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

WELCOME

Food Security and Agriculture Core Course

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

AGRICULTURE RESEARCH AS A DEVELOPMENT TOOL

Photo: Ron Savage/USAID

Food Security and Agriculture Core Course

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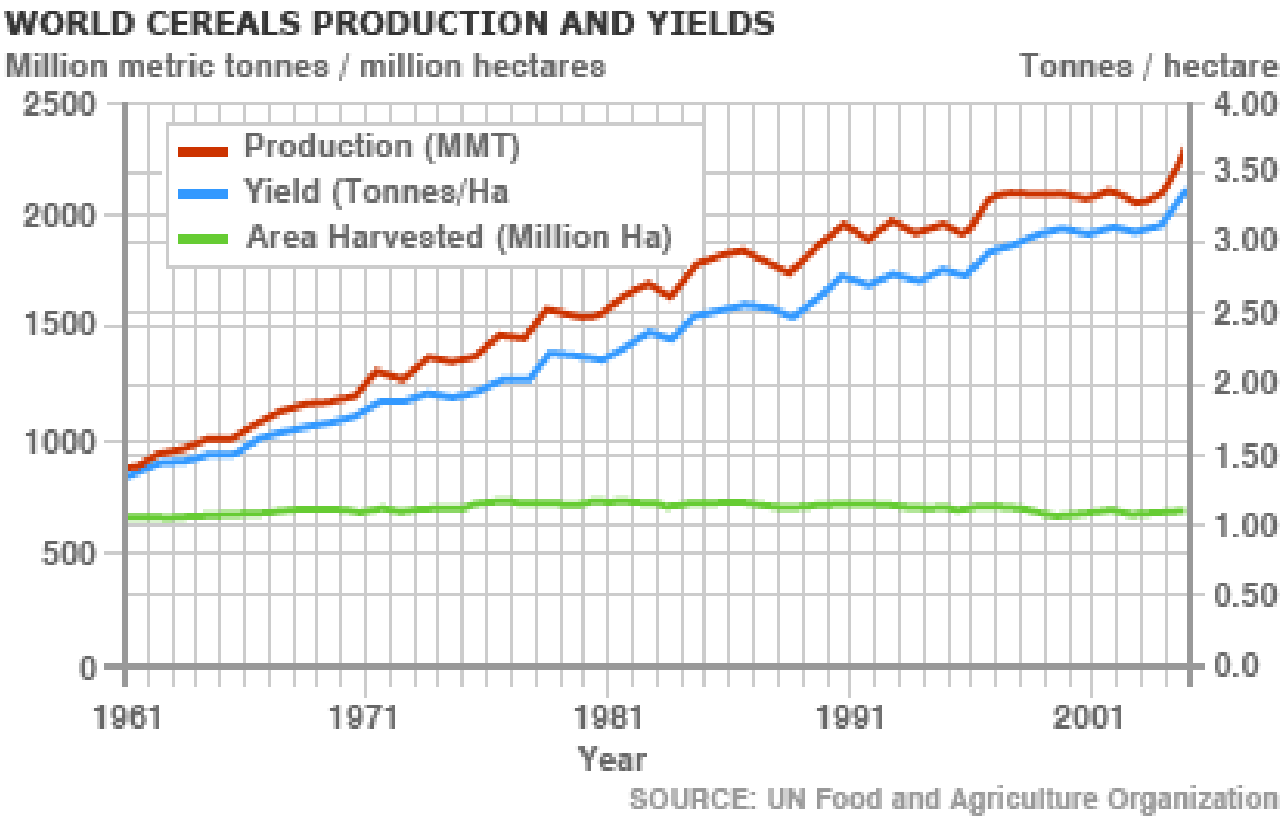
OBJECTIVES

- Understand what agricultural research is and why it is important to achieve global food security development goals.
- Understand how research programming is distinct from development programming (greater geographic/temporal scale, pipeline model of R&D investments).
- Become familiar with the global agricultural R&D landscape and know where to find relevant information and resources to support regional- or country-level strategy and programming.
- Identify and articulate research priorities in a local country context.
- Incorporate research outputs and programming into USAID's bilateral food security efforts through a variety of approaches and mechanisms.


WORLD CEREALS PRODUCTION AND YIELDS
Million metric tonnes / million hectares
Tonnes / hectare
Production (MMT)
Yield (Tonnes/Ha
Area Harvested (Million Ha)
2500
2000
1500
1000
500
0
4.00
3.50
3.00
2.50
2.00
1.50
1.00
0.50
0.0
1961
1971
1981
1991
2001
Year
SOURCE: UN Food and Agriculture Organization

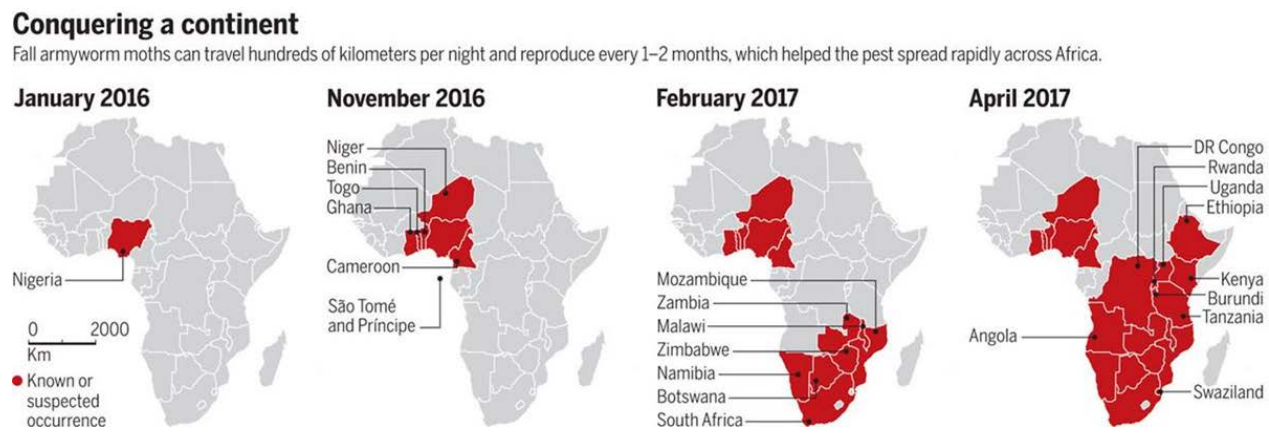
WHY IS FOOD SECURITY RESEARCH IMPORTANT?

Food security research generates ***innovations*** (technologies, practices, policies and knowledge) that—when enabled by functional policies, markets and institutions—are powerful drivers of long-term food security.

Ultimately, research outputs help to:

- Reduce poverty
- Improve production and availability of staple and diverse foods
- Drive prosperity
- Reduce, manage mitigate risks

FOOD SECURITY RESEARCH: RUNNING TO STAND STILL



- New pests and diseases emerge, climate and agroecological conditions shift, and market and consumer preferences change.
- Continued research is needed to protect food security gains already made, let alone enable continued improvement.

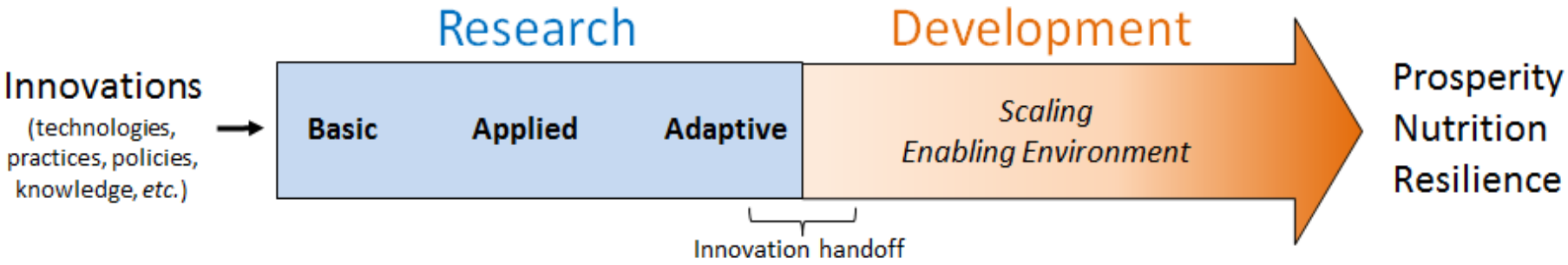
FOOD SECURITY RESEARCH UNDER FEED THE FUTURE

- The **Global Food Security Act (GFSA)** explicitly called for U.S. investments to "leverage U.S strategies and investments in … science and technology, agricultural research, and extension."
- The **Global Food Security Strategy (GFSS)** emphasizes that research investments "ensure a pipeline of innovations, tools, and approaches designed to improve agriculture, food security, resilience, and nutrition priorities in the face of complex, dynamic challenges."
- The U.S. Government's **Global Food Security Research Strategy** describes a framework for coordinated inter-Agency investment in food security research across the U.S. Government.

WHAT IS RESEARCH?

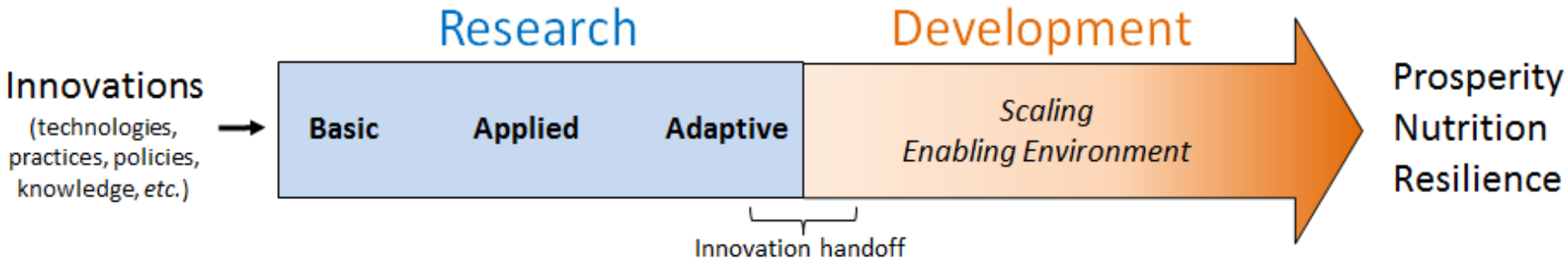
- People use the word “research” in many different ways. How do you define it?
- Would you modify or change this definition to address “food security research” in the context of Feed the Future?
- What is the difference between “research” and “monitoring and evaluation”? How is the Feed the Future “Research Strategy” different from the Feed the Future “Learning Agenda”?

FROM INNOVATION TO IMPACT: THE PROCESS OF RESEARCH AND DEVELOPMENT



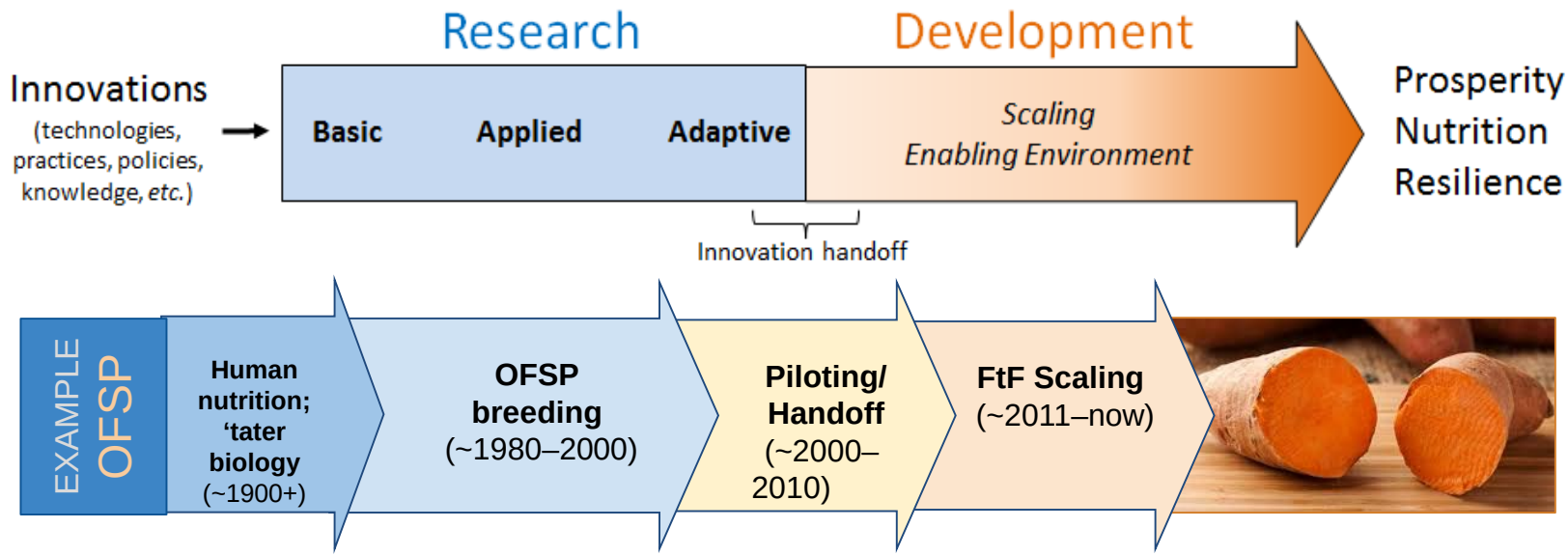
The **Research and Development Pipeline** is a simple way to describe the process by which innovations (which can include new or improved technologies, processes, policies or knowledge) are developed and applied in order to achieve food security impacts.

FROM INNOVATION TO IMPACT: 4 KEY TAKEAWAYS ABOUT FTF RESEARCH INVESTMENTS



1) **Research takes time!** Today's USAID development programs leverage the outputs of research investments made 5–20 years into the past.

FROM INNOVATION TO IMPACT: 4 KEY TAKEAWAYS ABOUT FTF RESEARCH INVESTMENTS



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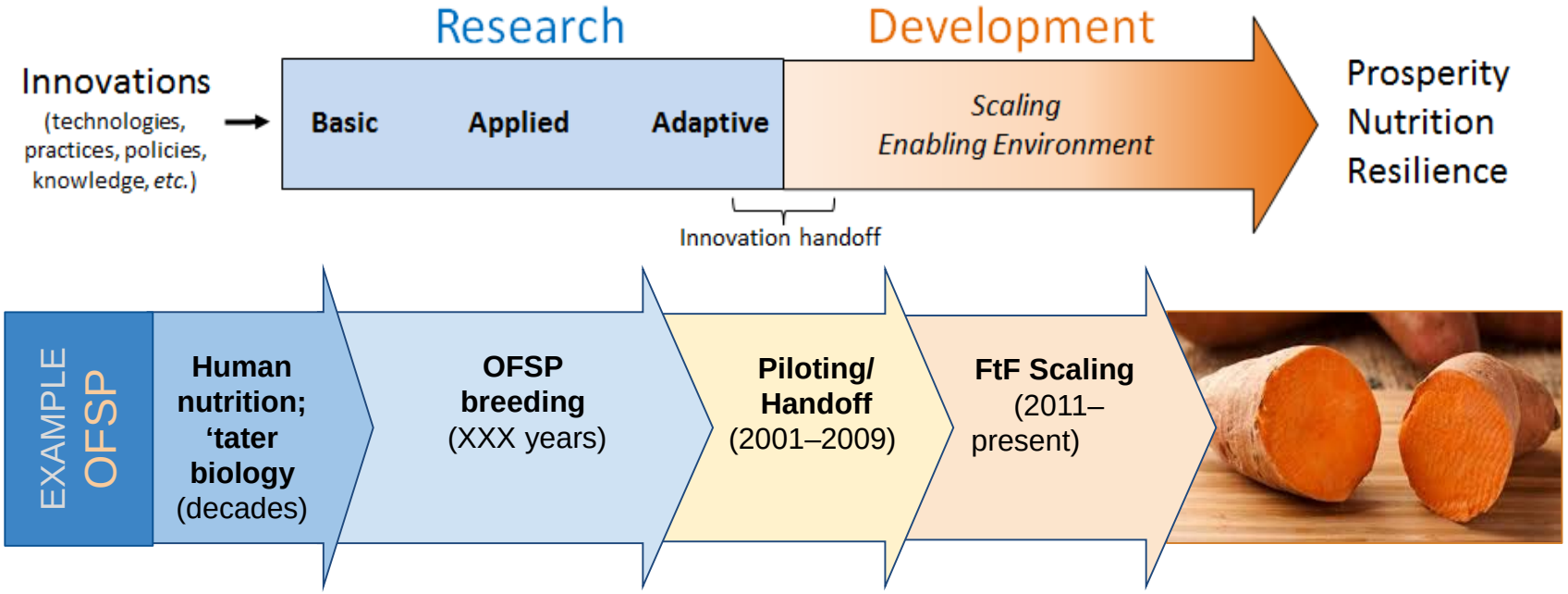
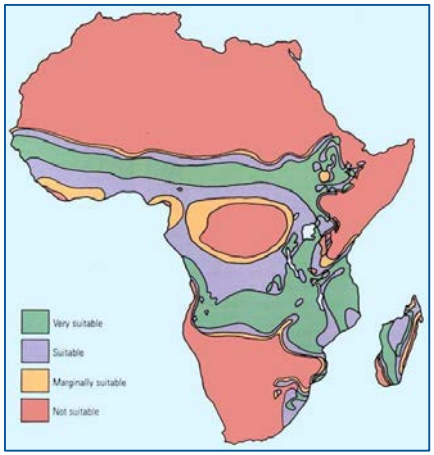


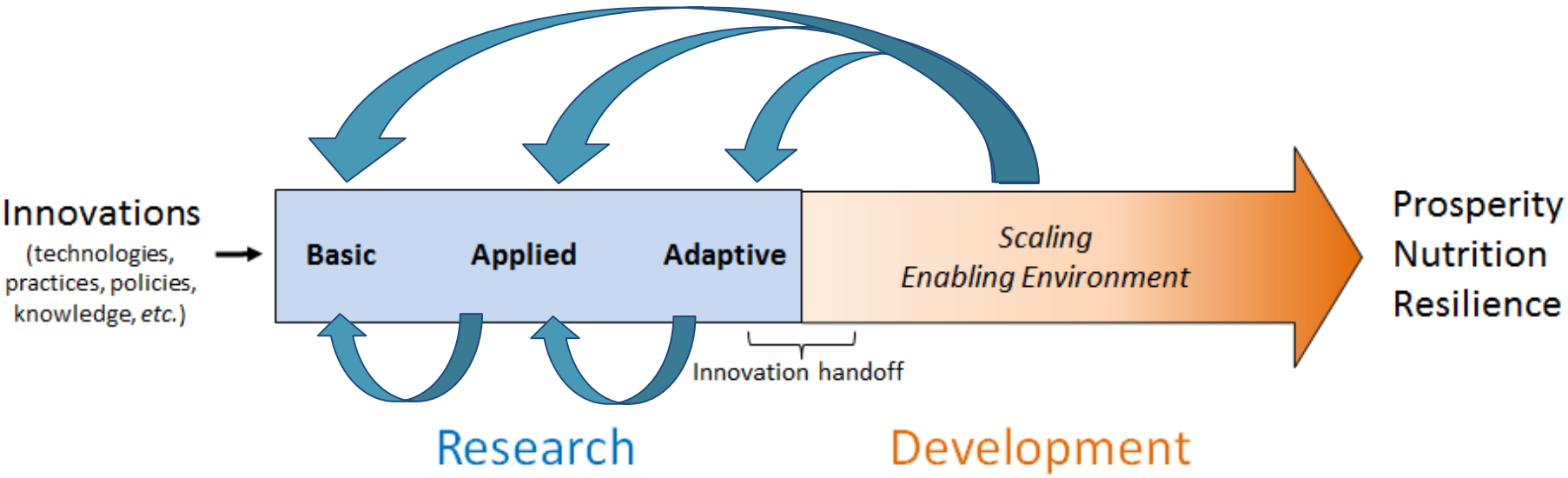
1) **Research takes time!** Today's USAID development programs leverage the outputs of research investments made 5–20 years into the past; ***today's* research investments will deliver innovations that address challenges that emerge 5–20 years into the future.**

FROM INNOVATION TO IMPACT: 4 KEY TAKEAWAYS ABOUT FTF RESEARCH INVESTMENTS



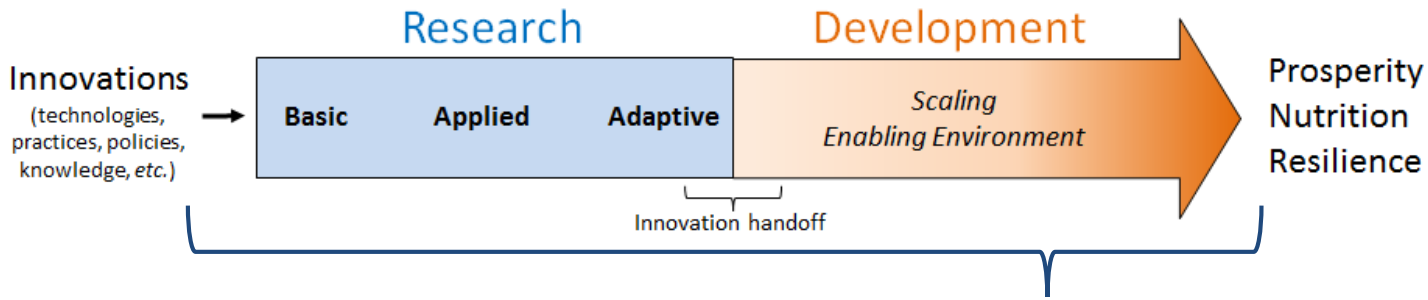
2) **The most efficient geographic scope for research will vary.** Depending on the stage and nature of the research, and the scale and scope of the potential research output, research activities may best be focused (and funded) centrally, regionally or bilaterally.

FROM INNOVATION TO IMPACT: 4 KEY TAKEAWAYS ABOUT FTF RESEARCH INVESTMENTS

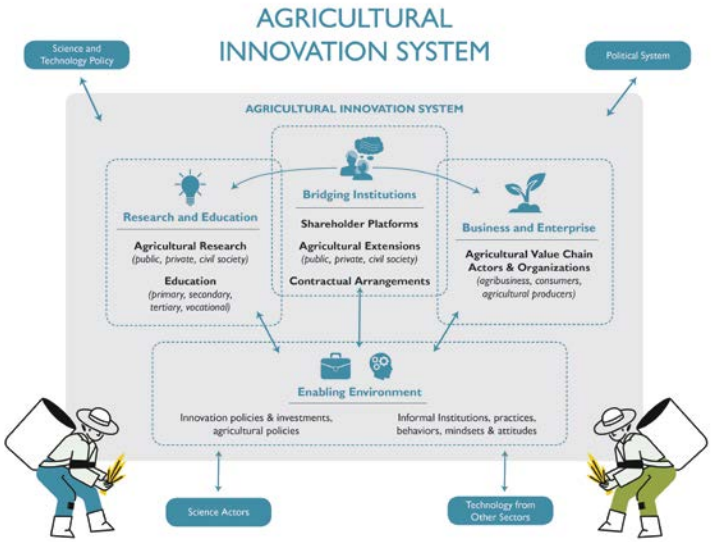


3) **Reality is more complicated!** Downstream actors also influence upstream research processes and most innovations undergo many cycles of research, testing, feedback and refinement.

FROM INNOVATION TO IMPACT: 4 KEY TAKEAWAYS ABOUT FTF RESEARCH INVESTMENTS



4) The R&D process occurs in the context of overlapping national, regional and global Agricultural Innovation Systems. Different actors contribute at different stages of the R&D process; as an innovation matures, a variety of partners may contribute in different ways over time or in different geographies.



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THE FEED THE FUTURE [CENTRAL] RESEARCH PORTFOLIO

Informed by these key takeaways, the central Feed the Future research portfolio balances:

- **Timeline:** “Downstream” activities with near-term impact, some targeted “upstream” activities with big potential long-term impacts.
- **Geography:** Primarily global/regional scope, with some targeted country-level investment (e.g., to facilitate innovation handoff or catalyze broader regional innovation).

In addition to advancing a broad food security research mandate, central research investments aim to leverage, complement, and support Mission objectives in research, HICD, technology-scaling and development.

THE FEED THE FUTURE RESEARCH PORTFOLIO

Central USAID food security research investments are loosely organized into five technical areas:

- Crops
- Livestock
- Sustainable Intensification
- Safe & Nutritious Foods
- Policy

Nutrition and gender are addressed as cross-cutting issues.

HICD and linkages to technology-scaling efforts are core principles for design and implementation of research activities.

RESEARCH IMPLEMENTING PARTNERS

U.S. Research System

- U.S. universities
- USDA
- U.S. and global private sector

Global Food Security Research System

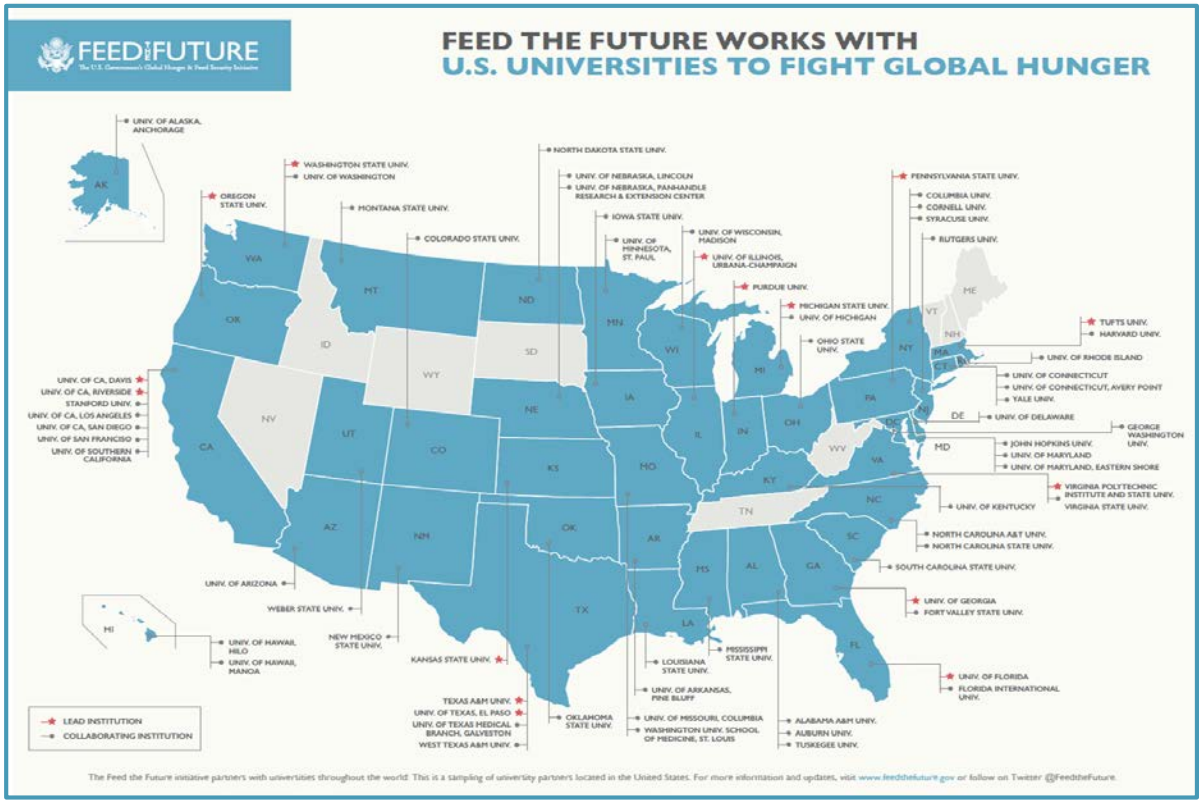
- CGIAR & other international research organizations

National/Regional Agricultural Research Systems

- Regional/national agricultural research organizations
- Partner-country universities
- Local private sector
- Other actors within the local Agriculture Innovation System

FEED THE FUTURE INNOVATION LABS

- U.S.-based researchers collaborate with partner-country researchers.
- Significant capacity development component (Ph.D., masters training).
- Typically have potential for Mission buy-ins or Associate Awards.



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EXAMPLES: FTF INNOVATION LABS ACROSS THE 5 RESEARCH AREAS

Soy Value Chain
- Breeding for Africa
- Local agronomy
- Processing technologies—Promoting development of the soy value chain

Livestock Systems
- Livestock value chains
- Disease management
- Animal source foods
- Enabling policies

Integrated Pest Management
- Participatory IPM systems
- Hort and grain crops
- Dissemination through Centers of Excellence

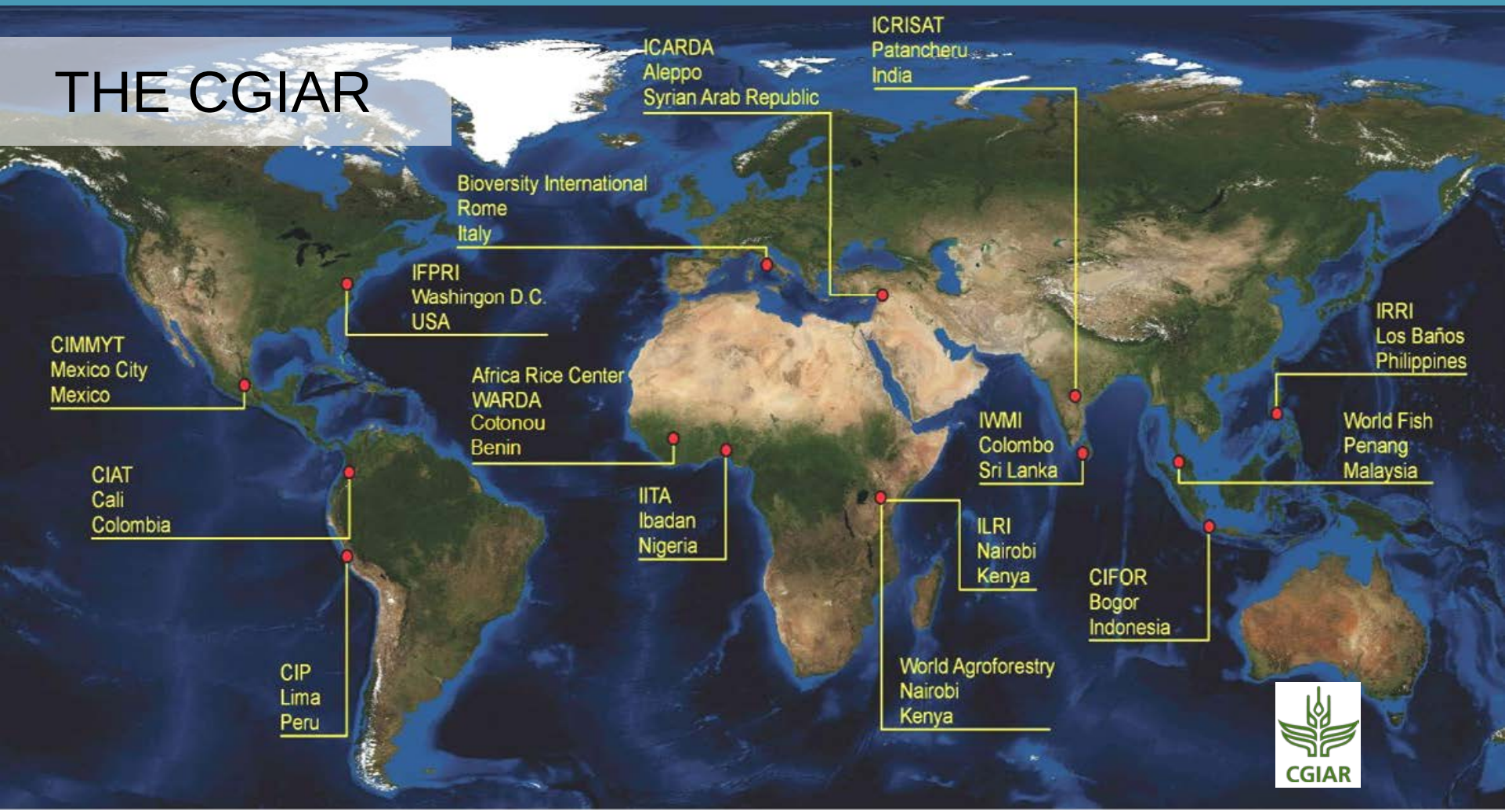
Post-Harvest Loss Reduction
- Loss/waste reduction
- Moisture measurement
- Drying/storage techniques
- Insect/mycotoxin prevention




Assets & Market Access
Policy research on how market function and access promotes (or hinders) asset accumulation, competitiveness, and the capacity of smallholder farmers and the rural poor to manage economic and climate-related shocks.

For more information, contact BFS/ARP or check out the "Innovation Lab Fact Sheet."

THE CGIAR


ICARDA
Aleppo
Syrian Arab Republic
ICRISAT
Patancheru
India
Bioversity International
Rome
Italy
IFPRI
Washingon D.C.
USA
CIMMYT
Mexico City
Mexico
Africa Rice Center
WARDA
Cotonou
Benin
IRRI
Los Baños
Philippines
IWMI
Colombo
Sri Lanka
World Fish
Penang
Malaysia
CIAT
Cali
Colombia
IITA
Ibadan
Nigeria
ILRI
Nairobi
Kenya
CIFOR
Bogor
Indonesia
CIP
Lima
Peru
World Agroforestry
Nairobi
Kenya
CGIAR

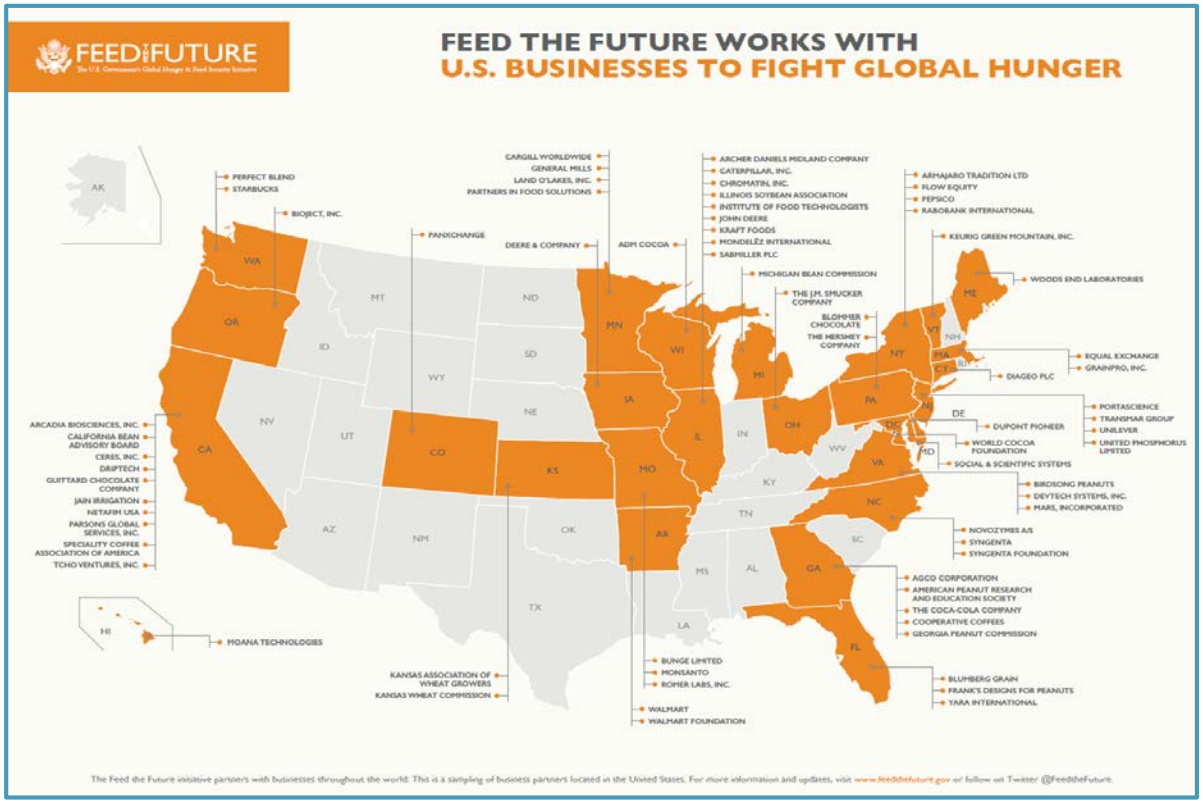
EXAMPLES: USAID INVESTMENTS IN THE CGIAR

- Core support to the CGIAR research platform and its institutional research programs
- Bilateral activities procured for food security research and scaling, e.g.:
  - Centrally funded Africa RISING sustainable intensification research project.
  - Mission-funded seed-scaling and value chain development activities.
  - IFPRI policy research and capacity support for Feed the Future target countries.

For further information on activities or buy-ins under USAID's PIO grant to the CGIAR, contact AOR Eric Witte (ewitte@usaid.gov).

PRIVATE-SECTOR RESEARCH PARTNERSHIPS

- Partner with large and small companies, both domestic and international, on all types of technology (*i.e.,* seed, machinery, services, and communications)
- Partnerships range from technology access agreements (*i.e.,* donated Intellectual Property) to active private sector engagement in the technology development process



PRIVATE-SECTOR RESEARCH PARTNERSHIPS

- Global, U.S. and local private-sector partners
- Private sector can contribute in a variety of ways:
  - Direct funding or co-implementation of activity.
  - Donate/license intellectual property.
  - In-kind contribution of technical expertise, staff time, resources, research services.
  - Commercial scaling pathway for outputs.
  - Sit on project advisory/steering committees.
  - Participate in “innovation platforms” to guide research priorities & implementation.

USAID BIOTECHNOLOGY INVESTMENTS

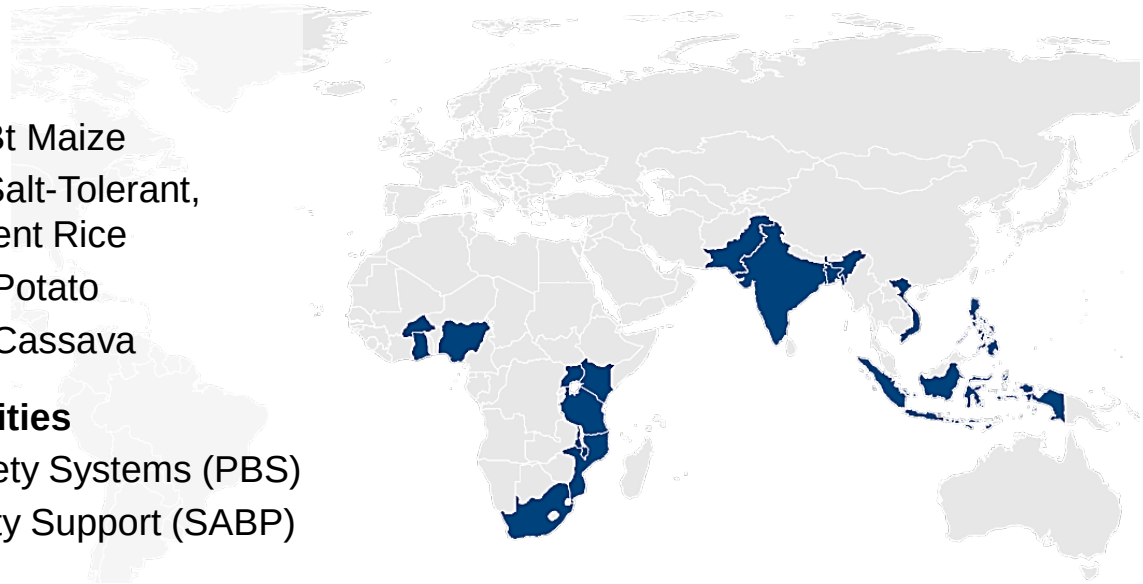
- USAID uses all scientifically validated technologies
- Public-sector-led and public-private partnerships
- Policy capacity development and product development activities

Examples: Biotech Products

- Bt Eggplant
- Bt Cowpea
- Climate-Resilient, Bt Maize
- Climate-Resilient, Salt-Tolerant, Nitrogen-Use-Efficient Rice
- Disease-Resistant Potato
- Disease-Resistant Cassava

Biotech Policy Activities

- Program for Biosafety Systems (PBS)
- South Asia Biosafety Support (SABP)



NATIONAL/REGIONAL AGRICULTURAL RESEARCH SYSTEMS

Typically sub-awardees of centrally funded research awards; sometimes direct award recipients (particularly for HICD investments). Can include:

- Regional/national agricultural research organizations
- Partner-country universities
- Local private sector
- Other actors within the local Agriculture Innovation System (e.g., farmer organizations, NGOs, etc.)

NARO

RESEARCH BEST PRACTICES FOR TECHNOLOGY SCALING

Technology Scaling: Process by which an innovation (technology, practice, policy or knowledge) undergoes widespread, sustained adoption and use by beneficiaries in a manner that enhances food security.

Best practices for research activities:

1. Explore and identify potential scaling pathways early in R&D process.
2. Active collaboration between researchers and potential scaling partners.
3. Use participatory research methodologies in co-design and testing of innovations.
4. Solicit and respond to ongoing, iterative feedback from end-users, stakeholders and technology scaling partners.
5. Maintain engagement by research partners as advisors after technology handoff.

ACTIVITY: IDENTIFY RESEARCH NEEDS

YOU WERE ASKING …

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SCALING FOR WIDESPREAD ADOPTION OF IMPROVED TECHNOLOGIES AND PRACTICES

Photo: KORKA 3

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OBJECTIVES

- Understand widespread adoption is really important for GFSS objectives and it requires careful consideration of how to reach indirect beneficiaries (e.g., through programming for diffusion of adoption).
- Analyze the characteristics of the technology and/or practice that facilitate scaling.
- Think through a framework for selecting an appropriate delivery pathway (e.g., private sector, public sector) and identifying appropriate actors.
- Consider the role of drivers and the enabling environment in developing a strategy to facilitate scaling through diffusion.

Scaling is used in many different ways:

- scaling a program
  - e.g., increased funding and expanded geographical area
- scaling for visibility and action on an issue
  - e.g., increased government attention
- scalability of a system
  - e.g., the network can efficiently handle 2 users, or 200,000 users
- scaling a model
  - e.g., off-taker driven farmer cooperatives for aggregation
- **scaling for widespread adoption of technologies and practices**

our focus in this session

WHY CARE ABOUT SCALING THE ADOPTION OF PRACTICES AND TECHNOLOGIES?

1) Adoption of improved practices and technologies underlie success of GFSS.

Illustrative examples:

Increased sustainable productivity (IR 4): Improved seeds, fertilizer and practices for increased yield and fodder production; storage and drying to reduce post-harvest loss; animal health services; integrated pest management; services for market price information; water management practices; high quality feed for fish
Improved proactive risk reduction, mitigation and management (IR 5): Insurance for risk transfer; financial services
Increased consumption of nutritious and safe diets (IR 7): Growing iron-fortified beans and orange-fleshed sweet potato; post-harvest loss innovations that increase year round availability of nutritious foods
Increased use of direct nutrition interventions and services (IR 8): Micro-nutrient supplementation, improved breastfeeding practices
More hygienic household and community environments (IR 9) : Hand washing; separation of small animals from play areas
Improved climate risk, land, marine, and other natural resource management (CC IR 2): Cover crops; weather forecasts; seeds and practices for agro-forestry
Increased gender equality and female empowerment (CC IR 3): Processing equipment and mechanization appropriate for women
Increased youth empowerment and livelihoods (CC IR 4): Mechanization and service provider businesses linked to mechanization.

WHY CARE ABOUT SCALING THE ADOPTION OF PRACTICES AND TECHNOLOGIES?

2) GFSS aims for population level impacts
   - Efforts need to reach a large percent of potential adopters
   - To be cost effective and sustainable, this requires reaching indirect beneficiaries

How can a GFSS program for widespread adoption?

A VERY FIRST STEP

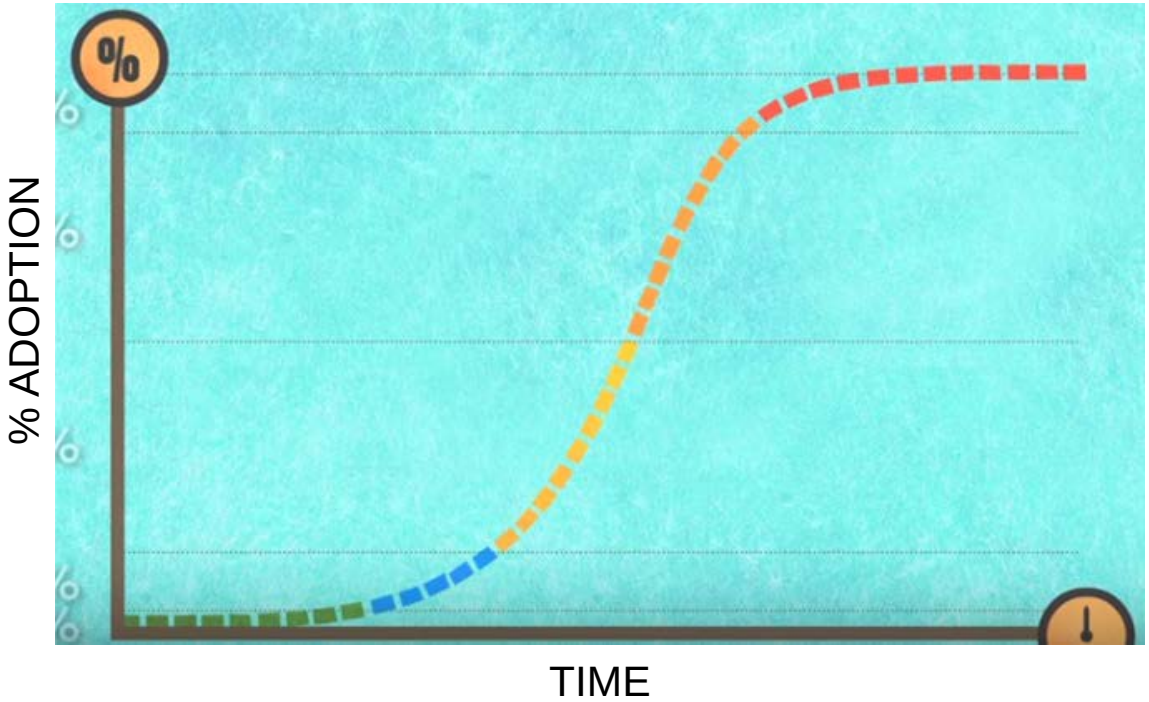
- Widespread adoption requires technologies and practices to be available beyond a target group.
- Need delivery pathway actor(s) that are not the implementing partner.
- e.g., if a farmer walks by a demo plot and is inspired to try the new seed variety and accompanying practices, can she access the seed and knowledge?

PROGRAMMING FOR WIDESPREAD ADOPTION

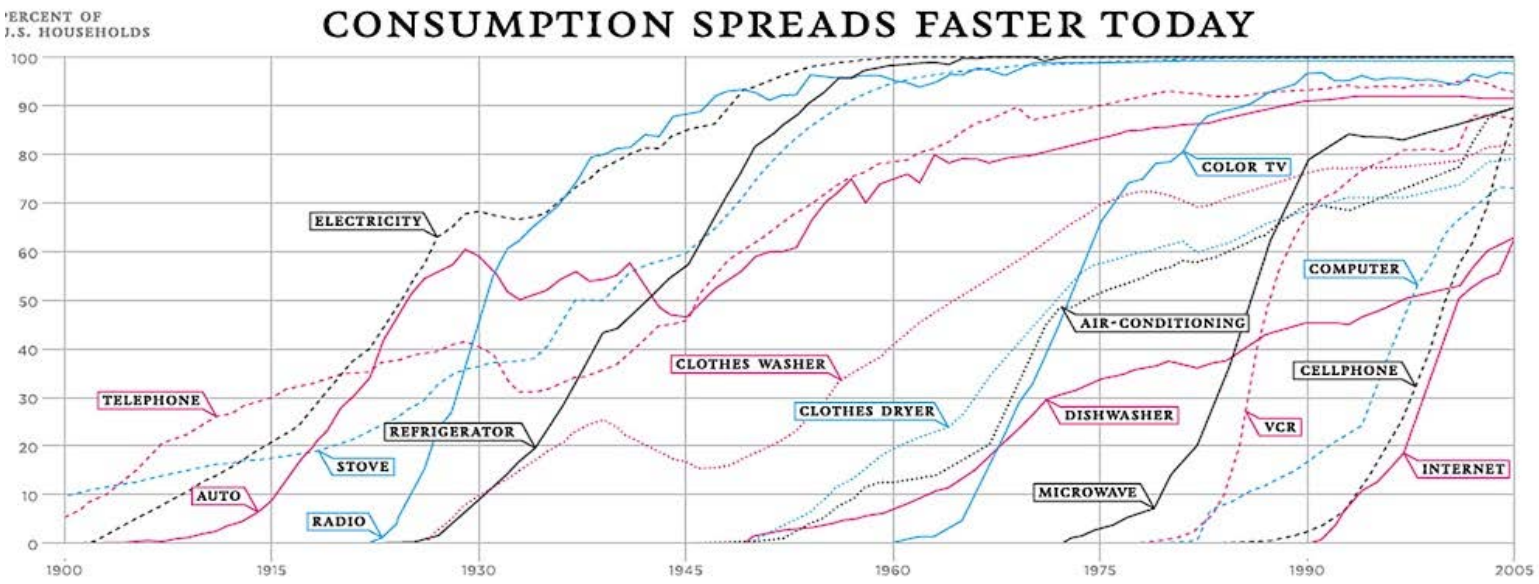
- Consider the characteristics of the technology and/or practice that facilitate scaling
- Identify the appropriate delivery pathway category and actor(s)
- Analyze the drivers and enabling environment to determine strategies to facilitate scaling through diffusion
- Steps are iterative and link to the CDAIS steps

DIFFUSION OF ADOPTION

Diffusion of Innovations Video (3:35 min)



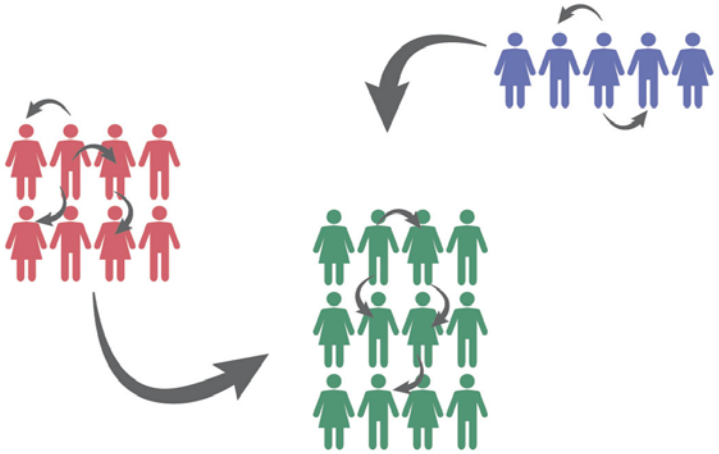
DIFFUSION OF ADOPTION—SUPPORT FOR THE S-CURVE



Felton N, Cox WM, Alm R (2008) You are what you spend. New York Times, 10 Feb, New York City

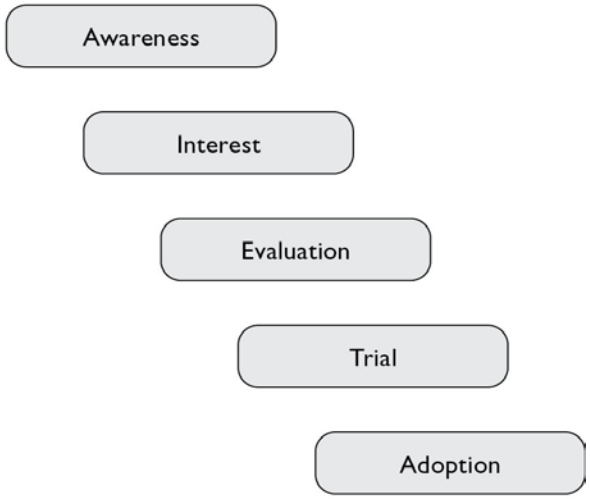
RATE OF ADOPTION

- Communication networks
  - Support the adoption process
  - Can reduce spatial heterogeneity



- Purchasing power & capacity

Adoption process



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CHARACTERISTICS OF INNOVATIONS

What makes an innovation more likely to be adopted?

- **Relative Advantage:** the extent to which an innovation is perceived as more useful than what it supersedes.
  - Cost or time savings, or reduced environmental impact.
  - Perceptions vary by group—consider those of women and youth.
- **Compatibility:** a measure of how well an innovation is perceived as being consistent with existing values, past experiences, and needs of potential adopters.
- **Complexity:** the degree to which an innovation is easy to understand and use.
- **Trialability:** the degree to which an innovation may be tested and with minimal risk.
- **Observability:** the degree to which the results of an innovation are visible and repeatable.

Rogers (1962) Diffusion of Innovations

GENDER AND ADOPTION

- It is often not gender per se, but the underlying variables that impact adoption, such as resource inequalities
  - e.g., capital, land tenure, education
  - o A narrow focus on differences between men and women may mask more important differences among women, such as age, education level and size of landholding

Quisumbing and Pandolfelli (2009)
Marenya and Barret (2007)

- Innovations can be technologies, practices or packages of technologies and practices
  - e.g., improved poultry breed and accompanying practices of buying supplemental feed
- Adoption needs to maintain or improve quality
  - The positive impact of the technology/practice is maintained or improved upon during sustained adoption

PROGRAMMING FOR WIDESPREAD ADOPTION

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DELIVERY PATHWAY

- Private sector or commercial
- Public sector
- Civil society
- Public-Private Partnership
- Range of actors in a delivery pathway
  - e.g., commercial pathway—manufacturer, distributor, retailer
- How do you determine the right type of delivery pathway?

Demand Pull and high return to delivery pathway actors

Potential for pay-to-consume

	High	Low
High	**Private Good – Private Sector Dominant** Access is based on payment and the good cannot be simultaneously used by multiple consumers (e.g., fertilizer, hybrid maize)	**Common Good – Public-Private Collaboration** Access is not controlled by payment, but the good cannot be simultaneously used by multiple consumers (e.g., rangeland, seed of open-pollinated varieties)
	POTENTIAL FOR COMPETITION	
Low	**Club Good – Niche Private Sector** Access is based on payment, but the good can be simultaneously used by multiple consumers until congestion occurs (e.g., irrigation system, warehouse)	**Public Good – Public Sector Dominant** Access is not controlled by payment and the good can be simultaneously accessed by multiple consumers (e.g., public radio, information for behavior change)

Supply Push and low to no return to delivery pathway actors

Figure 2. Categories of goods, with delivery pathway actors added. A good can fall between categories and it can move between categories over time.

DELIVERY PATHWAYS

I think market forces are critical here. And sometimes people say, “Well, you know, the private sector does everything better.” And I don’t know that that’s really the case so much as the private-sector entities that did it poorly no longer exist, right? Because they go out of business. And public-sector entities can stay in business for a very long time no matter how poor their performance is.

*— Dr. Jim Yong Kim (2015), in an Freakonomics interview to discuss “**Mind, Society, and Behavior**,” a study focused on the success of behavioral interventions that have helped boost savings rates, reduce water consumption, improve education, and eliminate biases among development professionals themselves.*

DELIVERY PATHWAYS

- Key to realizing research investments
  - Research products must be transferred through actors along delivery pathways who promote and enable adoption by end users

Given the significant amounts of donor and government funding that support breeding, a clearer understanding of what happens to varieties, and seed of the varieties, after release is warranted. A further reason for such tracking is that variety maintenance can be costly, and it is unrealistic to assume that a variety will be maintained in perpetuity in the absence of farmer or seed company interest. Agri Experience (2016)

PROGRAMMING FOR WIDESPREAD ADOPTION

- Consider the characteristics of the technology and/or practice that facilitate scaling
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- **Analyze the drivers and enabling environment to determine strategies to facilitate scaling through diffusion**

ANALYZE THE DRIVERS AND ENABLING ENVIRONMENT TO DETERMINE STRATEGIES TO FACILITATE SCALING

- Incentives and motivations of end users and delivery pathway actors are critical
- They depend on
  - the enabling environment (e.g., policy, finance, taxes, subsidies, institutional capacity)
  - a range of social factors (e.g., cultural norms, labor constraints).
- Environmental and health impacts need to be considered.
- Not all innovations can be scaled, and others are not worth scaling if they are not sustainable.

For ***commercial delivery pathways***, the following considerations have received strong support for programming for successful scaling:

- Identify private-sector partners as early as possible
- Establish that there is a solid business case for most actors in the value chain and potential consumers' willingness to pay
- Use an adaptive approach that incorporates metrics appropriate for commercial monitoring
- Support market actors to use a targeted marketing to increase demand
- Use subsidies and incentives *judiciously* early in the process to mitigate risk for both private sector partners and adopters and have a planned exit strategy
- Address gaps and weaknesses in the value chain
- Ensure public-sector support, even if the government has limited involvement in implementation

EXAMPLE – PICS HERMETIC STORAGE BAGS IN KENYA

Characteristics of innovations that facilitate scaling:
relative advantage, compatibility, complexity, trialability, observability

	Characteristic
PICS bags are an upgrade to existing technology.	
Demand can be successfully created through 'open the bag' ceremonies that clearly show the bags are nearly 100% effective.	
The bags retail for the equivalent of $2.35 US dollars.	
Bags can be used for up to three seasons.	
The bags increase profit by increasing the quantity of grain that can be sold and also by allowing storage until grain has a higher market value.	
In addition to profit, PICS bags have appeal to health conscious farmers because they eliminate post-harvest pesticides.	

EXAMPLE – PICS HERMETIC STORAGE BAGS IN KENYA

Characteristics of innovations that facilitate scaling:
relative advantage, compatibility, complexity, trialability, observability

	Characteristic
PICS bags are an upgrade to existing technology.	compatibility and limited complexity
Demand can be successfully created through 'open the bag' ceremonies that clearly show the bags are nearly 100% effective.	clearly show the bags are nearly 100% effective
The bags retail for the equivalent of $2.35 US dollars.	trialability
Bags can be used for up to three seasons.	relative advantage
The bags increase profit by increasing the quantity of grain that can be sold and also by allowing storage until grain has a higher market value.	relative advantage
In addition to profit, PICS bags have appeal to health conscious farmers because they eliminate post-harvest pesticides.	relative advantage

EXAMPLE – PICS HERMETIC STORAGE BAGS IN KENYA

Delivery pathways and strategies

- PICS were a public research investment with an initial public-private pathway.
- They have transitioned into a private good with a clear commercial pathway.
- The technology offers a solid business case for stakeholders along the value chain, including the manufacturer, national wholesaler, retailers, and smallholder maize and other grain producers.
- Farmers needed increased awareness of the value. The project worked with farmers' organizations, country director of agriculture and others. They supported 'open the bag' ceremonies.
- USAID-KAVES supported the producer with technical assistance and modest funding.
- Purdue University, the research partner with technical knowledge, worked with private sector to improve marketing strategy.
- The success of PICS bags in Kenya has resulted in competition and crowding in of other, more advanced, hermetic storage technologies.

*For other delivery pathways, such as **public-private**, **public-sector**, and **community-based**, factors for successful scaling can vary widely. General points for consideration include:*

- Establish that actors within the delivery channel have a clear motivation and the required capacity
- Use an adaptive approach based on feedback from the stakeholders
- Create a targeted strategy to stimulate end user awareness and demand through marketing, promotion, and behavior change efforts
- Assess the need for demand creation and ensure the strategy to create it is informed by incentives and constraints of the potential adopters
- Find a champion, or a promoter, of the innovation
- For behavior change, analyze barriers and motivations that are different than the ones the project is promoting. Knowledge and awareness are important for adoption but often insufficient.
- Identify cost recovery options to offset public funding and have a project exit strategy

PROGRAMMING FOR WIDESPREAD ADOPTION

- Consider the characteristics of the technology and/or practice that facilitate scaling
- Identify the appropriate delivery pathway and actor(s)
- Analyze the drivers and enabling environment to determine strategies to facilitate scaling through diffusion

WORKING DEFINITION

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.

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LOCAL CAPACITY DEVELOPMENT FOR EXTENSION AND ADVISORY SERVICES

Principles and Practices for Sustainable Outcomes

Photo: CNFA

Food Security and Agriculture Core Course

USAID
FROM THE AMERICAN PEOPLE

OVERVIEW

I. History of extension and some key terms

II. USAID approaches to extension

III. What does a modern extension and advisory services (EAS) system look like?

IV. Designing best-fit EAS interventions

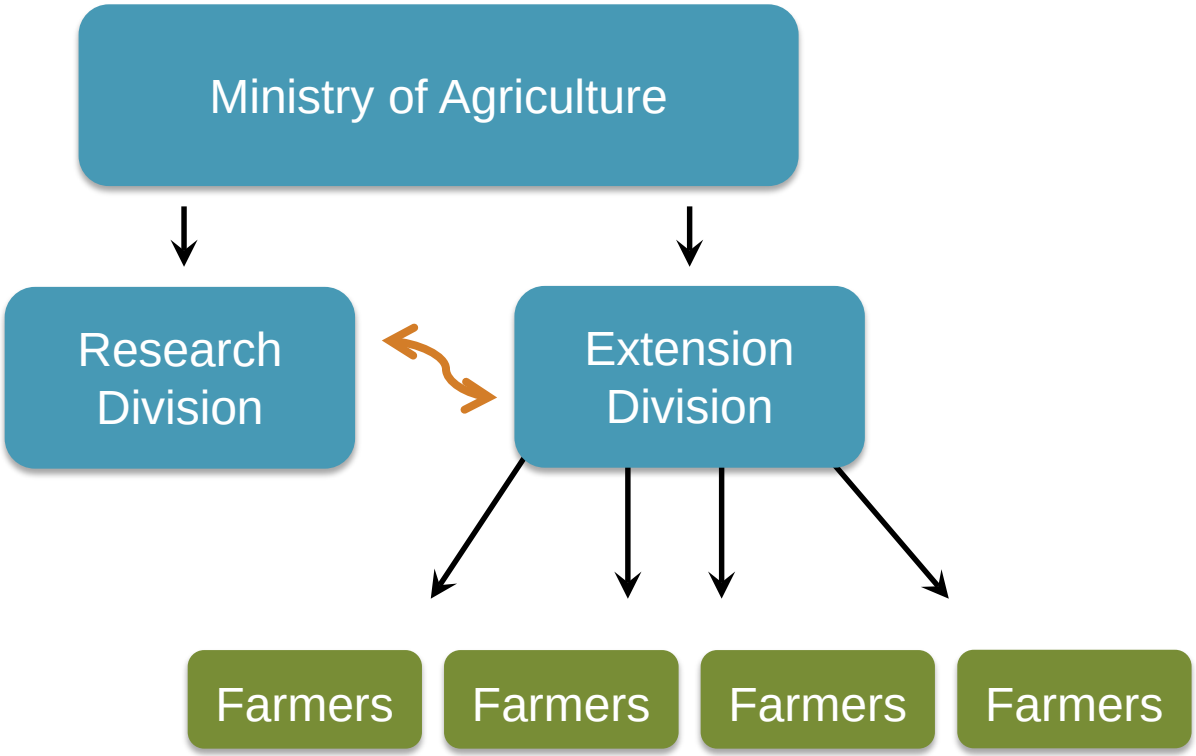
OBJECTIVES

- Increase capacity for designing and analyzing extension and advisory services
- Examine best-fit strategies for local EAS systems with emphasis on collaboration and appropriate use of ICTs

I. HISTORY OF EXTENSION AND KEY TERMS

HISTORICAL CLASSIC APPROACH – TOP DOWN

Local Agricultural System



EXTENSION ON PH

How to Pronounce PH Video

AGRICULTURAL EXTENSION

Agricultural Extension

- Originally:
  - Application of scientific research, knowledge and technologies to improve agricultural practices through farmer education
- Now:
  - Encompasses wider range of communication and learning theories and activities
  - Organized for the benefit of rural people and society in general (public goods)
  - Involves professionals from different disciplines
  - Advisory services (or rural advisory services) also commonly used interchangeably with extension services

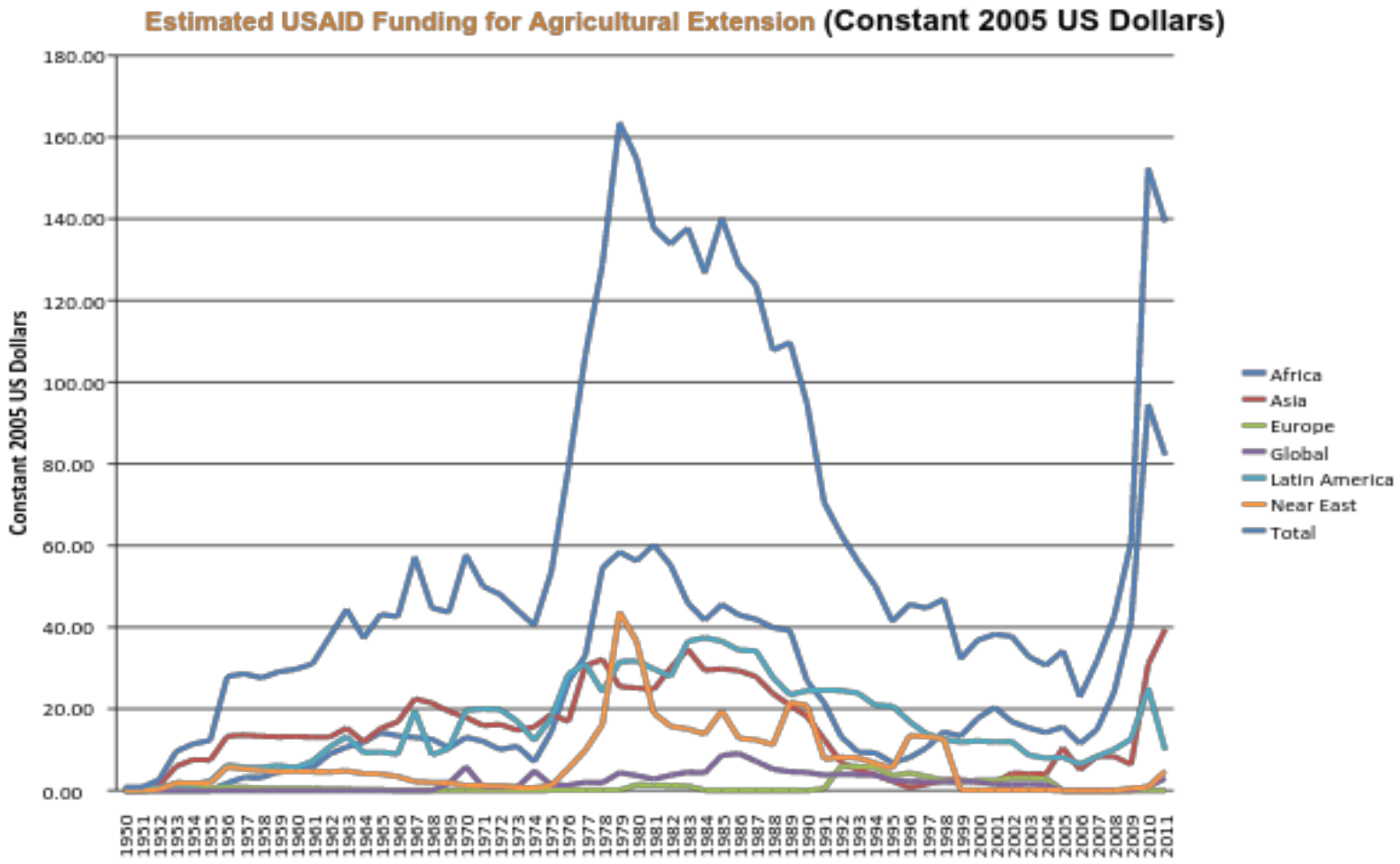
DEFINING EXTENSION

"Extension is defined broadly to include

- all systems that **facilitate access** of farmers, their organizations and other market actors to **information**, **knowledge**, and **technologies**;
- **facilitate** their interaction with partners in research, education, agri-business, and other relevant institutions;
- and **assist** them to develop their **own** technical, organizational, and management skills and practices."

— Ian Christoplos, FAO, 2010 (emphasis added)

II. USAID APPROACHES TO EXTENSION


Estimated USAID Funding for Agricultural Extension (Constant 2005 US Dollars)
Constant 2005 US Dollars
180.00
160.00
140.00
120.00
100.00
80.00
60.00
40.00
20.00
0.00
1950 1951 1952 1953 1954 1955 1956 1957 1958 1959 1960 1961 1962 1963 1964 1965 1966 1967 1968 1969 1970 1971 1972 1973 1974 1975 1976 1977 1978 1979 1980 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011
Africa
Asia
Europe
Global
Latin America
Near East
Total

PHASES OF USAID WORK IN AGRICULTURE

1950s–60s – Direct implementation, U.S. technologies

1970s–80s – Develop local capacity of public systems

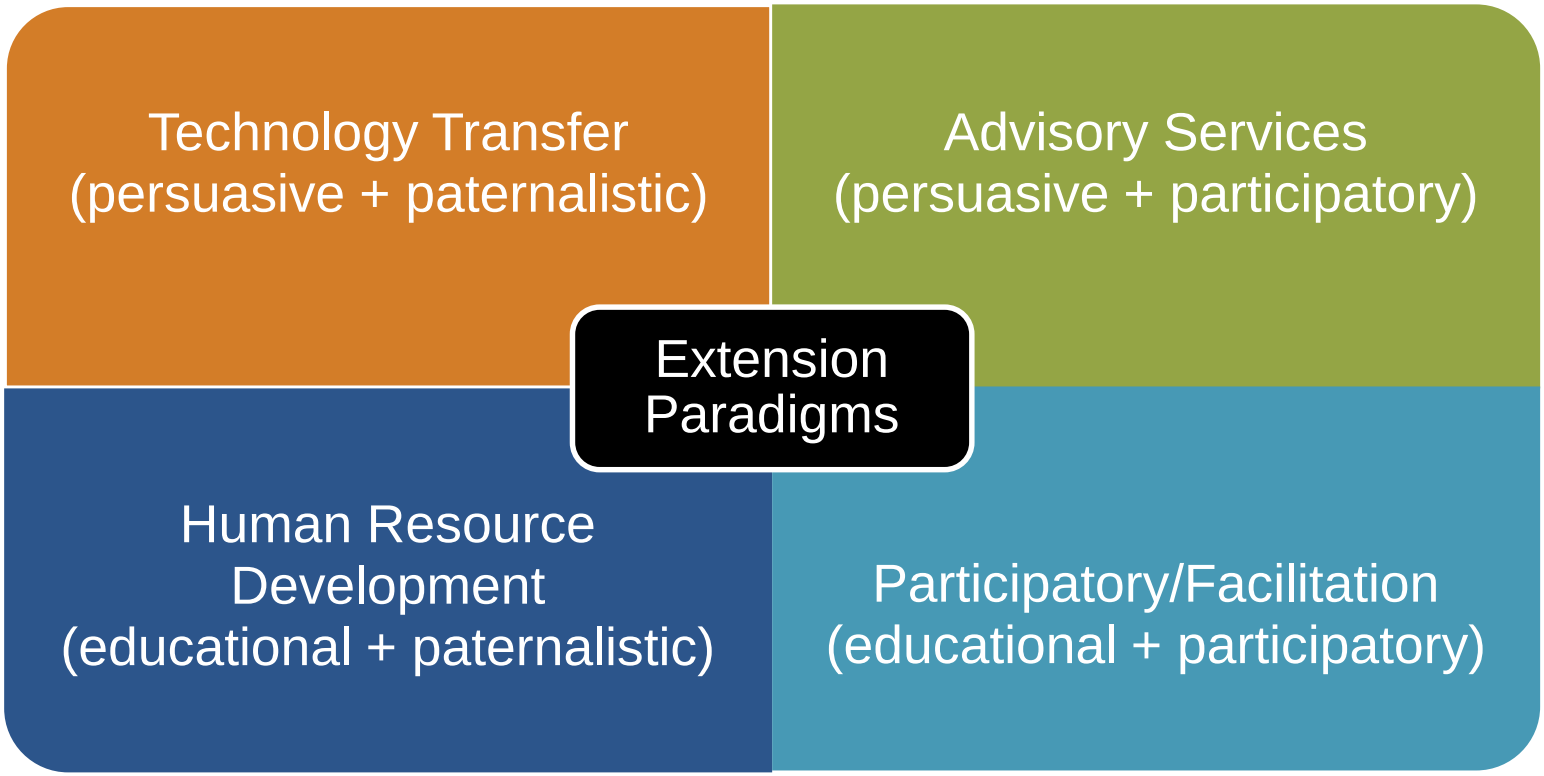
1990s–00s – Limited engagement in sector
- Private sector based approaches, but little coherence
- Staffing dropped; few true extensionists
- Stayed in research, food aid community projects, agribusiness

Later 00s – Re-engagement—direct implementation thru development partners

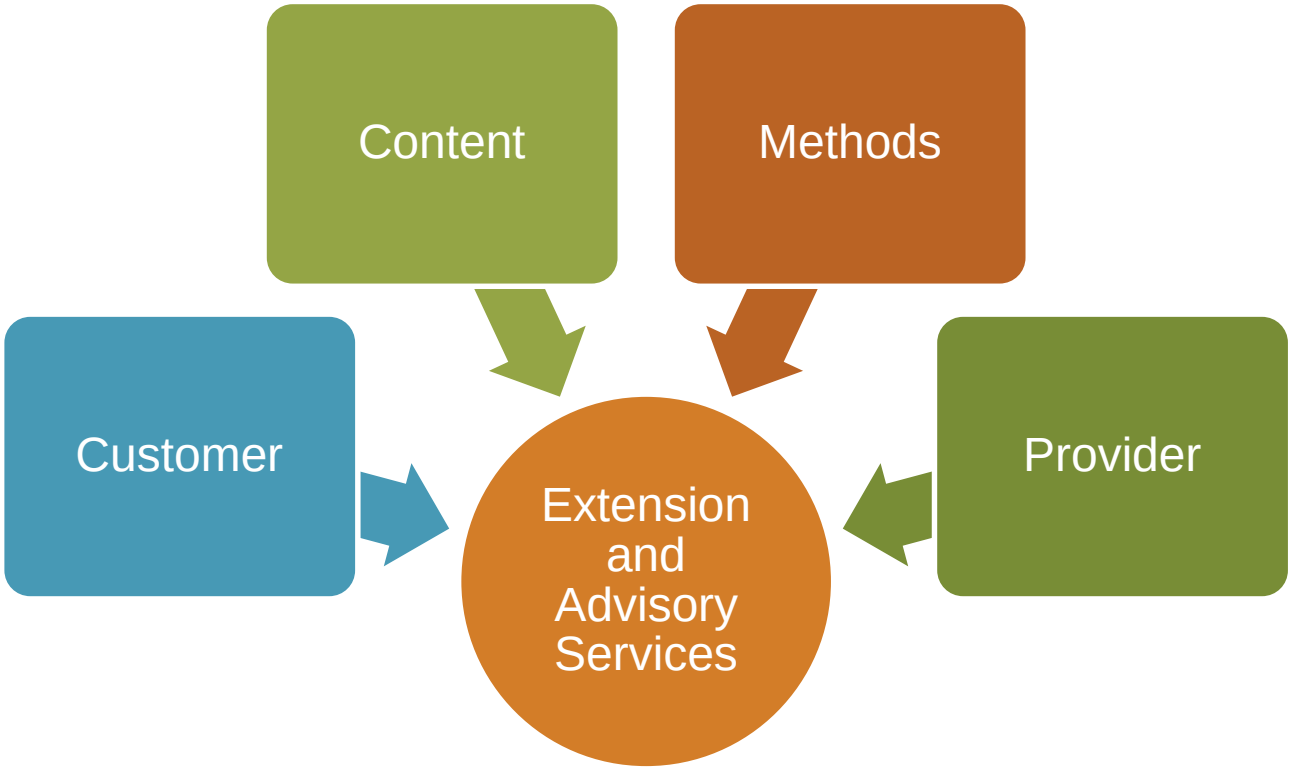
2010s – ICT enthusiasm and pluralism widely accepted

III. MODERN EXTENSION AND ADVISORY SERVICES (EAS) SYSTEM

FOUR PARADIGMS OF AGRICULTURAL EXTENSION



FOUR BUILDING BLOCKS OF EAS



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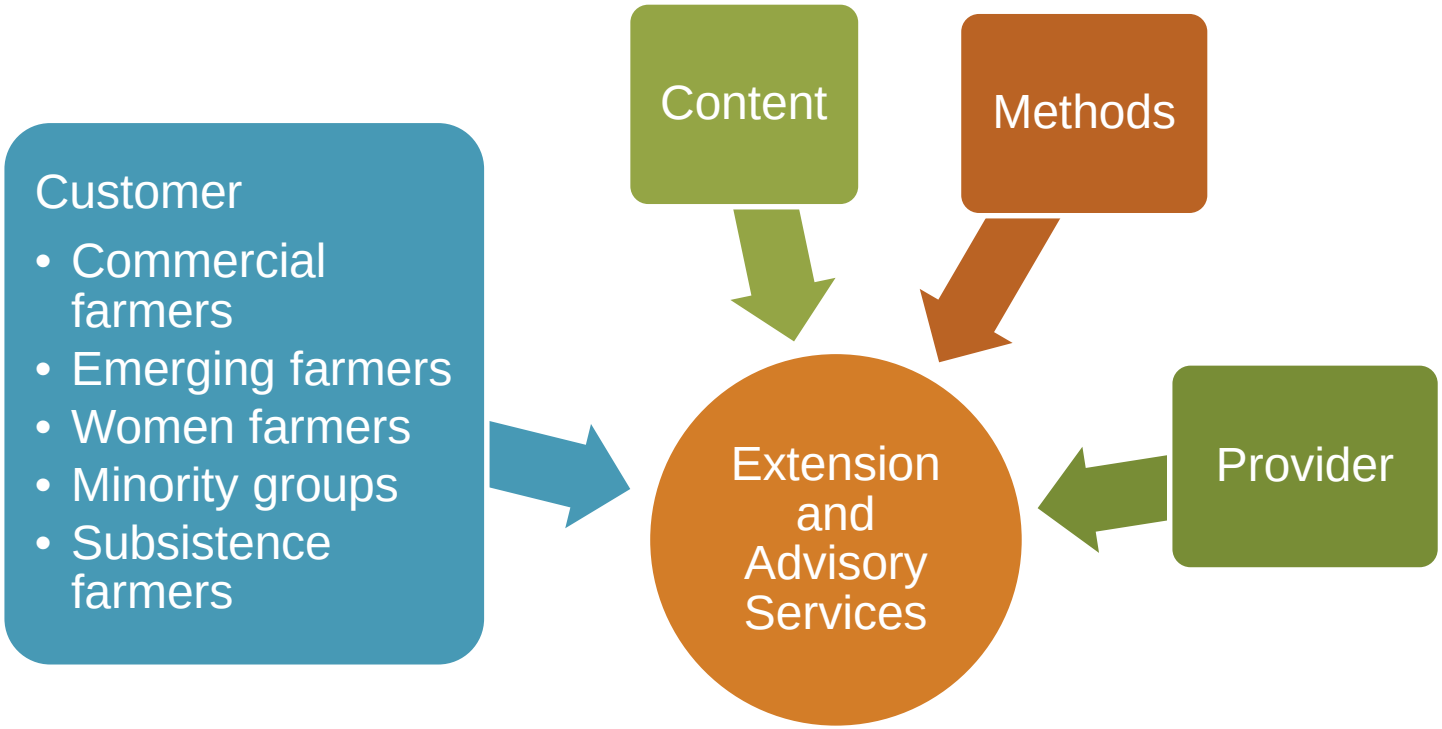

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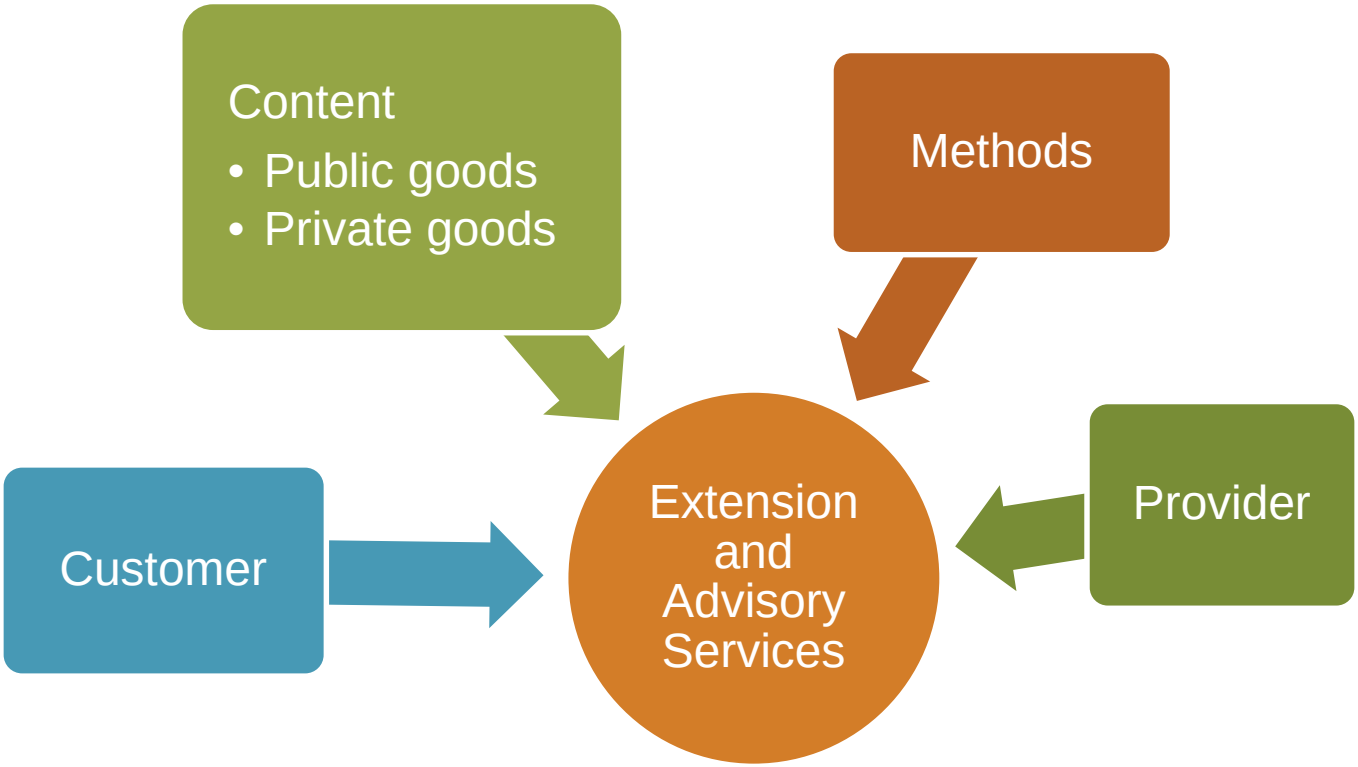

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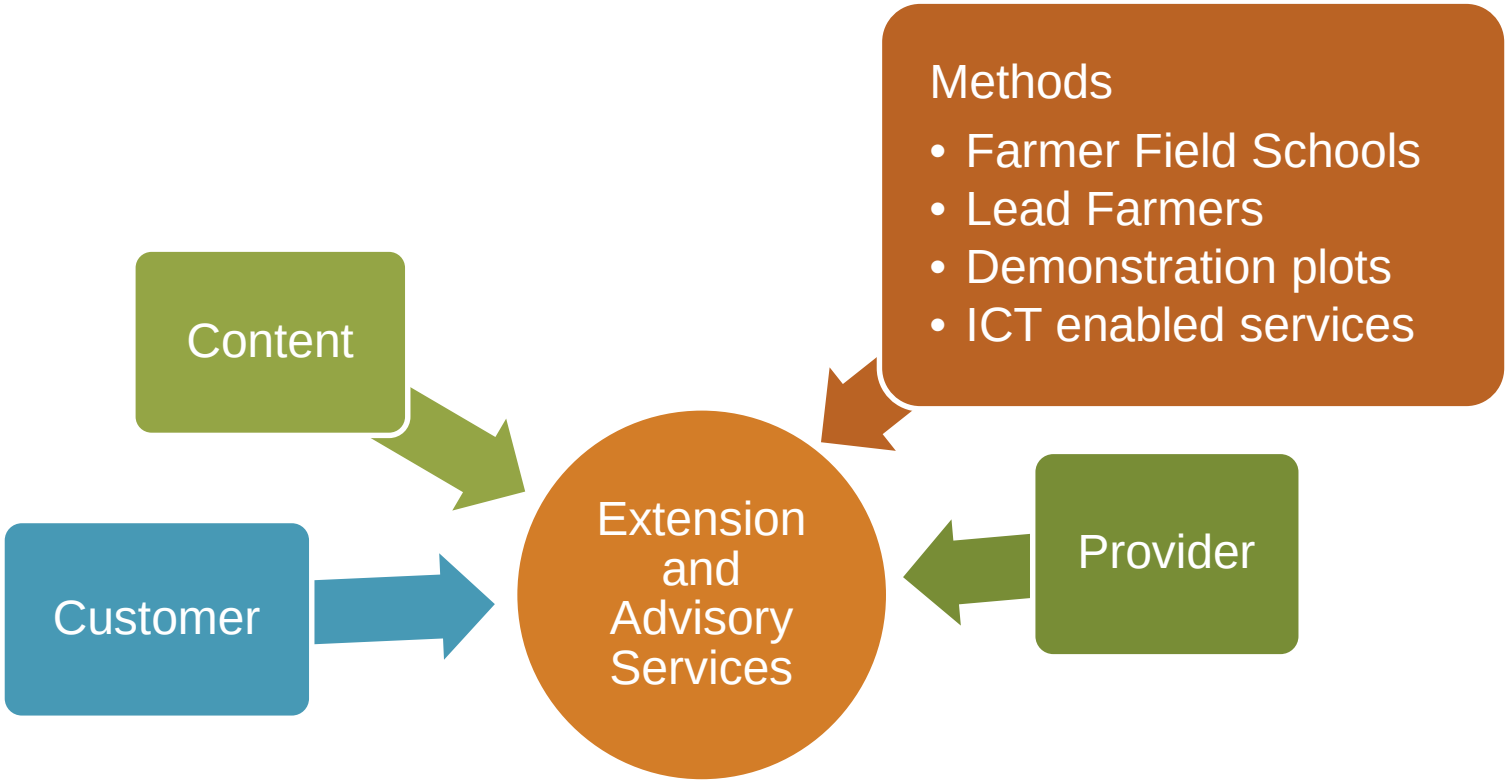
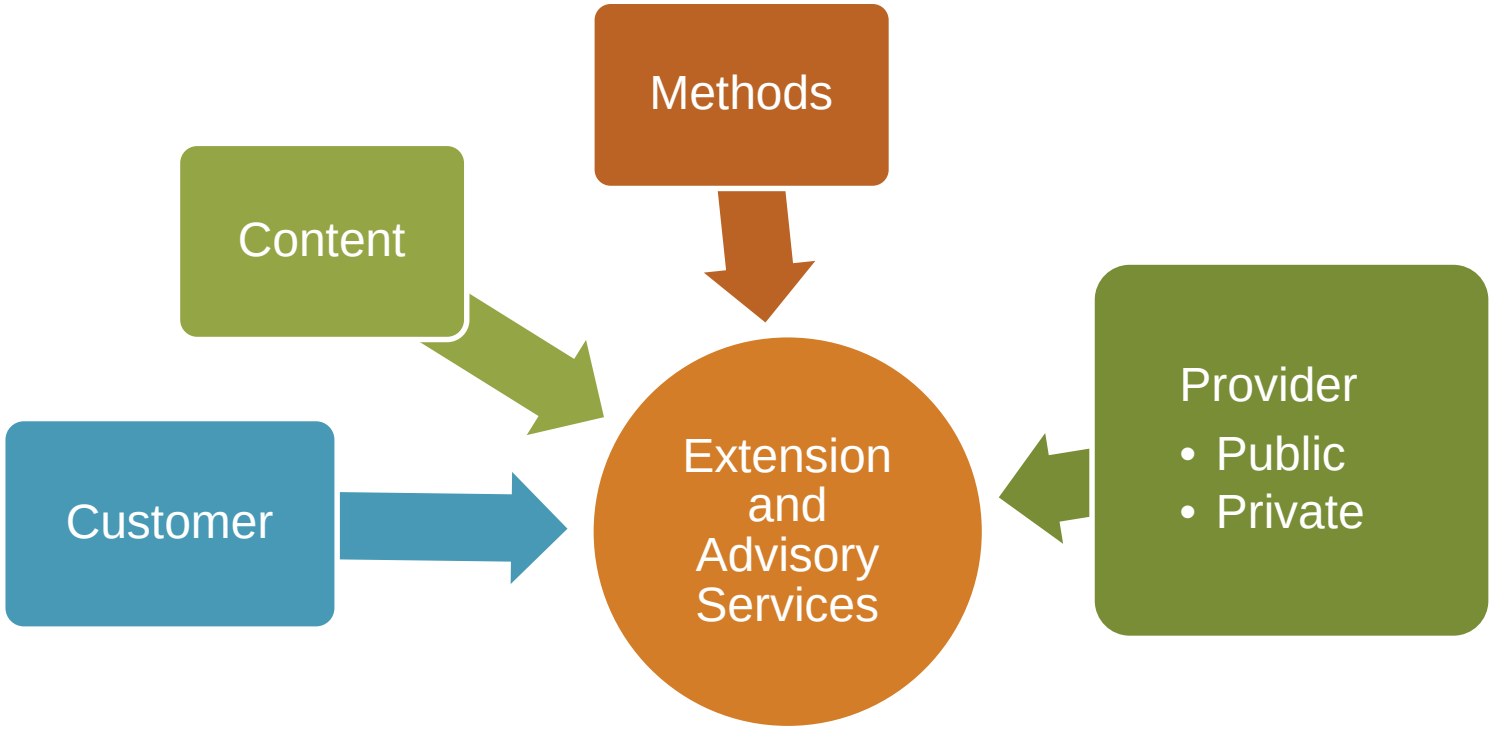


FOUR BUILDING BLOCKS OF EAS



Delivery \ Funding	*Public*	*Private*
Public	Producers/associations pay fee or tax to cover costs of extension services. *Public sector cost recovery*	Producers/associations pay fee or tax to cover costs of extension services. *Public sector cost recovery*
Private	Government funds but shifts responsibility for service delivery to other providers: • Contracting out • Subsidies to producers to hire services directly • Funding NGO's for services *Public sector funding of external service providers*	Public withdrawn from funding and delivery: • Commercialization • Privatization to private company • Transfer to NGO's or farmer organizations *Completely private sector driven*

Figure 1. Public-Private sector funding and delivery alternatives for EAS.

Hallmarks of a Modern EAS System

Decentralized	Pluralistic
Farmer led	Innovative
Market oriented	ICT enabled
Tailored	Financially sustainable

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 governments 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.

PLURALISTIC EXTENSION

- Recognizes diversity of farmers and farming systems
- Characterized by coexistence of multiple public, private, and mixed extension systems and services—but all of which benefit from some degree of coordination and regulation that facilitates interaction.

Innovative

In a more innovative extension system, the field extension workers become facilitators and knowledge brokers for both process and product innovations. Emphasis on gender equity and equality.

Financially Sustainable

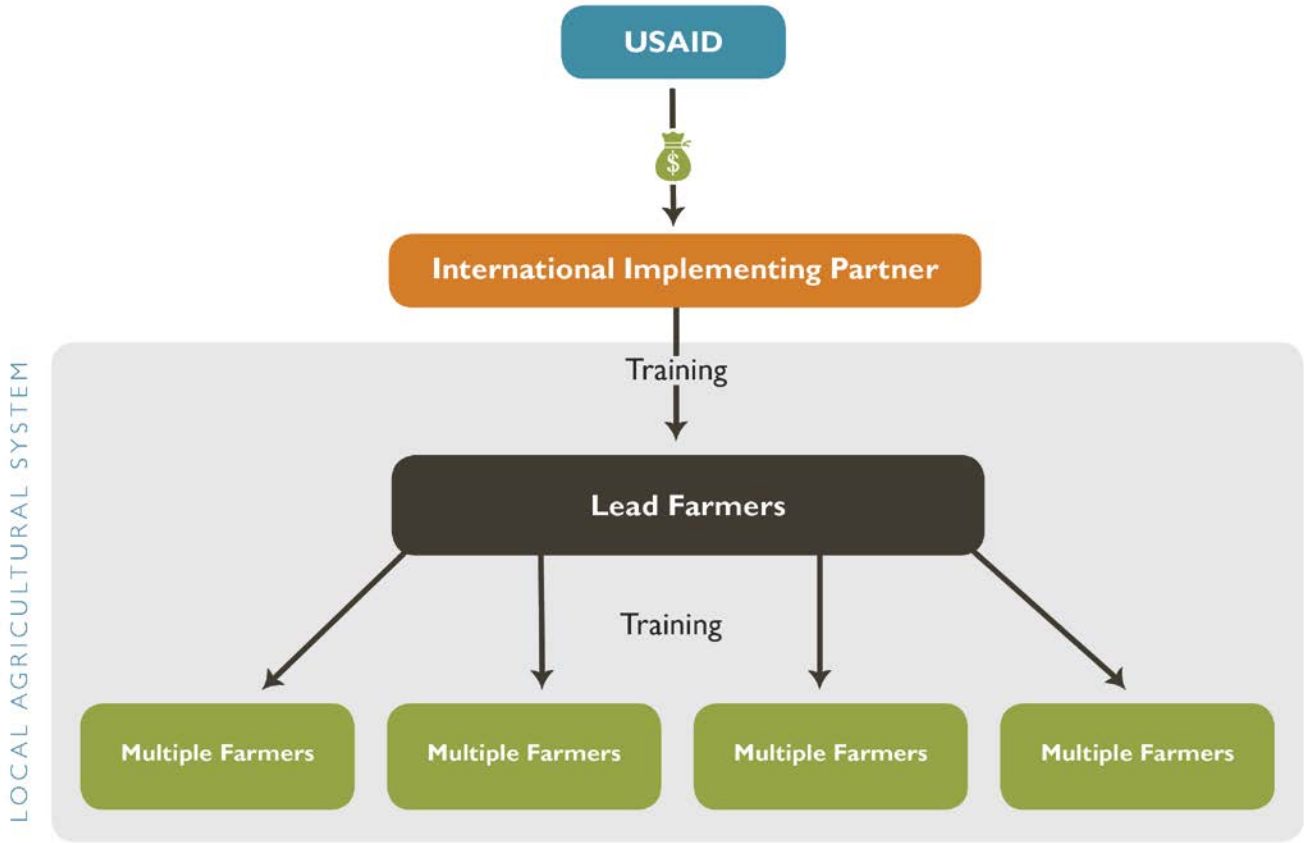
Services provided are not dependent on donor funding. Typically, sustained by a revolving budget for the public or private sector provider. Examples include fee for service (animal para-vets) or producer group funds used for extension services.

ICT Enabled

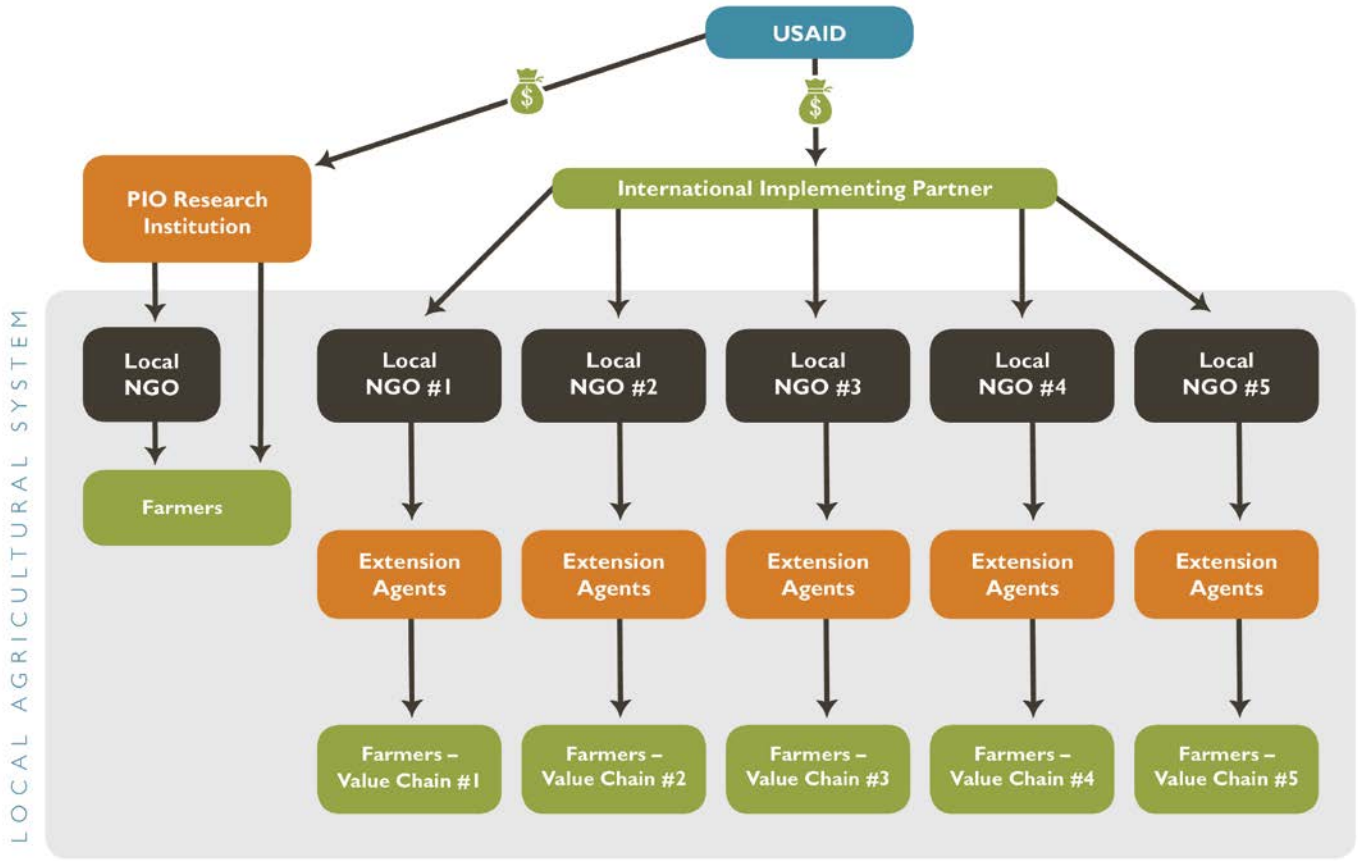
Modern ICT services are well positioned to expand the reach of the extension service provider with high quality, up to date, relevant content. Examples include radio, IVR, SMS, videos, print media.

Digital Green Video

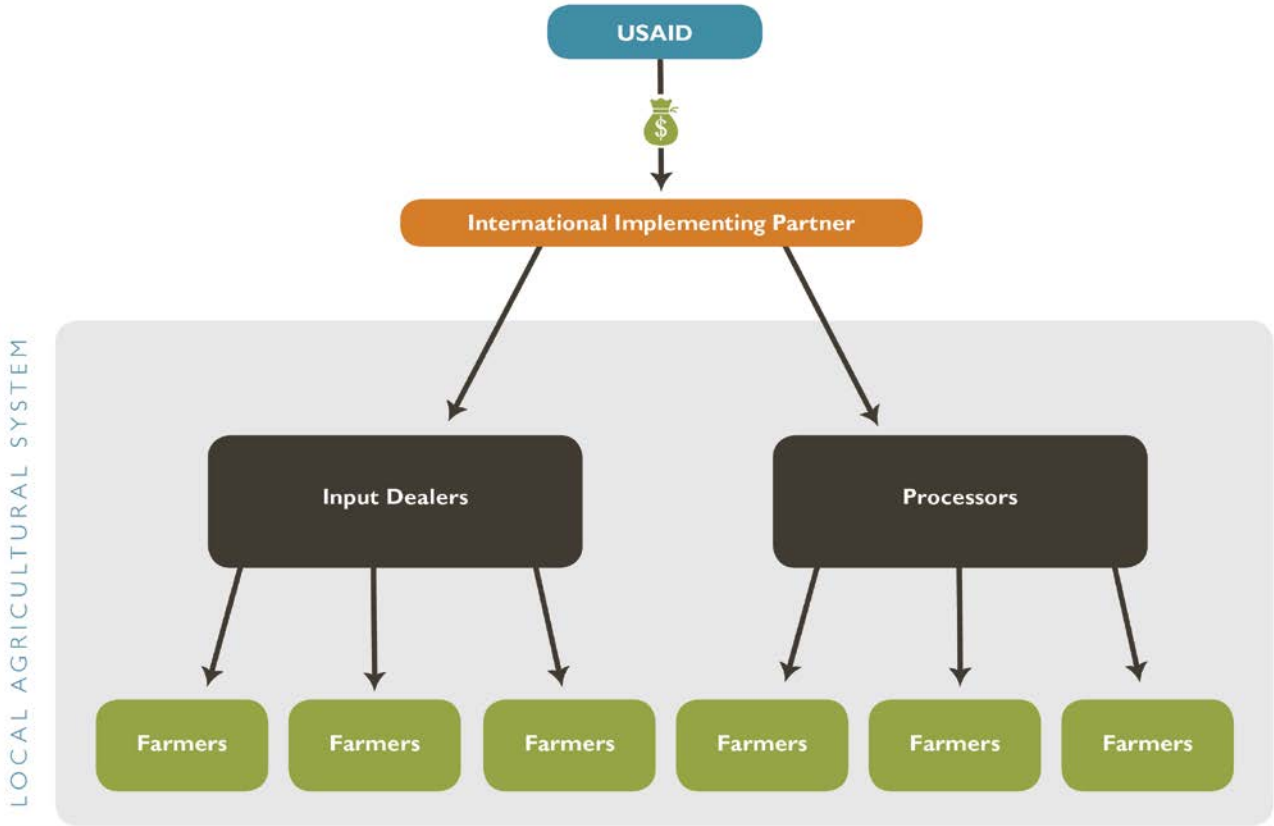
CURRENT USAID EXAMPLE #1



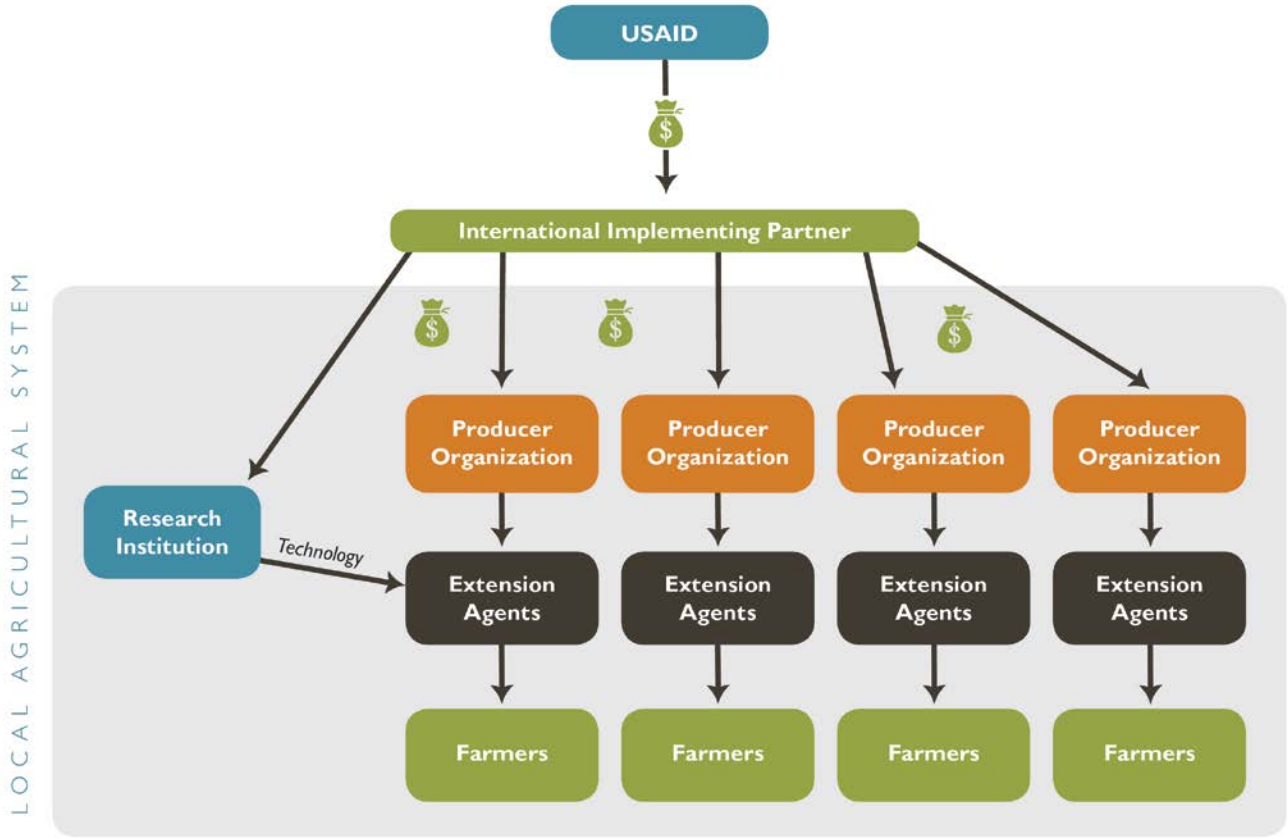
CURRENT USAID EXAMPLE # 2



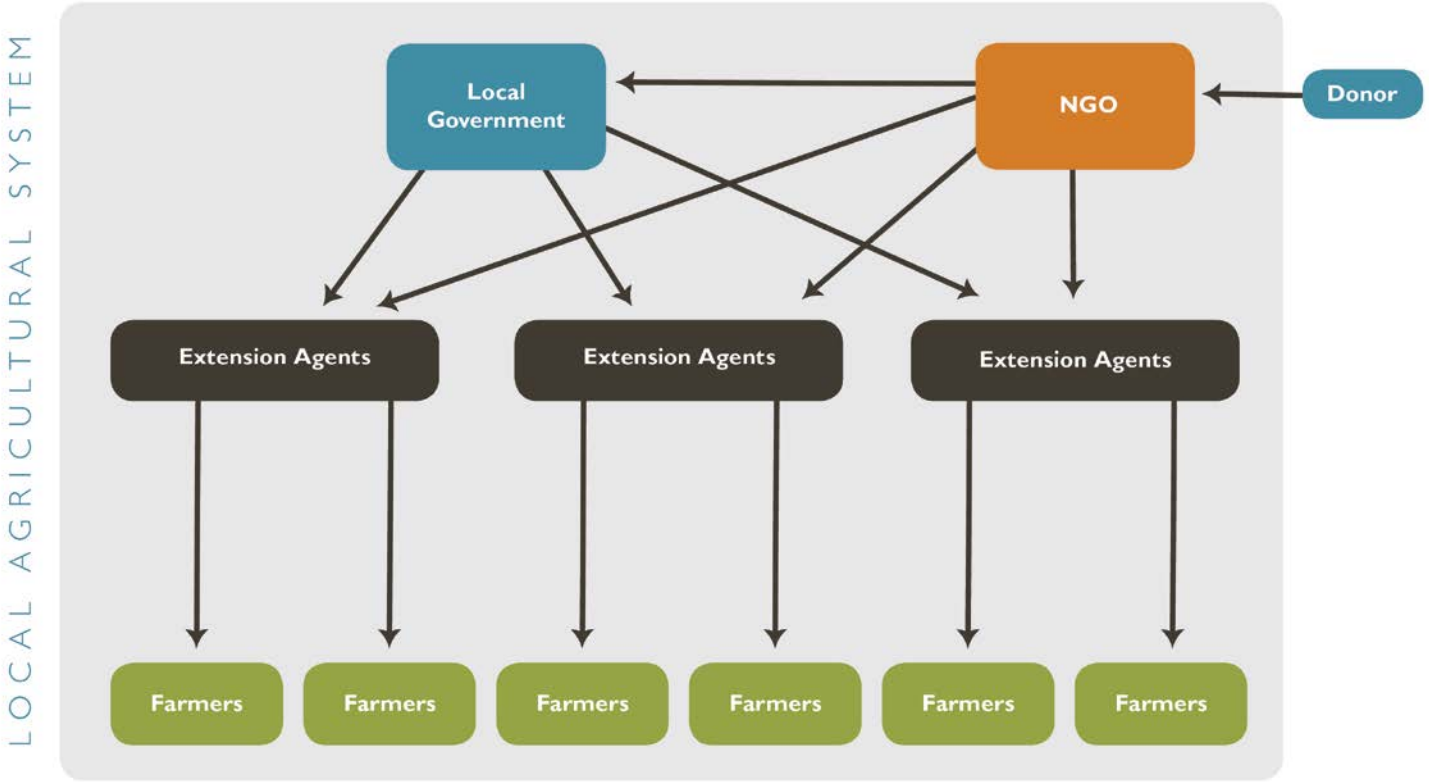
CURRENT USAID EXAMPLE #3



CURRENT USAID EXAMPLE #4



CURRENT USAID EXAMPLE # 5



YOU WERE ASKING …

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MARKET SYSTEMS AND VALUE CHAINS

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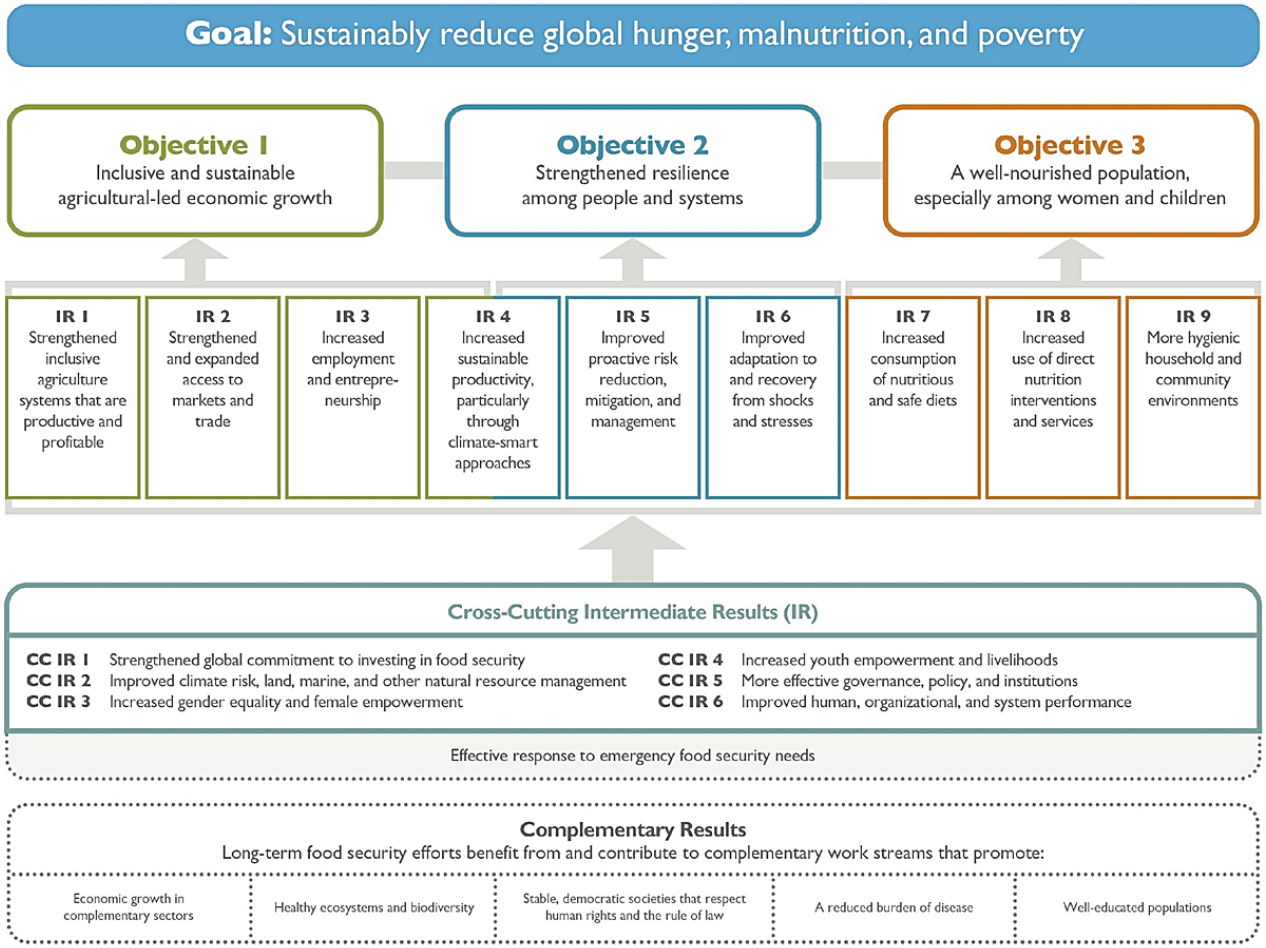
OUTLINE

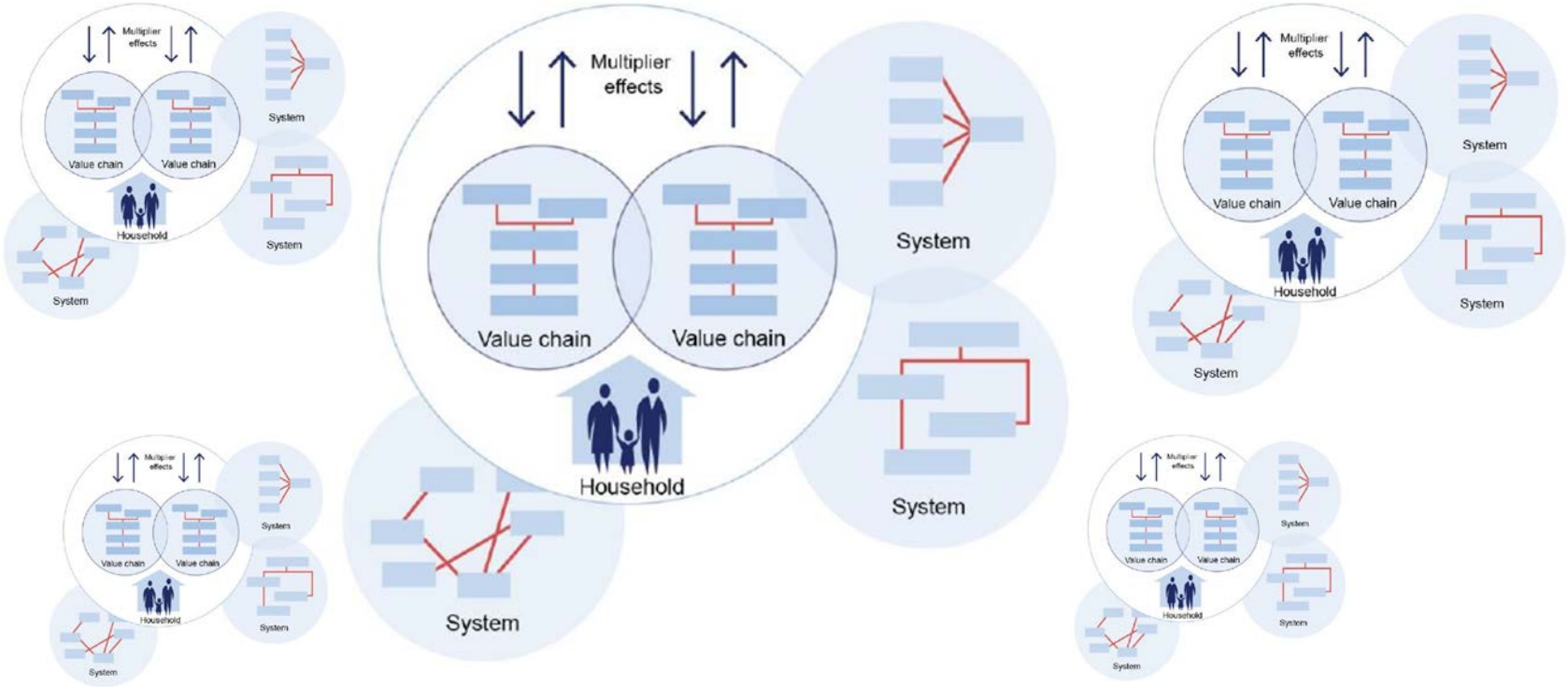
- Recap market systems and value chains
  - Feed the Future and market systems—what is different?
  - Main value chain concepts—short activity to refresh your memory
- Lessons learned from FTF 1.0
  - Challenges using Value Chain approach
  - Opportunities for greater poverty reduction
- The Value Chain approach
  - Implementation
  - Examples
- Private Sector Engagement and Partnerships

OBJECTIVES

- Design Market driven intervention and engagement to build strong private-led value chains that are effective, efficient and sustainable
- Develop successful private sector partnerships
- Strengthening and expanding facilitation of Market led trade through holistic approaches


Goal: Sustainably reduce global hunger, malnutrition, and poverty
Objective 1
Inclusive and sustainable agricultural-led economic growth
Objective 2
Strengthened resilience among people and systems
Objective 3
A well-nourished population, especially among women and children
IR 1
Strengthened inclusive agriculture systems that are productive and profitable
IR 2
Strengthened and expanded access to markets and trade
IR 3
Increased employment and entrepre-neurship
IR 4
Increased sustainable productivity, particularly through climate-smart approaches
IR 5
Improved proactive risk reduction, mitigation, and management
IR 6
Improved adaptation to and recovery from shocks and stresses
IR 7
Increased consumption of nutritious and safe diets
IR 8
Increased use of direct nutrition interventions and services
IR 9
More hygienic household and community environments
Cross-Cutting Intermediate Results (IR)
CC IR 1 Strengthened global commitment to investing in food security
CC IR 2 Improved climate risk, land, marine, and other natural resource management
CC IR 3 Increased gender equality and female empowerment
CC IR 4 Increased youth empowerment and livelihoods
CC IR 5 More effective governance, policy, and institutions
CC IR 6 Improved human, organizational, and system performance
Effective response to emergency food security needs
Complementary Results
Long-term food security efforts benefit from and contribute to complementary work streams that promote:
Economic growth in complementary sectors
Healthy ecosystems and biodiversity
Stable, democratic societies that respect human rights and the rule of law
A reduced burden of disease
Well-educated populations

WHAT IS DIFFERENT?




STRENGTHENING MARKETS FOR FOOD SECURITY
INVESTMENT
TRADE
ENABLING ENVIRONMENT
FINANCE
RESEARCH
INPUTS
BANK
POSTHARVEST & VALUE ADDED
SUPERMARKET
INPUT SUPPLIER
TRACTOR DEALER
SMALLHOLDER FAMILY
TRANSPORT
PROCESSOR
EXPORTER
WAREHOUSE
ICT
INSURANCE
LOCAL MARKET
TECHNOLOGY COMMERCIALIZATION
RISK MANAGEMENT
PRODUCTIVITY
THROUGH PARTNERSHIPS
EMPLOYMENT

CHALLENGES

Value chain used as a catch-all phrase

- Lack of clarity of what a VC approach is
- Identify approaches that work well

Inclusive growth

- Effectively and systemically inclusion of the poor
- Leverage the greatest impact

VALUE CHAIN APPROACH

Four principles

1. Market system perspective
2. Look to end markets
3. Address constraints
4. Facilitate improvements

STEPS TO IMPLEMENT VC APPROACH

Purpose

- Overview of cross-agricultural market functions
- Inform value chain selection
- Identify opportunities to improve agri-food system competitiveness, inclusiveness and resilience
- Sufficient country-specific information
- Identify high-level priorities

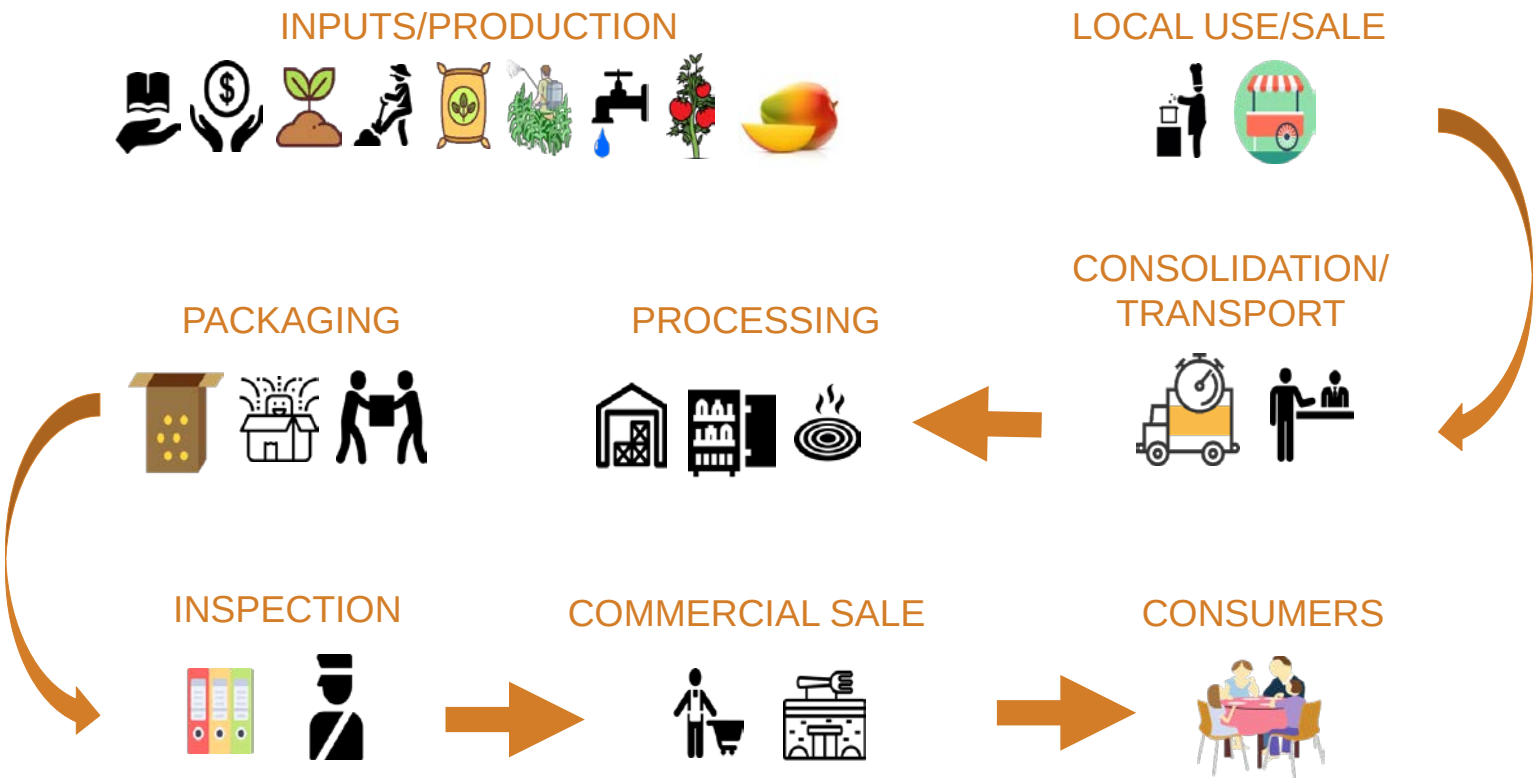
GUIDING QUESTIONS

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 input 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?

RESULTS

- Desk review:
  - Review existing documents and evidence
  - Past project reports related to USAID, other donors and government programs
  - Include applicable data sets, such as production, marketing, trade, labor market data, where available
- In-country fieldwork:
  - Fieldwork in the ZOI and relevant market areas
  - Cross-check or update key data points
  - Use key informant interviews, focus group discussions and selected site visits where they provide insight into production, distribution or market conditions
- Documentation, revision and reporting

FOOD SAFETY AND VC APPROACH



IMPLEMENTING THROUGH FACILITATION

- Leverage points: places in the value chain where interventions can lead to systemic change
- Crowding-in interventions catalyze other players and functions to enter the value chain
- Demonstrate, scale up and exit
  - Demonstrations → relaying success to wide numbers of actors
  - Carefully reducing support → adoption and change driven by value
  - Successfully cease support (or exit) → shift focus to the next incremental intervention

GREATEST POVERTY REDUCTION IMPACT

- Smallholder-led agricultural development → efficient route to poverty reduction
- Policy programs
  - Public programs
    - crop science and extension to increase smallholder productivity
    - road infrastructure
    - the adoption of grades and standards to facilitate trade
  - Support private sector investment
    - elimination of export bans and import tariffs within regional economic communities
    - closely monitored interventions to overcome market failures

GREATEST POVERTY REDUCTION IMPACT

- Strengthening market relationships
  - Lead-firm approach: working with and through large buyers and suppliers
  - Market linkage approach: strengthening the linkages between market actors
- Vertical coordination
  - bringing together a variety of value chain actors, including small-scale producers, developing relationships
- Horizontal coordination
  - formation of producer groups

GREATEST POVERTY REDUCTION IMPACT

- Value chain governance
  - buyers willing to invest in the chain to ensure quality
    - contract farming and agricultural outgrower schemes
    - willing to provide improved inputs
    - services and technical assistance


Would our activities REALLY be all that different with a market-focused approach?

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."

– Administrator Green in testimony to Congress

Why?

- Sustainability
- Scalability
- Leverage
- Ownership

That's mostly for USAID, What about for Private Sector?

WHY SHOULD THE PS PARTNER WITH USAID?

Some Examples:

- **Generates new customers and creates new market opportunities**
- **Reduces risk by building stronger supply chains** through engagement of smallholder farmers
- **Reduces the cost of capital** by leveraging company assets, balance sheet and procurement strategies
- **Prevents food-borne diseases** through improved management, quality control and traceability
- **Increases brand equity** by directly engaging with smallholders and pursuing initiatives that create and share value

Diverse range of potential private sector partners have different incentives/objectives

- **Multinational Agribusiness (Buyers): Walmart, Starbucks**
- **Industry Associations and Corporate Foundations: WCF**
- **Financial Institutions: Ecobank, Banque de Kigali**
- **Input supplier and processors: Monsanto, Syngenta**
- **Extractive Industries: Exxon Mobil, Chevron**

So, the question is how do we work with this? How do we find that illusive shared value?

PRIVATE SECTOR ENGAGEMENT AND PARTNERSHIPS ACTIVITY

DE RISKING/CREATING VALUE

How can a donor/partner:

- Accelerate model effectiveness and/or impact?
- Reduce risks like those of market entry, operational viability, business stability, etc.?

SCALE AND SUSTAINABILITY

How does the model:

- Reach impact and business scale?
- Achieve financial sustainability?
- Leverage external partnerships and actors for success?

CUSTOMER EXPERIENCE

How does the product/customer experience:

- Deliver value for the end client?
- Improve customer growth, productivity, and performance?
- Generate customer loyalty and retention

COMPANY VALUE

How does the model:

- Generate value through sales revenue?
- Improve quality and productivity?
- Deliver improved branding and a license to operate?

GO TO MARKET

How does the model:

- Assure a product is efficiently and effectively sourced or delivered?
- Use channels to assure accessibility?
- Use cost-effective approaches to logistics?

SMALLHOLDER VALUE

How does the model:

- Contribute to farmer market access?
- Increase farmer income &livelihood opportunities for women as well as men
- Reduce the “poverty penalty” on farmers

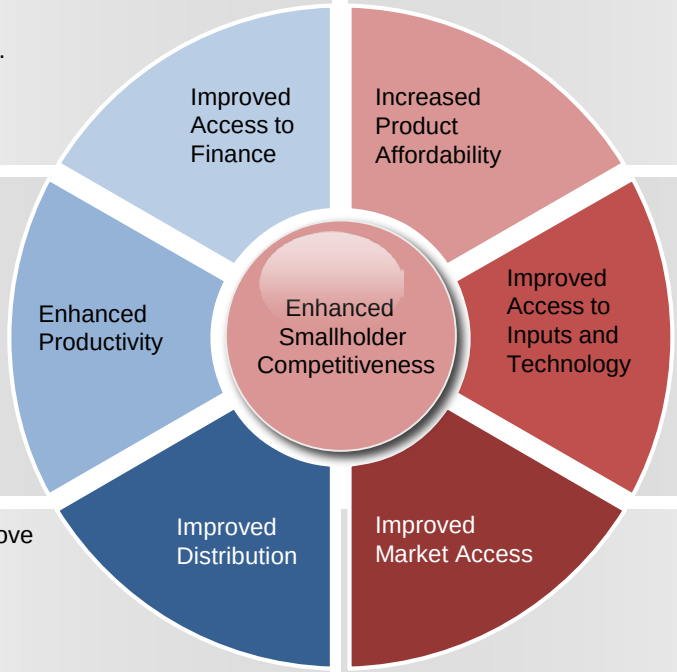
FRAMING BUSINESS MODELS/ THEORIES OF CHANGE

Associated models develop creative means to provide access to finance where it would be unavailable otherwise.

Models: Asset Financing

Associated models can make the product accessible to smallholder farmers while leading to improved sales, profitablity and growth for the company.

Models: Consumer Finance, No Frills



Associated models focus on increasing productivity through "high-touch" engagements between the company and the smallholder farmers.

Models: Contract Farming and Bundling

Associated models can increase smallholder and company productivity, quality and supply chain performance

Models: Pay per use and Micro-franchising

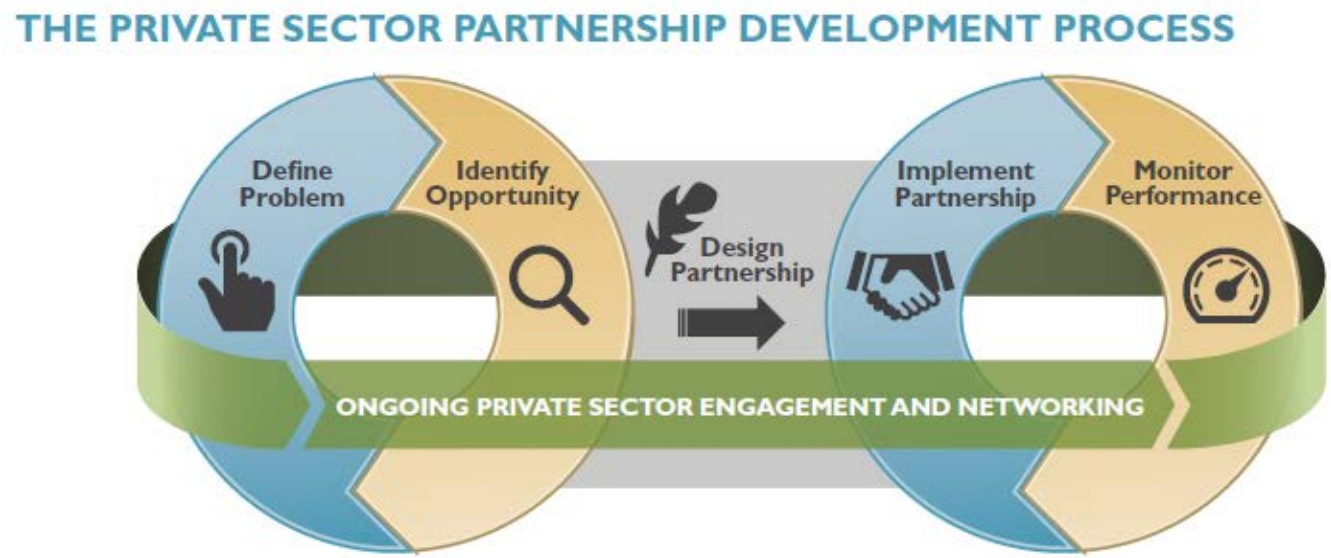
Associated models develop and/or improve distribution channels that lead to increased sales and revenue opportunites

Models: Dedicated direct salesforce

Associated models assure a reliable and stable supply of products and services

Models: Smallholder aggregation and Deep Procurement

PRIVATE SECTOR ENGAGEMENT AND PARTNERSHIPS ACTIVITY



DESIGNING PRIVATE SECTOR PARTNERSHIPS

- Participant's manual page _____
- Review the directions and the Case Study Template
- Record the key points of template on the chart paper

Photo: USAID/Bobby Neptune

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How would you measure the impact of your new perfected partnerships?

Photo: Fintrac Inc.

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NEW GFSS INDICATORS FOR PSE

NEED HELP FOR PSE AND PARTNERSHIPS?

- Relationship manager table link
- Bios and MPI resource link
- PSE technical guidance
- WV field guide
- GFSS indicators and PIERS
- P4I new tools

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FINANCING AND INVESTING FOR AGRIBUSINESS

Photo: USAID/AgriFUTURO

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DID YOU KNOW …

For FY 2015:

- A total of 1,237,401 MSMEs accessed $877,871,314 in rural and agricultural loans in Feed the Future countries
- 125 programs reported some number of MSMEs accessing loans as a result of U.S. Government assistance
- 109 programs reported some value of loans being accessed as a result of U.S. Government assistance

OBJECTIVES

- Identify multiple instruments within Finance and Non-Finance categories
- Compare lessons learned and challenges that have deterred implementation of financing and investing programs

VALUE OF LOANS ACCESSED

Top five programs (FY15)

Country	Project	USD
Kenya	Financial Inclusion for Rural Microenterprise (FIRM)	$301,069,840
Ethiopia	Agricultural Growth Program–Agri-business and Value Chain Development project (AGP-AMDe)	$94,400,886
Nigeria	Maximizing Agricultural Revenue and Key Enterprises in Targeted Sectors (MARKETS) II	$50,852,999
Haiti	Haiti Integrated Financing for Value Chains and Enterprises (HIFIVE)	$33,529,727
Ghana	Financing Ghana Agricultural Project (FinGAP)	$32,684,513

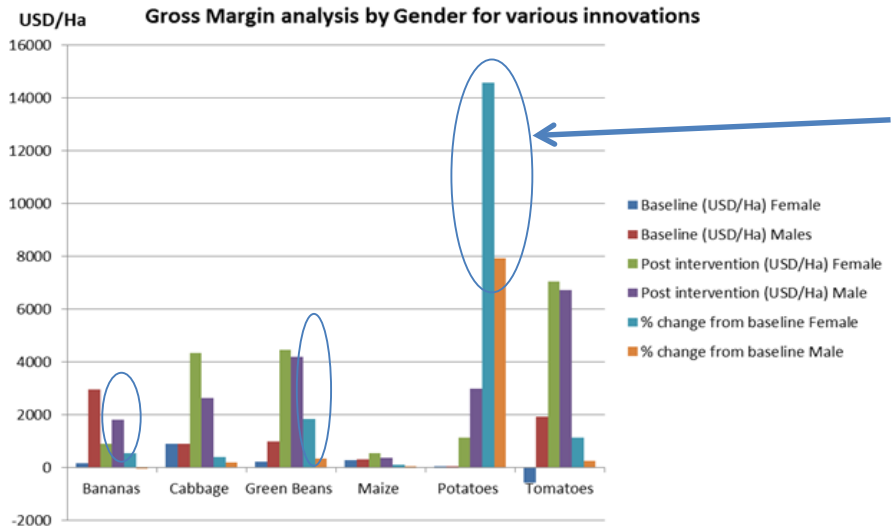
MSMES RECEIVING U.S. GOVERNMENT ASSISTANCE

Top 5 programs (FY15)

Country	Project	Number of MSMEs
Kenya	Financial Inclusion for Rural Microenterprise (FIRM)	826,120
Nigeria	Maximizing Agricultural Revenue and Key Enterprises in Targeted Sectors (MARKETS) II	173,107
Haiti	Haiti Integrated Financing for Value Chains and Enterprises (HIFIVE)	69,464
Nepal	Knowledge-based Integrated Sustainable Agriculture and Nutrition Project (KISAN)	48,440
Senegal	Feed The Future Senegal Naatal Mbay	25,309

INTERVENTIONS IN THE AGRICULTURAL FINANCING SECTOR ALIGN WITH THE U.S. GOVERNMENT'S FOCUS ON GENDER INTEGRATION AND EMPOWERMENT IN THE GFSS

Example from Kenya:

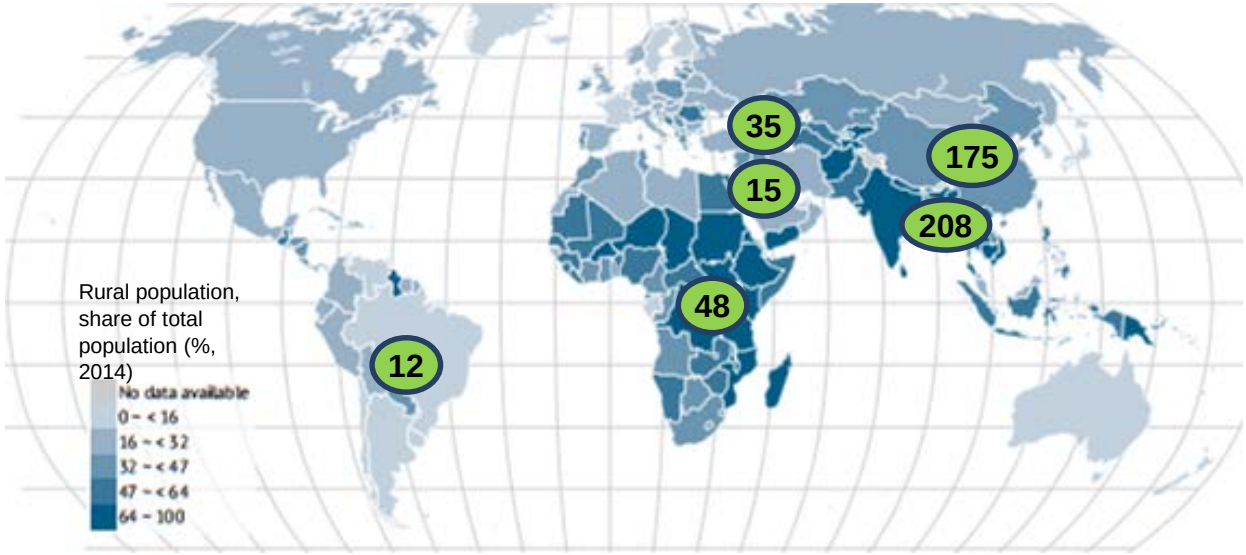


Source: 2016 Gender Portfolio Brief

When provided with access to capital women are able to quickly uptake technologies and increase gross margins

THERE ARE AN ESTIMATED 450 MILLION SMALLHOLDER FARMERS IN THE WORLD ON FARMS SMALLER THAN 5 HECTARES

Geographic distribution of smallholder farmers



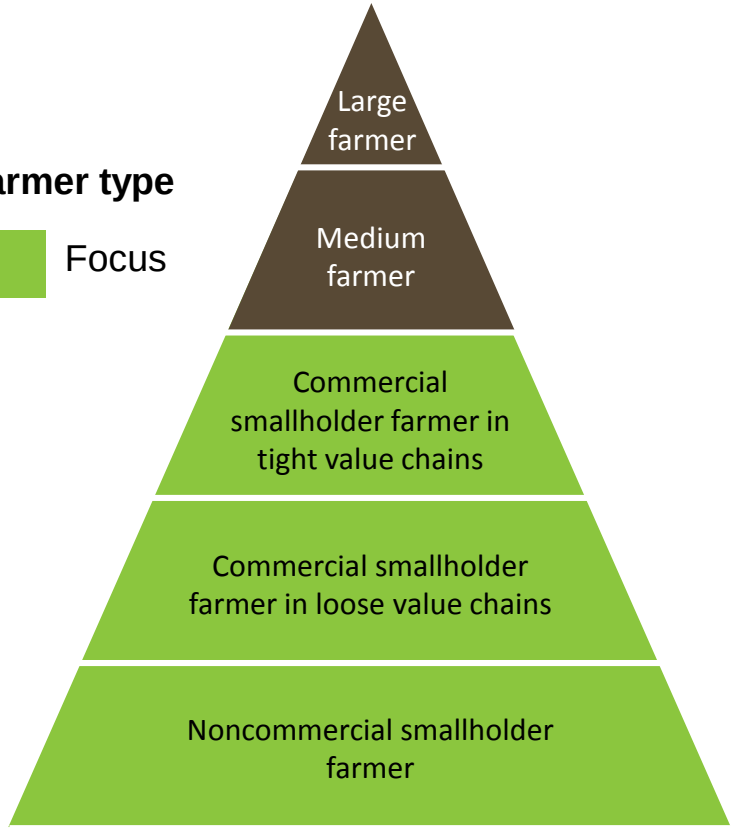
Estimated number of farms smaller than 5 hectares (millions, 2014)

Source: FAO, "Statistical Pocketbook: World food and agriculture", 2015; FAO ESA Working Paper No. 14-02, Dalberg Analysis

THESE SMALLHOLDERS ARE A HETEROGENEOUS GROUP THAT CAN BE SEGMENTED IN DIFFERENT WAYS

Farmer type

Focus



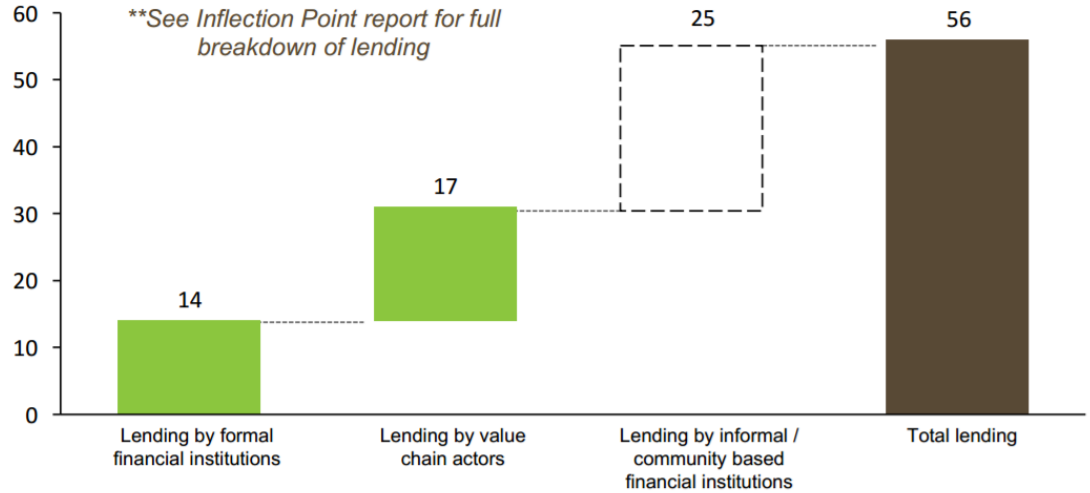
Scope and key characteristics

Segment size	Land	Crop	Market engagement	Access to tech	Access to finance
7% of total smallholder farmers	>2ha	Cash, few staple	Little subsistence, most surplus sold to a contracted buyer	Good	Informal and formal, some provided by buyers
33% of total smallholder farmers	1-2ha	Staple, some cash	Some subsistence, reliable surplus sold to offtaker or in local markets	Limited	Limited and informal
60% of total smallholder farmers	<1ha	Staple	Most subsistence, little surplus	Very limited if at all	Limited, informal if at all

Source: CGAP. Segmentation of Smallholder Households. 2013

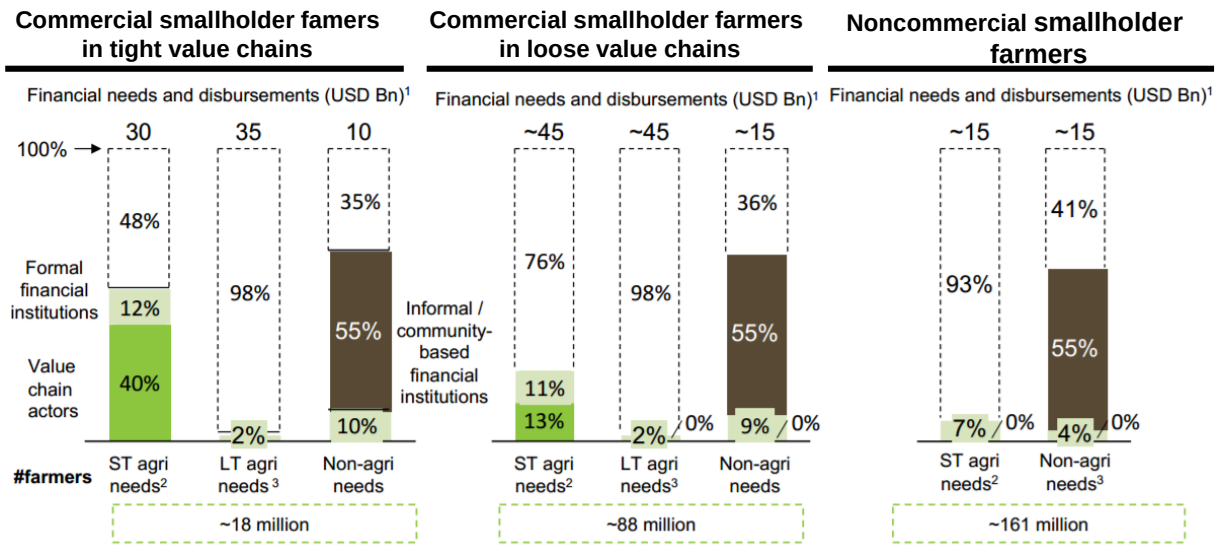
BY THE NUMBERS: ESTIMATE THAT TOTAL SMALLHOLDER LENDING THROUGH FINANCIAL SERVICE PROVIDERS IS ~$56BN

Smallholder lending in South and Southeast Asia, Sub-Saharan Africa and LATAM by source
(Annual disbursements $USD Bn)[1]



1. Excludes China, Central Asia, Middle East and North Africa, and Eastern Europe. Includes financing to producer groups by state banks and commercial banks. Includes agri and non-agri lending.
Source: ISF Briefing 1, "Local bank financing for smallholder farmers," Oct. 2013; Rural and Agricultural Finance Learning Lab Smallholder Financial Solutions Database; annual reports; expert interviews; Dalberg analysis.

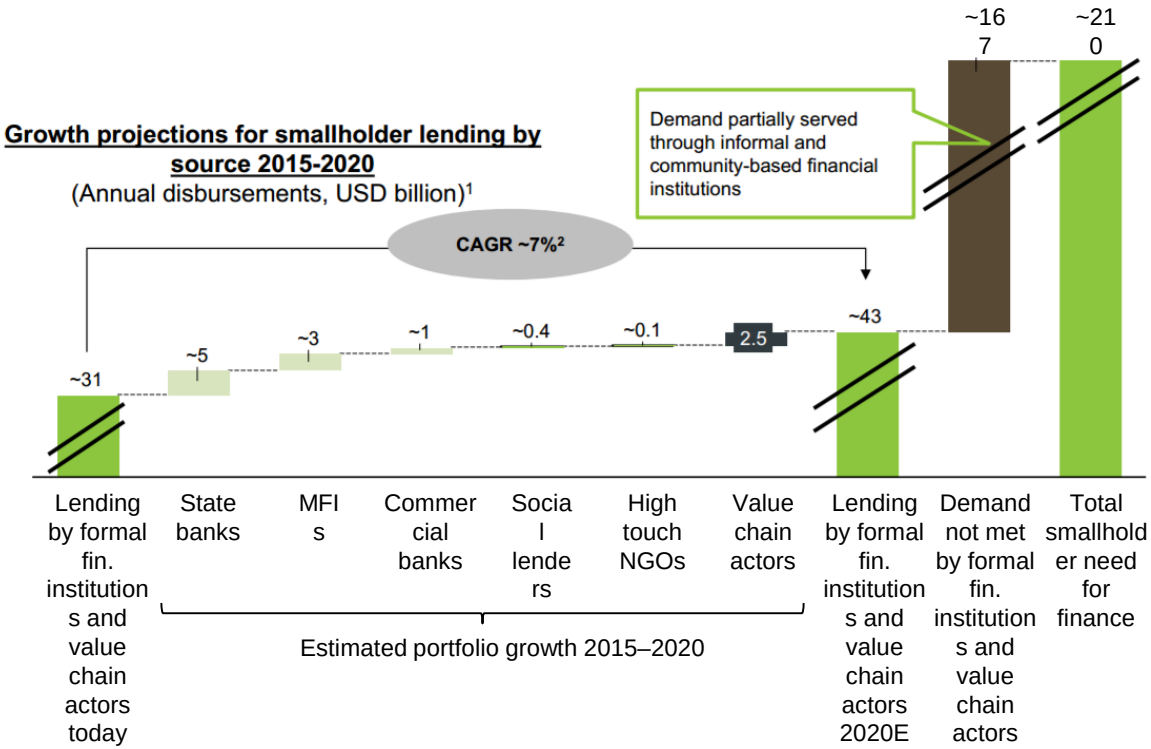
COMPARED TO THE DIFFERENT SMALLHOLDER SEGMENTS, THERE ARE VERY CLEAR GAPS IN PROVISION



1. Excludes China, Central Asia, Middle East, and North Africa and Eastern Europe. Includes financing to producer groups by state banks and commercial banks. 2. ST agri needs refers to short term financing needs of less than a year (typically for inputs, harvest and export). 3. LT agri needs refers to long term financing needs of more than one year (typically for renovation or equipment). Notes: Commercial banks and social lenders disbursements counted toward SHFs in tight VCs; state bank financing distribution in proportion to farmer segment needs; MFI agri lending included in loose value chains; MFI noncommercial-agri lending distributed in proportion to farmer segment need; “high touch” NGOs included under subsistence. Informal / community-based allocated in proportion to non-agri needs.

LOOKING AHEAD THE CURRENT TRAJECTORY OF FORMAL LENDING GROWTH WILL NOT SIGNIFICANTLY "CLOSE THE GAP"— A NEW TRAJECTORY IS NEEDED

1. Excludes China, Central Asia, Middle East and North Africa, and Eastern Europe. 2.CAGR assumptions: state bank market participant projections of ~8.5%, value chain actors in line crop production projections: 3.1% export crops, 2.3% non-export crops; MFIs market participant projections of ~13.90%; commercial banks in line with projected growth of retail banking: ~15% in Sub-Saharan Africa, ~14% in South and Southeast Asia, ~13% in Latin America; social lenders market participant projections of ~15%; high touch NGOs in line with 2010-2015 growth of ~30-35%.
Sources: expert interviews; FAO crop production projections; World Bank, McKinsey and BMI retail banking projections, annual reports



TO CHANGE THE GROWTH TRAJECTORY OF SMALLHOLDER FINANCING OVER THE NEXT 5–10 YEARS STAKEHOLDERS WILL NEED TO TAKE ON AMBITIOUS ROLES

Financial service providers

Pioneers of product and service design

- Use customer knowledge to make product offering more relevant to farmers
- Explore partnerships to alleviate high cost to serve and information asymmetries

Funders

Champions of smart subsidy

- Carefully assess financial models to support and design the investment mechanisms
- Provide support for research, cover upfront costs of new partnerships and facilitate connections between investees

Market and research platforms

Connected savants

- Fill-in key knowledge gaps e.g. value of customer centricity or business models performance
- Go beyond research designing common reporting standards, aggregating data and creating opportunities for actors to connect

Technical assistance providers

Constructive educators

- Become advisors to financial service providers to serve smallholder more efficiently
- Extend beyond the educator by contributing data from their experience into industry research effort

EXAMPLE: FINGAP

Investment Mapping System Overview

FINANCIAL TOOLS TABLE

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

GROUP ACTIVITY (25 MINUTES)

Chart 1: Identify multiple debt-based and non-debt based **instruments**.

What are financial instruments in the following 3 categories:

1. Producer productivity
2. Firm growth
3. Risk management/resilience

Chart 2: Lessons Learned

Chart 3: Challenges

FINANCIAL TOOLS TABLE

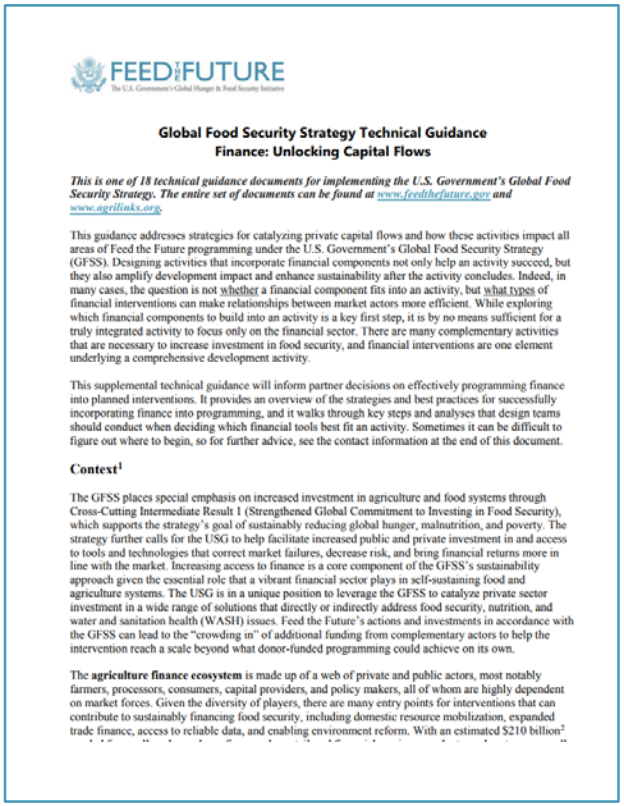
	Productivity Enhancing	Growth Enhancing	Resilience Enhancing
Debt-Based Instruments	• Formal lending (including digital credit) • Lease agreements • Alternative collateral-based loans (e.g., factoring, warehouse receipts, etc.) • Buyer credit • Agrodealer-to-farmer (business-to-consumer, B2C) • Input supplier-to-agrodealer (business-to-business, B2B)	• Formal lending (including digital credit) • Longer-term loans (enabling capital expenditure) • Lease agreements • Convertible debt • Debt instruments—linked to revenues/dividends for prepayment • Quasi-debt instruments (subordinated debt)	• Formal lending (e.g., to finance the purchase / construction of climate resistant farm inputs or risk-mitigation tools) • Informal lending from a village savings and loan association • Emergency loans • Informal lending/support from social network (reciprocal obligation)
Non Debt-Based Instruments	• Input selling mechanisms (e.g., pre-paid and layaways) • Buyer non-credit • Remittances (as capital/investment) • Mobile payments	• Paid-in capital • Private investor/joint ventures • Venture capital • Private equity (including search funds)	• Formal and informal savings • Index-insurance (e.g., weather) • Personal insurance (e.g., life, health, property, personal accident savings products) • SME insurance (e.g., property, accident, life) • Remittances (as social support)

SUPPLEMENTAL TECHNICAL GUIDANCE

This guidance addresses strategies for catalyzing private capital flows and how these activities impact all areas of Feed the Future programming under the GFSS:

- Context
- Designing Interventions
- Key Lessons Learned
- Programming in Practice
- Additional Resources

https://feedthefuture.gov/sites/default/files/resource/files/GFSS_TechnicalGuidance_Finance.pdf



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

Global Food Security Strategy Technical Guidance
Finance: Unlocking Capital Flows

This is one of 18 technical guidance documents for implementing the U.S. Government's Global Food Security Strategy. The entire set of documents can be found at www.feedthefuture.gov and www.agrilinks.org.

This guidance addresses strategies for catalyzing private capital flows and how these activities impact all areas of Feed the Future programming under the U.S. Government's Global Food Security Strategy (GFSS). Designing activities that incorporate financial components not only help an activity succeed, but they also amplify development impact and enhance sustainability after the activity concludes. Indeed, in many cases, the question is not whether a financial component fits into an activity, but what types of financial interventions can make relationships between market actors more efficient. While exploring which financial components to build into an activity is a key first step, it is by no means sufficient for a truly integrated activity to focus only on the financial sector. There are many complementary activities that are necessary to increase investment in food security, and financial interventions are one element underlying a comprehensive development activity.

This supplemental technical guidance will inform partner decisions on effectively programming finance into planned interventions. It provides an overview of the strategies and best practices for successfully incorporating finance into programming, and it walks through key steps and analyses that design teams should conduct when deciding which financial tools best fit an activity. Sometimes it can be difficult to figure out where to begin, so for further advice, see the contact information at the end of this document.

Context[1]

The GFSS places special emphasis on increased investment in agriculture and food systems through Cross-Cutting Intermediate Result 1 (Strengthened Global Commitment to Investing in Food Security), which supports the strategy's goal of sustainably reducing global hunger, malnutrition, and poverty. The strategy further calls for the USG to help facilitate increased public and private investment in and access to tools and technologies that correct market failures, decrease risk, and bring financial returns more in line with the market. Increasing access to finance is a core component of the GFSS's sustainability approach given the essential role that a vibrant financial sector plays in self-sustaining food and agriculture systems. The USG is in a unique position to leverage the GFSS to catalyze private sector investment in a wide range of solutions that directly or indirectly address food security, nutrition, and water and sanitation health (WASH) issues. Feed the Future's actions and investments in accordance with the GFSS can lead to the "crowding in" of additional funding from complementary actors to help the intervention reach a scale beyond what donor-funded programming could achieve on its own.

The **agriculture finance ecosystem** is made up of a web of private and public actors, most notably farmers, processors, consumers, capital providers, and policy makers, all of whom are highly dependent on market forces. Given the diversity of players, there are many entry points for interventions that can contribute to sustainably financing food security, including domestic resource mobilization, expanded trade finance, access to reliable data, and enabling environment reform. With an estimated $210 billion[2]

"WALK GENTLY AND BE BRAVE."

– Eleanor Brownn

REFLECTION

- 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 based on their experiences, expertise?

EVALUATIONS

U.S. GOVERNMENT PARTNERS

USAID FROM THE AMERICAN PEOPLE

MILLENNIUM CHALLENGE CORPORATION UNITED STATES OF AMERICA

USDA

OPIC

DEPARTMENT OF STATE UNITED STATES OF AMERICA

USGS science for a changing world

DEPARTMENT OF COMMERCE UNITED STATES OF AMERICA

EXECUTIVE OFFICE OF THE PRESIDENT OF THE UNITED STATES OFFICE OF SCIENCE AND TECHNOLOGY POLICY

PEACE CORPS

THE DEPARTMENT OF THE TREASURY 1789

UNITED STATES AFRICAN DEVELOPMENT FOUNDATION

FEED THE FUTURE

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

www.feedthefuture.gov

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