

Scaling for Widespread Adoption of Improved Technologies and Practices

U.S. Government's Global Food Security Strategy Activity Design Guidance

This is one of several Activity Design Guidance documents for implementing the U.S. Government's Global Food Security Strategy. The full set of documents is at www.feedthefuture.gov and www.agrilinks.org.

Introduction

The updated Feed the Future [Global Food Security Strategy \(GFSS\)](#) was released in October 2021 and has reiterated the importance of scaling to reach high-level goals. GFSS Objective 1: Inclusive and sustainable agricultural-led economic growth, highlights the need to strengthen the public and private delivery pathways that get cutting-edge innovations and information in the hands of producers and entrepreneurs:

Inclusive and sustainable agriculture-led growth requires widespread adoption of improved technologies, practices, and approaches by all system actors, including local service providers, input suppliers, smallholder producers, and processors...by developing and strengthening public and private delivery pathways to link appropriate solutions to demand.¹

The GFSS scaling up agenda also references food systems, nutrition, climate change adaptation technologies, supply chains, capacity development, and research approaches. Scaling up is integral to achieve the GFSS objectives of reducing poverty, hunger, and malnutrition.

GFSS defines the scaling of proven technologies and practices as the process of sustainably increasing the adoption and diffusion of a credible technology or practice, or a package of technologies and practices, to retain or improve upon the demonstrated positive impact of the technology or practice and achieve widespread use by stakeholders. Adoption of improved technologies and practices by a small number of adopters will not accomplish our development goals. In order to yield maximum impact, we must accomplish the widespread adoption of improved technologies and practices. We must reach millions, not thousands. The document provides guidance concerning the incorporation of scaling improved technologies and practices into development efforts aimed at reducing hunger, malnutrition, and poverty. This guidance is specifically for market-tested, proven technologies and approaches. When designing an activity, partnerships with research institutions, government, private sector, civil society groups, farmers, and local communities is key. Proven wide-scale adoption, as witnessed in the Asia and Latin America Green Revolutions, is transformative and affects sustainable economic development.

Terminology and Context

Scaling is a term that is used in numerous ways by development professionals. Here, we are specifically discussing scaling the adoption of technologies and practices, with an emphasis on diffusion of adoption. Programming for widespread adoption can be informed by lessons learned through experiences of scaling through Feed the Future to advance the objectives of most activities within the portfolio.

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 of the technology or practice and achieve widespread use by stakeholders.

Definitions of some common terms for scaling up² in the context of Feed the Future include:

- **Adoption (or Uptake):** A process involving an individual that includes the series of stages one undergoes from first hearing about a product to finally accepting or using it; also, the moment at which the decision-maker acts to make the spread of the technology happen.
- **Bundling:** Bundling strategies are associated with the concept of selling products or services with correlated demand levels in order to manage revenues and costs. With respect to scaling, bundling strategies involve selling products or services jointly with better information and practices to optimize returns on each element of the bundle, rather than selling or extending them individually, and marketing them at a price different from the sum of their individual prices. The objective of bundling for scale is to take advantage of demand-pull forces. An example of a bundle is a farm package that includes seeds and fertilizer with planting instructions. Adopters do not always consume an entire bundle, but may selectively choose certain elements of a bundle.
- **Commercialization:** The diffusion pathway by which a value chain is sufficiently resourced and organized to bring an innovation or product to a market (typically a mass market).
- **Diffusion:** The process by which an innovation penetrates markets over time within a group driven by social influences, which include all interdependencies among consumers that affect various market players—with or without their explicit knowledge.³
- **Innovation:** Any thought, behavior, or thing that is new, because it is qualitatively different from existing forms.
- **Maturity:** The period from a product's adoption slow down until sales begin a steady decline.
- **Rate of Adoption:** The relative speed with which members of a social system adopt an innovation. It is usually measured by the length of time required for a certain percentage of the members of a social system to adopt an innovation.
- **S-Curve:** Innovations typically diffuse over time in a pattern that resembles an S-shaped curve, indicating that an innovation goes through a period of slow, gradual growth before experiencing a period of relatively dramatic and rapid growth.
- **Scale:** Having a significant impact on its goals at the population level. The Feed the Future definition adds, "in the target ZOI [zone of influence] in each country." Scale is reached when a majority of potential adopters within a target population are using the innovation.
- **Slowdown:** The point of transition from the growth stage to the maturity stage of the product life cycle. The slowdown signals the beginning of a period of level, slowly increasing or temporarily decreasing product category sales.
- **Sustainability:** The degree to which an innovation or program of change is continued after initial resources are expended.
- **Take-Off Point:** The time at which a rapid increase in sales occurs that distinguishes the cutoff point between the introduction and growth stage of the product life cycle.

Scaling Up Activities and Systems Change

In the recent refresh of the GFSS, Feed the Future doubled down on emphasizing a systems approach to agricultural development, particularly with the global recognition of a “food systems” approach. (A preference for the use of “food and agricultural systems” is used to better capture the nonfood aspects of our work under the GFSS. Here, we use the term “food systems” to reflect the strategy directly, but felt it was important to acknowledge the current debate.) Over the decade since Feed the Future’s inception, our understanding of scaling activities, likewise, has shifted toward a systems-oriented view.

Distinct from scaling up technologies, there are several ways to define “scale up” of programs,^{4,5} but when we refer to the scaling up of activities, we mean scaling up activities for impact, rather than simply increasing the number of beneficiaries, outputs, or approaches. The term “activity” is used here in alignment with the U.S. Agency for International Development (USAID) Automated Directives System (ADS) Chapter 201 definition, “An implementing mechanism that carries out an intervention or set of interventions to advance identified development result(s).” This scaling up of activities aligns most closely with what has been referred to as “transformational scale,” or “...creating significant change by engaging with a broader and deeper number of systems to create more space for scaling.”⁶ Programmatic scale should be understood as changes in behavior, benefits, and other outcomes facilitated by the program, linked to a corresponding change in underlying incentive structures that influenced these changes.⁷

This concept of transformational scale is important to bear in mind when considering the role of activities (pilot or other stage), the tools we use to implement them, and how we seek to facilitate their scale.⁶ There is also space for activities and pilots to generate evidence to support the efficacy of specific interventions, perfect an innovative method, or ground-truth an approach in different countries and contexts. However, much as technologies must be developed with scale in mind from the beginning, activities must be designed with a vision for impact beyond the life of the program.⁸

In USAID, programmatic scaling may begin with pilot activities to determine the efficacy of an approach or a technology, or to achieve certain results. Not all pilots can be expected to reach scale. While USAID has had some successes, a significant number of cases do not scale.⁹ Finding ways to lay the groundwork for scaling, pivot to a new entry point, transfer an innovative pilot, and adapt to push on a different lever, or determining when to abandon an intervention, are all important to achieve impact at scale.

For a program to scale, it needs to be catalytic and effect sustainable change in a food or other system. These changes take time and don’t fall neatly within a five-year program cycle. There is an incentive to focus on increased beneficiary numbers and other easily reportable indicators. Additionally, measuring significant change and outcomes is challenging. Increased investments in consistent monitoring, impact studies, and ex-post studies can derive lessons learned that may then help drive change toward future program impact.⁷

Scaling Up Innovations

In contrast to scaling up a program from a pilot to higher-level systems change, scaling up an innovation may or may not require changing a system.

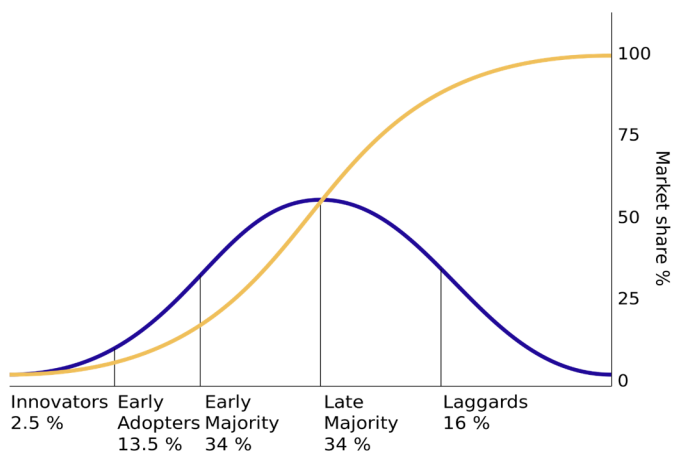


Figure 1. Adoption of technology and/or practice over time.

There is a nuance to this point that is worth noting. Within the scaling literature¹⁰, there is discussion of characteristics of innovations that facilitate scaling. These characteristics—namely compatibility, complexity, trialability, or collectively ease of adoption—are closely related to whether systems change is required to see an innovation scale. “Innovations” are products, services, or practices that are original and can be useful for adopters. The familiar scaling sequence of innovations is an S-curve, depicted as follows: “Takeoff” is the key inflection point from which an innovation scales through indirect diffusion, “virally,” as the users drive adopters’ uptake.

The takeoff point varies with the type of good. Consumer goods companies typically plan for a 16.6 percent adoption rate for takeoff. Our experience is that agricultural goods reach takeoff when the adoption rate is estimated to be between 25 percent and 35 percent of a potential market; however, this finding is tentative given the paucity of data. This takeoff point matters because it suggests how much we should budget to reach the point where adoption occurs virally. When scaling, it is important to consider the social context, power dynamics, and unintended consequences, such as widening the socioeconomic gap or gender divide due to the adoption of the innovation.¹¹ “Laggards” can be a pejorative term; in the scaling context, it refers to those who are very late on the uptake or never take up an innovation without specific reasons. While there are many critiques of this model, the theory behind it is widely accepted.¹² USAID commissioned several studies on innovation scaling.¹³ These studies provided the theoretical underpinnings for future work on scaling research outputs.

Scaling Up Framework for Innovations

The Bureau for Resilience and Food Security (RFS), with other partners, has documented evidence and developed, tested, and refined a scaling up framework for assessing pathways to scale. The framework is grounded on well-established economic theory, originating from research on the economic theory of goods, and applied to constraints to early generation seed use¹⁴ and scaling case studies.

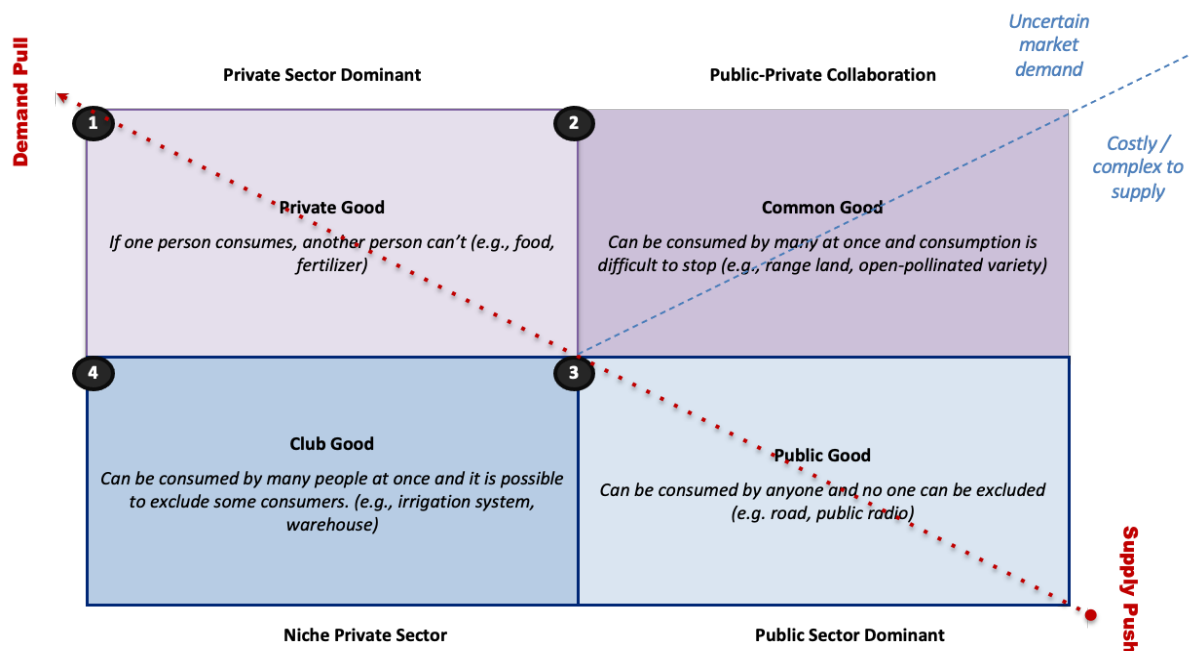


Figure 2. Categories of goods with delivery pathways added. A good can fall between categories and it can move between categories over time.

In this framework, products and services have particular characteristics that facilitate their scalability, as follows:

- **Private Goods:** Access is based on payment, or some form of remuneration and non-payers are effectively excluded from use of the good. Private enterprises are the means through which scaling is achieved.
- **Common Goods:** Access is not controlled by payment, but access to the resource is restricted to entitled users. Such goods are subject to demand limitations, mainly due to issues of demand uncertainty or supply constraints because of high costs or delivery complexities. Public-private partnerships or related institutional arrangements are necessary to address such constraints.
- **Club Goods:** Access is based on payment, but the goods can be simultaneously used by multiple consumers until congestion occurs or rationing is necessary. Private enterprises achieve scale of these goods until demand is met, at which point it collapses, or demand must be tightly managed to avoid congestion.
- **Public Goods:** Access is not controlled by payment and the goods can be simultaneously accessed by multiple consumers. Public goods are the responsibility of governments (or, temporarily, donors) to deliver, although with the right institutional arrangements, there may be private delivery options.

Private goods are subject to demand-pull by markets; that is, there are high financial returns to individual actors, which incentivizes them to participate actively in the market. Public goods are subject to supply-push forces, as there are low to no returns to individual actors.

Scaling up products and services follows one of the foregoing trajectories. Scaling up practices, for which there is often no demand-pull, requires a bundling strategy where a practice can be bundled with a product or service that is in demand. Otherwise, if there are no bundling opportunities, practices will have to scale through the public sector.

Designing Activities

Scaling Principles

Research conducted through the [Scaling Up Community of Practice](#) was recently published as a practitioner’s guide to scaling principles.¹⁵ Before beginning to design or adjust an activity with the objective of achieving scale, these principles could be useful to consult.

A further principle from the behavioral sciences is that donors cannot rely on dissemination by word-of-mouth. Recent research published by the Abdul Latif Jameel Poverty Action Lab at the Massachusetts Institute of Technology (MIT) finds that smallholder farmers are reluctant to share information about new innovations should they not meet expectations, for fear that their reputations may be damaged.¹⁶ Reputational concerns are powerful incentives that influence smallholders’ behavior and can influence scaling outcomes. To counterbalance this potential effect, practitioners should plan decentralized demonstrations of innovations with the aim of getting as close as possible to potential adopter populations.¹⁷ This dissemination approach is reinforced by the experience of successful African seed companies that use micro-demos in large numbers to maximize exposure of new varieties to farmers.

Key Lessons Learned—A Decade of Learning^{8,18,19}

RFS, through Feed the Future, first embarked on its journey to scale up programs and innovations in both target and aligned countries. In 2013, RFS (then the Bureau for Food Security (BFS)) and target countries initiated a series of “Scaling Action Plans” with the intent to identify a limited set of technologies that

could be the strongest candidates for sustainable, broad-scale, high-impact scaling. This initiative was accompanied by Global Learning and Evidence Exchange events to advance Missions' efforts by facilitating information exchanges. Concurrently, RFS engaged scaling up experts through literature review, case studies, and expert roundtables to put scaling up strategies into practice, including on gender-responsive scaling. Since those days, we have built up a body of work drawing on the lessons learned from these (and others') experiences. We have developed and validated a framework for scaling up as the basis of an [agriculture scalability assessment toolkit](#), summarized in [Scaling Agricultural Innovations in a Gender-Responsible Way for Food Security](#), and observed some successes of scaling certain innovations.

Among the most important lessons learned over this decade are:

Assess and Design:

- Assess scalability as early as possible and understand the expected benefits and costs of adoption from the perspective of women and men. Identify the prospects and likely challenges, which allows everyone involved to make informed decisions about whether and how to proceed, and to take specific steps to mitigate potential scaling obstacles. Key parameters for assessing scaling potential are: importance of the problem, credibility of the solution, ease of adoption, business case for users, business case for the market system, and the enabling environment, cultural aspect and norms, and the gendered dimensions of each of these parameters.
- Plan for scale upfront. Design projects and innovations with scale in mind. Plan an exit strategy, with sex- and age-disaggregated indicators and milestones, without defaulting to an invisible hand, where the market will simply lead to scaling up.²⁰
- A pilot program may scale from an implementing partner to intermediary organizations that then drive systems change. Particular technologies (products, services, and practices) scale through pathways, and the strengthening of those pathways may contribute to systems change.
- There are different pathways to scale depending upon the characteristics of a good or service, including commercial, public-private partnership (supply constrained), public-private partnership (demand constrained), public, or bundle, necessitating leadership and involvement of different stakeholders. The most appropriate pathway largely depends upon whether the characteristics of the innovation to be scaled are mainly private, public, club, or common (see the Scaling Up Framework for Innovations section).

Implement and Deliver:

- Factors that facilitate achieving scale include a conducive, enabling environment that supports trade and movement of, and access to, goods, services, and information; an inclusive and accessible financial system; functioning infrastructure; safe food systems; and protection of public and private resources, including intellectual property rights.
- In order to achieve scale, evidence⁹ suggests a strong preference for market-aligned, private sector engagement in scaling based on two assumptions. First, in many low-income countries, the public sector lacks the resources, incentives, and ability to scale, let alone to do so sustainably. Second, donors have neither the mandate nor resources to support scaling beyond 5 to 10 years. If scaling a particular innovation is profitable for private sector actors, it is likely to be sustainable and to eventually approach maximum potential scale. Despite this sustainability advantage of the private sector, scaling research suggests that others, including public sector actors, also play important intermediary and supporting roles (e.g., regulatory approval and food quality and safety assurance, extension and marketing that raises awareness of novel products to drive demand, training for end users to properly use products, and support for a feedback mechanism to research and innovators).

- Market actors and other intermediaries play critical roles in scaling, and are often the missing factor when no other entity can drive scale. Few interventions or innovations transition successfully to scale without someone performing a variety of “intermediation” functions.
- When markets fail, public-private partnerships can be leveraged to play essential roles—with the right institutional arrangements and incentives, as evidenced by the public-private partnerships that supply early generation seeds for many crops.
- Donors’ role can be to safeguard and facilitate inclusive scaling alongside local actors and may be indispensable when there are strong public benefits and a willing public sector and/or commercial partner. Donors can play this facilitation role by linking up investors, safeguarding and de-risking finance, and linking manufacturers/distributors to small- and medium-enterprises or other entities that could benefit from the product or service.
- Choice of business models may be the difference between success and failure.

Support Inclusive Access:

- Scaling pro-poor agricultural products and services should be accompanied by finance at a matching scale, which is contingent on significantly reducing the risk or transaction costs associated with investment in pro-poor food systems.
- Government and/or donor action is often required to promote inclusive market development when the private sector is unwilling or unable to absorb the costs of reaching remote and dispersed smallholders or other disadvantaged groups.

Monitor and Adapt:

- Monitoring impact is complicated; there are few feedback mechanisms and the ones that exist are costly, especially for less commercial technologies for which there are fewer incentives to track diffusion.

Adoption of an innovation by a small number of people will not accomplish GFSS development goals. To yield maximum impact, innovations need to be adopted beyond direct beneficiaries of interventions or the ZOI. A facilitative approach strengthens the actors that make up the public and private scaling pathways at the systems level, diffusing innovations beyond program boundaries and allowing for widespread adoption of improved technologies and practices at the population level (e.g., hundreds of thousands to millions).

Programming in Practice

The kinds of data and information that are systematically captured covering innovations and their use in Feed the Future are provided below. A number of indicators capture some information on technology innovations:

EG.3.2-7: Number of technologies, practices, and approaches under various phases of research, development, and uptake as a result of U.S. Government assistance, captures the progression of new or significantly improved technologies, practices, and approaches through research and development (R&D) to the demonstrated uptake by public or private sector stakeholders.

EG.3.2-24: Number of individuals in the agriculture system who have applied improved management practices or technologies with U.S. Government assistance, and EG.3.2-25: Number of hectares under improved management practices or technologies with U.S. Government assistance, report on the number of producers (and others) who apply improved management practices or innovations, and the hectares on which they are applied. Disaggregates including sex, age, commodity,

and technology type make this a particularly challenging indicator to collect and report on, and it doesn't capture what specific innovations producers may be applying, so while we can see the numbers of producers which may be applying a technology related to crop genetics and maize, we can't determine which variety of maize is being planted.

At the ZOI level, **EG.3.2-a: Percent of producers who have applied targeted improved management practices or technologies**, captures those farmers who have applied those innovations promoted by the Missions in their ZOIs. Missions are encouraged to choose four to five of the practices they are promoting and tailor their ZOI population-based survey to capture information on these specific technologies, but the survey isn't able to gather information on the great number of technologies in which USAID invests.

Details for all technologies, practices, and approaches from EG.3.2-7 are collected annually for the Research Rack Up database through a separate survey instrument, submitted by implementing partners of centrally funded research mechanisms. Implementing partners can track application and use of their innovations to some extent. This can be time consuming, expensive, and difficult to carry out after awards that have funded the innovation have concluded, so it's not widespread.

RFS has commissioned a number of studies to examine the continuum from innovation development, adaptation, handoff, and dissemination, including the Research Output Dissemination Study,²¹ Research Community of Practice presentation on Scaling and Gender,²² and others referenced elsewhere in this paper, but there has been no comprehensive, quantitative analysis examining who is using U.S. Government-funded innovations and where.

Equipping RFS and Mission Staff—Providing a Value Proposition

With the knowledge gained, we are positioned to focus our scaling efforts in support of Mission programming. These efforts need to maximize relevance and value for Mission audiences. Individual Mission operating environments are unique and will require identifying a customized technology “basket” of products and services aligned with unique, country-level attributes and constraints, such as farming systems,²³ agroecological zones, sophistication and formalization of markets and private sector actors, level of host country government capacity and participation in the agricultural sector, supply chain accessibility, and barriers to entry. Emphasis must be placed on aligning technologies to the needs, challenges, and geographies of the Feed the Future ZOIs.

Scaling efforts need to ensure that innovations and products are aligned with Mission priorities and responsive to gender disparities in access, adoption, and use of innovations. Once relevance for the Mission is affirmed, those systems, technologies, practices, and products that are capable of overcoming country-specific constraints should be a focus of scaling efforts. To ensure relevance, and to gain an informed understanding of operating contexts and priorities, scaling efforts must include continual dialog with stakeholders. Agroecological-specific technology baskets presented through informative interaction can bring together technical experts, technology developers, targeted agricultural officers, Mission staff, and field-based implementing partners. One initiative currently being planned for this purpose is a virtual agriculture marketplace of Innovation Labs' technologies for Missions and their implementing partners to increase awareness of, and possibly broker, these innovations for potential market actors.

Learning by Looking Back and Looking Forward

Learning about the mechanics of scaling has taken diverse forms, including examining our programming, partners, and innovations, and building on findings of the Research Impact Study, comprising the Research Uptake Study, the Research Output Dissemination Study and Impact Studies. Driven by our main objective of disseminating productivity-enhancing innovations widely from our research investments, we are focusing on the levers available to improve programming and technical assistance,

including learning and analysis, leveraging relationships with different partners and the private sector, guiding our central-funded portfolio, and supporting Missions.

We must be accountable for inclusion of women, youth, and disadvantaged people, a well-nourished population, safe and nutritious foods, sustainable food systems, environmental stewardship, and other priorities.²⁴ To be accountable requires effective planning and monitoring of potential impacts of scaling up on these cross-cutting priorities and adjusting approaches as needed.

Diversity and Inclusion

The scaling trajectory of adopters represented by an S-curve advances from innovators to early adopters to early majority adopters, then late majority adopters and, finally, laggards. This process is not necessarily inclusive nor does it promote diversity. Rather, the opposite outcome is a real possibility. The challenge for scaling practitioners is to ensure that disadvantaged groups are among the cohorts of early adopters. The populations that Feed the Future targets often lack resources and are highly risk averse. Under such circumstances, deliberate inclusion strategies are necessary, such as offering free trial sizes of new, but proven, seed varieties with accompanying support and/or instructions, or seed capital for bootstrapping service providers of specific economic activities, such as trained spraying service providers (often youths²⁴) to safely apply agricultural chemicals. Ultimately, inclusive scaling will hinge on designing research for innovations that specifically respond to the unique demands of often marginalized populations. Target Product Profiles must serve these disadvantaged demographics and market segments, so that research outputs are appropriate and reach them effectively.

When viewed through a programmatic lens, inclusive scaling is more realistically attainable and can be directly impacted by practitioners. Increasing pro-poor solutions through approaches highlighted earlier, such as adaptive management and co-creation, ensures that exposure to new innovations is expanded as well as programmatic impact.

Climate

The USAID Climate Change Strategy is an Agency-wide strategy to address climate adaptation and mitigation covering USAID's programming and operations. Reducing food loss and waste (FLW) is a programmatic priority with an opportunity for triple wins to improve climate, nutrition and food security, and sustainable food systems. Globally, 30–40 percent of food produced is either lost or wasted throughout the farm-to-consumer supply chain. When food rots, it emits methane, a powerful greenhouse gas (GHG). As a result, FLW contributes approximately 8–10 percent of all GHG emissions. Reducing FLW, particularly food loss in low- and middle-income countries, improves food safety, availability, affordability, and nutritional value, with a positive cascading effect on health outcomes, poverty reduction, food security, and climate change mitigation. Scaling and dissemination of agricultural innovations, such as FLW reduction, align with and support this strategy directly in strengthening the public and private pathways that increase smallholder farmer access to information, products, services and practices that can support their climate resiliency and promote sustainable food systems. Additionally, addressing FLW increasing efficiencies and scaling up productivity-enhancing technologies can increase efficiencies throughout the supply chain and also reduce emissions of GHGs that contribute to emissions' intensity reductions.

New Local Partners

USAID Administrator Samantha Power said recently, “We know after decades of effort and evaluation, much of which you’ve been a part of, that locally led development supports local institutions in the most effective manner and nurtures sustainability, prioritizes the perspectives and preferences of those we hope to serve—recipient governments, civil society organizations, and host country professionals.”²⁵ For more

information on achieving this objective, see the Agency’s [New Partnerships Initiative](#) website and the [Local Capacity Strengthening Policy](#). In order to maximize the adoption of innovation in the field, special attention and focus must be placed upon those most informed of local opportunities and constraints, our local partners. Who is better placed to inform our scaling efforts of the unique operational contexts that exist in the countries where we work? Host country government partnering will be critical to identifying public pathways to scale. Local governments understand the implications and nuance impacting cross-border flows of goods and services. They also possess the capacity to apply and/or create incentives, such as subsidies and extension services, to ease the onboarding and adoption of a new good or practice.

Scaling efforts must include close coordination with the local actors who understand country-specific market dynamics. Local enterprises and entrepreneurs possess market systems savvy and can expedite new innovations through complex and sometimes difficult market channels.

Local implementers can also play a critical role in providing technical assistance. Local implementers understand local systems and can provide a push and pull effect to encourage technology diffusion in challenging environments. They have an incredible reach capability, and local language and cultural understanding position them best to deliver technical assistance along the final mile.

Additional Resources and Tools

Resources on Gender and Scaling

- McGuire, E., A.M. Rietveld, A. Crump, and C. Leeuwis. 2022. “[Anticipating Gender Impacts in Scaling Innovations for Agriculture: Insights from the Literature](#).” *World Development Perspectives* 25.
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Resources on Systems Thinking

- USAID. 2014. [Local Systems: A Framework for Supporting Sustained Development](#). USAID.
- Coonrod, J. 2021. [Systems Thinking for Community-led Food Systems](#). The Movement for Community-Led Development.
- The Technical and Operational Performance Support (TOPS) Program. 2017. [Resilience Design in Smallholder Farming Systems: A Practical Approach to Strengthening Farmer Resilience to Shocks and Stresses](#). USAID. (This approach helps farmers and those who support them have a deeper understanding of their farming systems within their agroecosystems.)
- The [Systems Academy—Adaptive Systems](#) online course.
- Strengthening Capacity in Agriculture, Livelihoods, and Environment (SCALE). 2019. [Adaptive Thinking In Agriculture & Natural Resource Management: Facilitating Holistic, Dynamic and Flexible Thinking](#). USAID.

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- ⁸ Cooley, L. and J. Howard. 2019. [Scale Up Sourcebook](#). Purdue University and African Development Bank Group. (See chapter. 1.)
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- ¹⁰ Rogers, E.M. 2003. [Diffusion of Innovations \(5th ed.\)](#). New York: Free Press; Kohl, R. and C. Foy. 2018. [Guide to the Agricultural Scalability Assessment Tool for Assessing and Improving the Scaling Potential of Agricultural Technologies](#). USAID; Gans, J. 2018. "Assessing and Improving the Scaling Potential of Agricultural Technologies." *Agrilinks* (blog). July 24, 2018. <https://agrilinks.org/post/agricultural-scalability-assessment-tool-assessing-and-improving-scaling-potential-agricultural>.
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- ²² RFS Research Community of Practice Summer (Back to) School Series: Scaling and Gender 101 https://docs.google.com/presentation/d/1VrArTJKOPFrF8ngGWb8vhRbOG_VGukThhdv-DVCIfE4/edit?pli=1#slide=id.gf44fd3dec3_0_23 (internal to USAID staff only).
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- ²⁴ Ricker-Gilbert, J. 2022. "Supporting Rural Youth to Reduce Food Loss and Waste in Eastern Kenya." *Agrilinks* (blog). December 15, 2022. <https://agrilinks.org/post/supporting-rural-youth-reduce-food-loss-and-waste-eastern-kenya>.
- ²⁵ Saldinger, A. 2021. "USAID Chief Samantha Power Details Localization Push." *Devex*. Last modified December 8, 2021. <https://www.devex.com/news/usaid-chief-samantha-power-details-localization-push-102256>.

For further assistance related to these Activity Design Guidance documents, please contact fifguidance@usaid.gov.