are being made.

Malawi. The Ministry of Agriculture and Food Security's Agricultural and Planning Services coordinates the Joint Sector Review which assesses the performance of the country's investment plan.

Mozambique. Programmatic Aid Partners, representing the government and its development stakeholders, evaluates the effectiveness of donor assistance and reviews commitments and performance against development indicators.

Tanzania. Steps to strengthen Mutual Accountability and review processes include movement to improve agriculture sector and public expenditure reviews. The transition to a full Joint Sector Review is expected to be completed by September 2015.

In 2015 the AUC will assist 10 additional countries with strengthening their JSRs: Benin, Burundi, Cote d'Ivoire, Democratic Republic of Congo, Kenya, Mali, Niger, Togo, Uganda, and Zambia.

PHOTOS, P1: USAID / MEGAN JOHNSON; **P3:** FOOD FOR THE HUNGRY; **P4:** USAID / FENTON B. SANDS; **P5:** ERIK (HASH) HERSMAN; **P6:** CNFA; LINDSAY SEUC; **P8:** FINTRAC INC.

Joint E3 - BFS Statement on Land Governance in the Context of Food Security and Agricultural Investment

The purpose of this document is to identify USAID's approaches to land policy, responsible agricultural investment, and governance of natural resources in the context of food security and agricultural growth, especially as related to USAID's leadership of the US Government's Feed the Future initiative and participation in the New Alliance for Food Security and Nutrition.

Through Feed the Future, the U.S. Government is renewing its commitment to reduce poverty and hunger through inclusive agricultural growth, with a focus on harnessing the power of research and the private sector in order to transform agricultural development. In 2012, the United States leveraged its presidency of the G8 to deepen the global commitment to food security by establishing – with other G8 members, African leaders, and private sector executives – the New Alliance for Food Security and Nutrition (New Alliance), which aims to increase responsible private agricultural investment. Investment in both smallholder and commercial agriculture is crucial in reaching the U.S. Government's goals outlined by Feed the Future, the principle vehicle through which the U.S. Government contributes to the New Alliance.

Land is one of the most important assets for people throughout the world. It is a source of food and income generation, as well as social and cultural identity. Secure and transparent land rights – critical in enabling responsible investment in agriculture, promoting efficient and productive land use, spurring economic growth, and therefore achieving New Alliance and Feed the Future objectives – are lacking in many developing economies, where a large percentage of rural land rights remain undocumented. Insecure or unclear land rights can result from a number of factors, including weak property laws, poor and unresponsive governance systems, lack of land documentation, and competing land uses. Addressing these development challenges is a priority for USAID and is increasingly important given the U.S. Government's objective to partner with the private sector in order to transform agricultural development.

For commercial investors and smallholder farmers alike, secure property rights may facilitate and accelerate efficient and effective investment in land, labor, capital, and improved food production practices. Furthermore, rural economies must have effective land governance systems in order to efficiently allocate land resources, and reduce the possibility of rent-seeking or otherwise inequitable land distribution due to corruption or manipulation. Nevertheless, millions of farmers lack land tenure security and the perception that they will have continued and uninterrupted use of their land. Rising demand for land will only exacerbate real or perceived insecurity of tenure in many areas. This lack of security limits farmers' incentives to make improvements to their land, and limits their ability to safeguard investments and leverage resources most effectively — for example by leasing land to other community members, or leasing it directly to investors. Insecure land rights also restrict the ability of successful farmers to scale up operations by purchasing or leasing additional land for production, or to seize exit opportunities from agriculture by investing in new enterprises. The situation is even worse for women, who may have rights to own, use, or inherit land but are often barred by customary norms from exercising their legitimate rights.

Successful agricultural development initiatives associated with poverty reduction have seldom included large-scale land-based investment. The U.S. Government's Feed the Future initiative focuses on smallholder-led agricultural growth as the principal engine of poverty reduction and food security. Investment in agriculture of all sizes, however, can be constructive and is encouraged by the US Government; but, investments must take into account specific country contexts and circumstances, and respect the rights of local populations. Large-scale land-based investment in agriculture, if approached in an equitable and sustainable way, can hold unique benefits that complement smallholder agriculture: it can bring new technologies, crops, or market opportunities to a region, and, through associated out-grower or contract farming schemes, to smallholder farmers within the region. The result can be a mutually beneficial model where large investments create new opportunities for adjacent communities and farmers. Nevertheless, this model has come under heavy criticism for failing to recognize smallholder property rights, thereby potentially harming the people it aims to help. Consequently, there is all the more need to improve land governance and focus on assisting all investors to better understand the needs and tools for responsible land-based agricultural investment.

Successful commercial investment in agriculture is dependent upon access to clear and uncontested land rights. In environments where land rights are undocumented or poorly protected, medium to large commercial investments in agriculture could lead to displacement, loss of livelihoods, and more limited access to land for the local population, in particular indigenous and nomadic communities. These negative outcomes not only undermine the U.S. Government's development and poverty reduction objectives among the populations it aims to serve, but also significantly increase reputational risk for the U.S. Government, its development partners, and the private sector. Conflicts over land rights can also significantly augment the financial risks for companies investing in commercial agriculture due to delays or disruptions in operations.

To reduce the land tenure risks posed to both local communities and corporations, and increase the positive incentives for responsible land-based agricultural investment, USAID aims to better integrate land tenure measures into appropriate Feed the Future and New Alliance programming, at both the national and community level. More generally and as part of its goal of promoting economic investment in areas in which it works, USAID encourages and aims to facilitate more responsible land-based investment by the private sector. By deepening its existing partnerships with other governments, civil society and the private sector, the U.S. government aims to identify and implement land governance practices that lead to more successful transactions for all parties involved. Approaches will be consistent with the Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security, and forthcoming principles for Responsible Agricultural Investment. Depending on the country context, USAID engagements may include longer-term assistance aimed at legal and policy reform, as well as shorter-term opportunities that increase tenure security or reduce land-related risks within site-specific interventions. Specifically the U.S. Government's efforts include strategies to:

Clarify and Strengthen the Protection of Land Rights

- Clarify and strengthen policy, legal and administrative frameworks that protect legitimate rights (including customary or informal tenure rights) to land ownership, primary and secondary use, and transfer;
- Increase access to and security of land rights for women and other vulnerable groups;
- Map, document and register land rights, including by developing and integrating new technologies to make surveying and mapping more efficient, inclusive and cost-effective;
- Improve the transparency of, and access to land governance institutions, including institutions that manage land-based transactions;
- Support land use planning and education on productive and diversified land uses;

- Facilitate the development of competitive land markets by allowing for efficient and cost-effective land registration and transfers; and
- Facilitate access to justice, to address infringements of legitimate tenure rights.

Increase Responsible Land-Based Investment in Agriculture by the Private Sector

- Help investors, local communities and governments develop socially responsible partnerships that promote investment while protecting local land rights, including through the development of responsible contract models and compensation schemes;
- Help the private sector understand and minimize land-related risks in its agricultural investments, including through building public-private partnerships;
- Enhance the capacity of governments to screen prospective land-based agriculture investments, monitor and enforce investors' agreements, and to put in place responsive and accessible grievance mechanisms;
- Improve community consultation mechanisms and strengthen the capacity of local and national government, as well as community stakeholders, to negotiate with commercial agricultural investors; and
- Increase civic engagement and civil society advocacy for land rights and monitoring of the land sector.[1]

[1] To address land tenure within Feed the Future and New Alliance programming, USAID has available a core team of specialists within E3's Land Tenure and Resource Management Office to help with country assessments and integrated program designs. The LTRM Office also has available a global mechanism, the Strengthening Tenure and Resource Rights IQC, which USAID missions and operating units can utilize for procurement of land governance-related programming.

Appendix C: *Livestock Production Systems*

Term	Description
Rangelands (pastoral, agro-pastoral, sylvo-pastoral and extensive grasslands)	
System Characteristics	Arid and semi-arid zones, predominantly large and small ruminants Rainfall dependent, producer focus on risk management Economic and political exclusion resulting in significant inequalities Limited infrastructure, weak service provision and regulatory environment
Design opportunities and approaches	Pay attention to policy and inclusive governance including customary institutions, local administrations and capacity strengthening Enhance land tenure, land-use management and rangeland productivity Improve mobility and movement corridors, improve access to water and reduce conflict Consider integrated landscape/watershed approaches, including sustainable extensification Focus on building resilience, asset protection, risk management and drought cycle management, in particular; invest in strengthening local and regional market linkages, early warning/prevention and market sensitive emergency assistance Recognize environmental limits on sustainable intensification through supplemental feeding and integration with higher potential systems Strengthen animal health systems and increase market orientation and animal trade Develop on and off farm livelihood diversification; promote and strengthen urban-rural linkages and resource flows Foster important livestock-human nutrition linkages, notably milk consumption
Rural mixed crop-livestock	
System Characteristics	The predominant livestock system (diverse sub-systems, context) is critical Ruminant meat and milk, and pork where culturally appropriate, plus micro-stock Pro-poor role of backyard poultry whose eggs and meat are in high demand Integrated, multi-functional roles of livestock (variable but often low productivity) Limited access to inputs, services and markets, but systems are rapidly transforming
Design opportunities and approaches	Support livestock production best practices and appropriate sustainable intensification (improve resource use efficiency and nutrient cycling, integrating crops and livestock)

	Adopt conventional measures of herd/flock productivity that reflect commercial orientation and efficient use of natural resources. Consider genetic products and services where appropriate Mediate sector transition for small holder through improved land tenure and support to producer organizations and input markets; strengthen linkages to urban market demand Support animal health and disease control, extension services and improved genetics Support expansion of animal feed sector – dual purpose crops, safe use and processing of crop and agro-processing by-products, fodder production and conservation Develop incremental pathways to engage formal markets and meet quality standards Improve food safety and zoonotic disease control (particularly in dairy sector) Support producer groups, aggregation structures (e.g., milk collection centers), contract farming models to support smallholder and inclusive sector development Support expansion of smallholder dairy sector and inclusive fattening operations
Urban – Peri-urban	
System Characteristics	Poultry, dairy, small ruminant pigs, micro-stock, fattening systems Small scale, limited land, use of locally available food processing by-products
Design opportunities and approaches	Strengthen the important role of value chains and markets supplying perishable ASF products at household, local and regional levels Address challenges of land availability and animal feed supply, land use zoning/plans, agri-by-product use, feeding practices and feedlots/finishing Support producer groups and product aggregation to reduce transaction costs for traders and processors Provide access to genetic products and animal breeding services Support animal veterinary public health, extension services and improved genetics Support employment potential and value addition, focusing on poverty, youth and gender potential Address environmental, sanitary and veterinary public health issues
Intensive, commercial livestock production	
System Characteristics	Typically pig/poultry but also ruminant fattening and large scale feedlots Production provides access to affordable ASF through productivity efficiencies Significant public health and environmental externalities

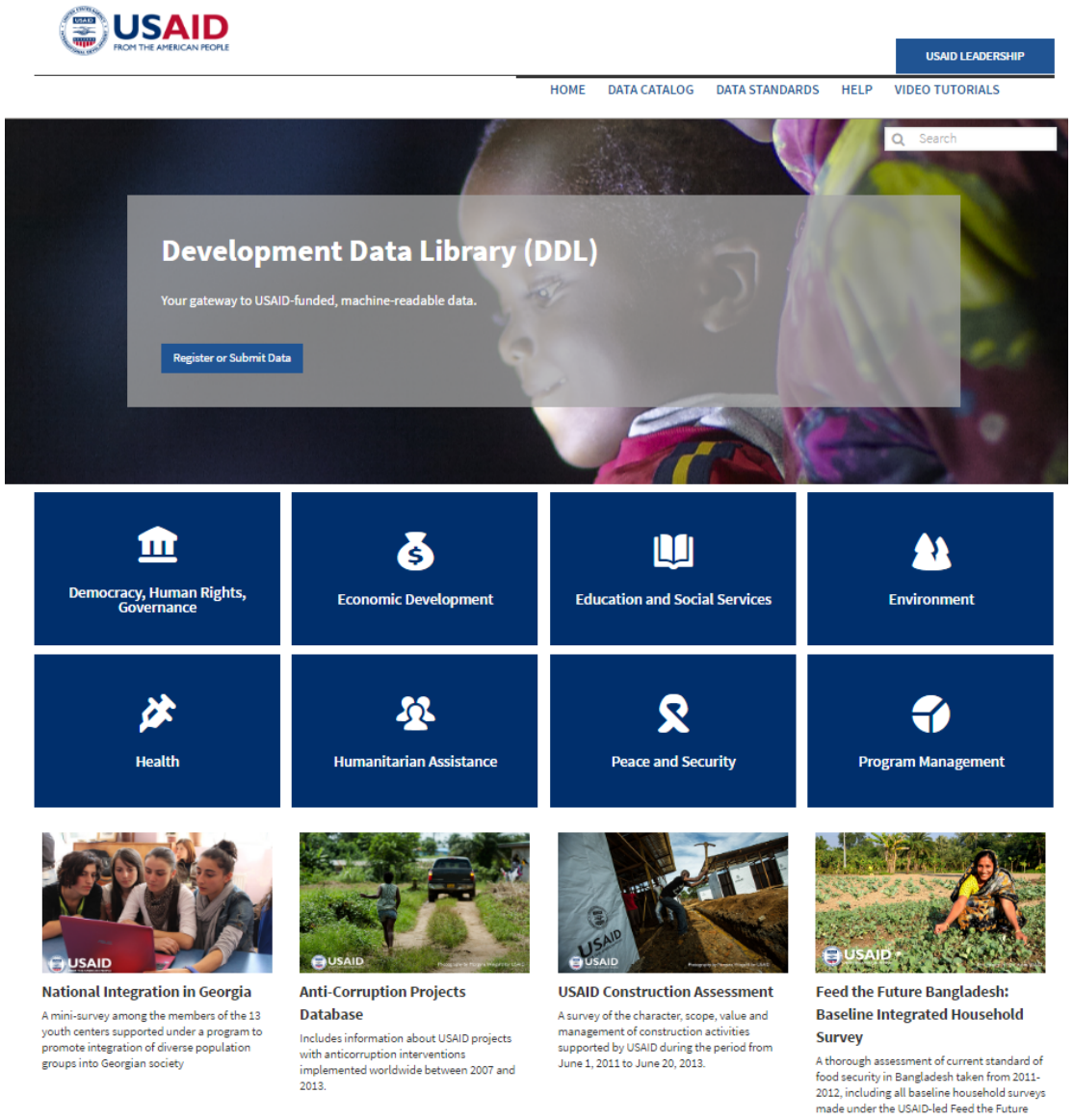
	Often under-pinned by contracts between producers/growers and processors; including externally sources feed such as soybean, maize and fodder Need for enabling policies and public infrastructure investment for roads, electricity grids and water and sewer infrastructure
Design opportunities and approaches	Use output contracts to provide access to capital, feeds and services Cultivate private sector and public-private partnership potential Increase sustainable production of crops for animal feeds and expand the feed sector Address environmental challenges: water, land use and waste management Increase productivity to reduce greenhouse gas emission intensity Address anti-microbial resistance and emerging disease externalities Foster inclusive, employment generation potential, including ASF processing Improve animal welfare (frame as a co-benefit when addressing increased productivity) Improve productivity and food safety through good agriculture and processing practices

Appendix D: Development Data Library (DDL)

The New Development Data Library (DDL) Platform

Coming in 2018!

New DDL Home Page



USAID
FROM THE AMERICAN PEOPLE

New DDL Data Catalogue for Search and Discovery

Feed the Future

Categories

- Democracy, Human Rights, and Governance
- Economic Development
- Education and Social Services
- Environment
- Health

Show All...

View Types

- Calendars
- Charts
- Data Lens pages
- Datasets
- External Datasets
- Files and Documents
- Filtered Views

132 Results

Sort by Most Relevant

Feed The Future, Baseline Population Based Survey - Mozambique

Agriculture

External Link

The Mozambique Population-Based Survey (PBS) provides a comprehensive assessment of the current status of agriculture and food security in two provinces, Zambizia and Nampula. These areas were selected based on national estimates that indicate that... More

Tags food insecurity, feed the future, hunger, poverty, consumption, and 3 more

Updated
November 1, 2016

Views
206

Feed The Future, Baseline Population Based Survey - Bangladesh

Agriculture

External Link

Feed the Future (FtF) seeks to reduce poverty and undernutrition in 19 developing countries by focusing on accelerating growth of the agricultural sector, addressing the root causes of undernutrition, and reducing gender inequality. The Bangladesh Integrated... More

Tags poverty, agriculture, feed the future, food insecurity, women's empowerment, and 3 more

Updated
October 25, 2016

Views
99

Feed The Future, Baseline Population Based Survey - Rwanda

Agriculture

External Link

The Rwanda Population-Based Survey (PBS) provides a comprehensive assessment of the current status of agriculture and food security in almost the entire country, including all four provinces and all of rural Rwanda. The Zone of Influence (ZOI) comprises... More

Tags agriculture, rwanda, women's empowerment, food insecurity, feed the future, and 3 more

Updated
September 19, 2016

Views
64

Feed The Future, Baseline Population Based Survey - Zambia, Children

Agriculture

Dataset

New DDL Dataset Landing Pages for Data Access

Feed The Future, Baseline Population Based Survey - Zambia, Children

Agriculture

Explore Data | Download | API | Share | ...

The Zambia Population-Based Survey (PBS) provides a comprehensive assessment of the current status of agriculture and food security in five districts — Chipata, Katete, Lundazi, Nyimba, and Petauke in Zambia. The PBS, which was conducted in November and December of 2012, measured household demographic information, dwelling characteristics, prevalence of poverty...
More

Updated
September 19, 2016

Data Provided by
Westat

Featured Content Using this Data

Choose to promote up to 3 Socrata assets that use this data, or choose to feature any relevant external resources. If left blank this section will be invisible.

Manage Featured Content

About this Dataset

Edit Metadata

Updated
September 19, 2016

Data Last Updated
July 8, 2016

Metadata Last Updated
September 19, 2016

Date Created
July 8, 2016

Views
91

Downloads
1

View all statistics for this Dataset

Data Provided by
Westat

Dataset Owner
Roy Miller

Contact Dataset Owner

Submission Profile

USAID Alternate Contact Email	zbaquet@usaid.gov
COR/AOR Name	Emily Hogue
Submitter Work Email	zbaquet@usaid.gov
Operating Unit of Origin	Bureau for Food Security
COR/AOR Email	ehogue@usaid.gov
Award Completion Date	2017-05-06
Submitting Organization DUNS Number	49508120
USAID Alternate Contact Name	Zachary Baquet
Award Number	AID-OAA-M-12-00006
Submitter Name	Zachary Baquet

Proposed Access Level

Proposed Access Level	Public
Proposed Access Level	Public

Show More

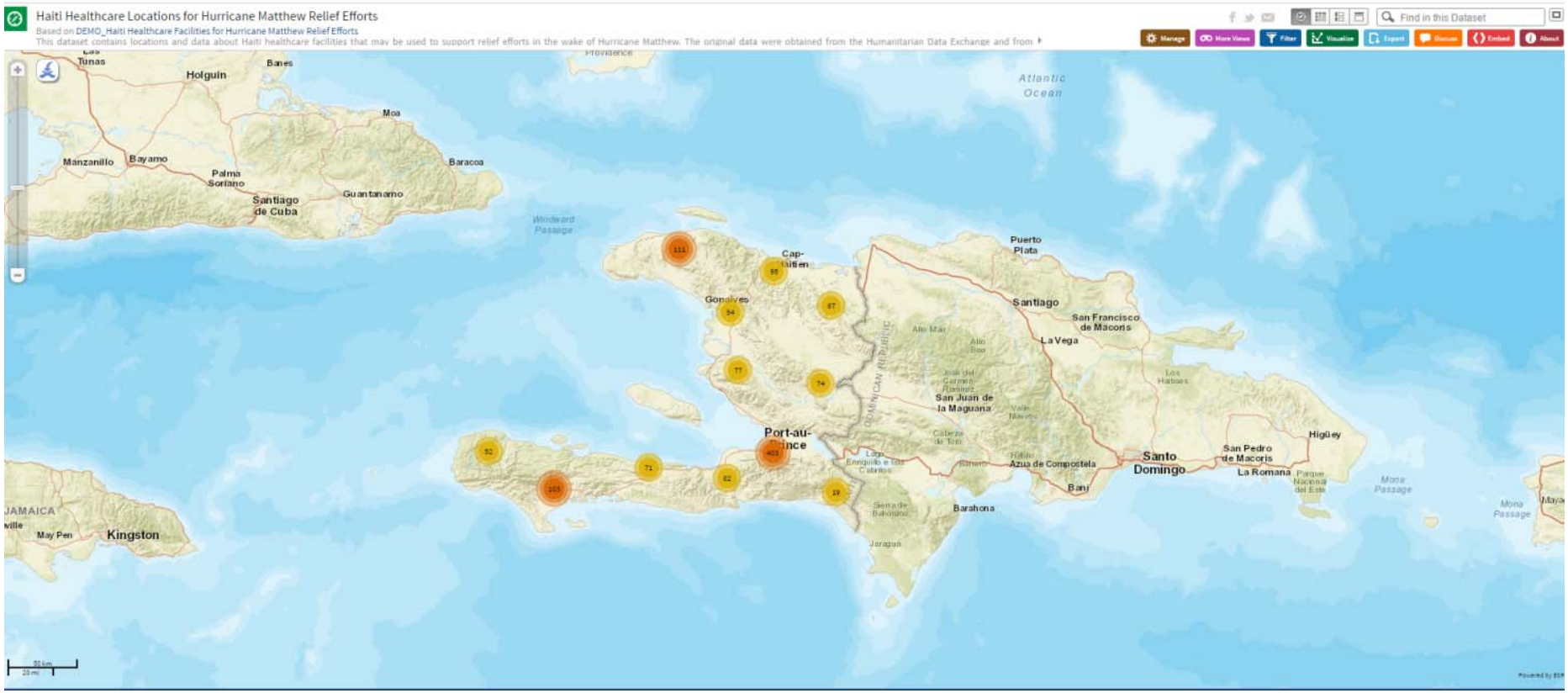
What's in this Dataset?

Rows
1,148

Columns
103

Each row is a
Child

New DDL Tools for Data Use



Appendix E:

Partnerships between CGIAR Centers and USAID Feed the Future Innovation Labs

Feed the Future Lab	Lead University	CGIAR Centers
Feed the Future Innovation Lab for Applied Wheat Genomics	Kansas State University	CIMMYT
Feed the Future Innovation Lab for Aquaculture and Fisheries	Oregon State University	WorldFish
Feed the Future Innovation Lab for Assets and Market Access	University of California, Davis	CIMMYT, IFPRI, ILRI
Feed the Future Innovation Lab for Climate-Resilient Beans	The Pennsylvania State University	CIAT
Feed the Future Innovation Lab for Climate-Resilient Chickpea	University of California, Davis	Crop Trust, ICARDA, ICRISAT

Feed the Future Innovation Lab for Climate-Resilient Cowpea	University of California, Riverside	IITA
Feed the Future Innovation Lab for Climate-Resilient Millet	University of California, Davis	ICRISAT
Feed the Future Innovation Lab for Climate-Resilient Sorghum	University of Georgia	ICRISAT
Feed the Future Innovation Lab for Climate-Resilient Wheat	Washington State University	IRRI
Feed the Future Innovation Lab for Food Processing and Post-Harvest Handling	Purdue University	CIMMYT, IITA
Feed the Future Innovation Lab for Food Security Policy	Michigan State University	CIMMYT, ICRISAT, IFPRI
Feed the Future Innovation Lab for Grain Legumes	Michigan State University	CIAT, ICARDA, ICRISAT, IITA
Feed the Future Innovation Lab for Integrated Pest Management	Virginia Polytechnic Institute and State University	CIMMYT, ICRISAT, IITA, IRRI
Feed the Future Innovation Lab for Livestock Systems	University of Florida	ILRI
Feed the Future Innovation Lab for Nutrition	Tufts University	IFPRI, WorldFish
Feed the Future Innovation Lab for Peanut Productivity and Mycotoxin Control	University of Georgia	ICRISAT, IFPRI, IITA
Feed the Future Innovation Lab for Small-Scale Irrigation	Texas A&M University	IFPRI, ILRI, IWMI
Feed the Future Innovation Lab for Sorghum & Millet	Kansas State University	ICRISAT
Feed the Future Innovation Lab for Soybean Value Chain Research	University of Illinois	IITA
Feed the Future Innovation Lab for Sustainable Intensification	Kansas State University	CIAT, CIMMYT, IFPRI, IITA, ILRI, IRRI, IWMI

The following Innovation Labs are not working with CGIAR centers in FY 16:
Horticulture

Genomics for Improved Poultry

Reduction of Post-Harvest Loss

Rift Valley Fever Control in Agriculture