

Agriculture under Pressure

Implications for Agricultural Development in U.S. Foreign Assistance

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This brief, Agriculture under Pressure, examines the evolving role of agricultural development in today's U.S. foreign assistance strategy and programming. After decades of decline in global hunger, the number of hungry people is rising again. They are concentrated in fragile, conflict- and climate-affected regions where production and trade are disrupted.¹ Concerns are growing that the environmental costs and health impacts associated with the prevailing model of agricultural production are unacceptably high. The spread of the coronavirus pandemic in 2020 has revealed shocking vulnerabilities in food and agricultural systems at all levels.

Feed the Future is mandated to lead U.S. support for the development of food and agricultural systems of low- and middle-income countries. This brief:

- summarizes the evolution of Feed the Future;
- reviews the key pressures affecting agriculture today;
- discusses opportunities to strengthen resilience and move toward a more sustainable, inclusive, and healthy food and agriculture system; and
- proposes policy and action recommendations for making U.S. foreign assistance more effective in the current climate of stress and uncertainty.

U.S. foreign assistance is being called upon to respond to mounting pressures on food and agricultural systems in low-income countries and regions, and the possibility that recent development successes will be rolled back. Climate change, concerns about agriculture's impacts on the environment and human health, and the disruptions of conflict and Covid-19 are converging to challenge progress made toward reducing poverty, increasing agricultural productivity, and addressing childhood stunting.

Recognizing the threat of recurrent, widespread food crises,

Feed the Future, which is the flagship U.S. government program to address global hunger and food security, added an ambitious new strategic objective for its second phase (2017-2021): strengthening resilience (i.e., the ability of people to manage through crises without compromising their future well-being). Organizational restructuring has been carried out to realign resources and strengthen collaboration within USAID.

However, more than halfway through Phase 2, Feed the Future's strategic reorientation remains tentative and a work in progress. Assisting partner countries to create more resilient, next-generation food and agricultural systems will

require more innovative development approaches to better complement humanitarian efforts; the creation of more sustainable food and agriculture systems; ensuring broad access to healthier diets at affordable prices; and adapting to rapidly changing local and global contexts.

The brief makes two overarching recommendations. **First, a much stronger focus on resilience is needed across all Feed the Future programming. Second, Feed the Future should add a fourth strategic objective: enable and empower national- and community-based organizations to drive the transformation of food and agricultural systems.** Local organizations—public and private—are best placed to understand complex local conditions and lead adaptation efforts.

Five specific priorities for action are proposed:

- better integrate humanitarian and development efforts;
- shift to a broader food systems approach;
- make risk management central to agricultural research, production, and market development programming;
- accelerate the uptake of digital technologies; and
- embrace the management, monitoring, and evaluation changes that will be required to operationalize the shift in focus to resilience, sustainability, and local organizations.

THE EVOLUTION OF FEED THE FUTURE

Feed the Future was launched by President Obama in 2010 in response to the global food price crisis of 2007/08. It significantly expanded U.S. investment in agricultural development for low-income countries.² In addition, U.S. leadership at the G8 and G20 raised resource commitments from other governments, multilateral institutions, and the private sector, which reversed the decades-long trend of disinvestment in the sector.³

Guided by the twin objectives of reducing poverty and improving nutrition, Feed the Future's first phase (2010-2017) focused on 19 politically stable countries with strong potential for improving agricultural productivity, market-led growth, nutrition, and gender equity. The Congressional passage of the Global Food Security Act (GFSA) in 2016 recognized the initiative's progress during its first phase and extended support through 2023.^{4,5}

In 2014, however, the number of hungry people around the world began to trend upward after many years of decline. By 2019, more than 690 million people were hungry. The Covid-19 pandemic may add between 83 and 132 million

undernourished people in 2020.⁶ In recent years, the greatest increases in hunger have occurred in fragile regions affected by conflict, where access to food has been disrupted by violence, and adverse climate events have often made matters worse.

In response to the changing nature of global hunger, the strategy developed for Feed the Future's second phase (2017-2021) added resilience as a third objective and pivoted the focus to more fragile and conflict-affected countries.⁷ The U.S. Agency for International Development (USAID) restructured its Bureau for Food Security (BFS) into the Bureau for Resilience and Food Security (RFS) to highlight the additional goal and expand collaboration with the agency's broader humanitarian, development, and peacebuilding/security programs. Leadership councils chaired by RFS on nutrition, resilience, and water were constituted to improve cross-sector collaboration. The passage of the Global Fragility Act of 2019 added further impetus to the task of improving the U.S. foreign assistance response in fragile and conflict-affected countries.⁸

The sudden spread of Covid-19 in early 2020 has put in sharp focus the importance of resilient food systems in every country of the world. The pandemic has dramatically deepened concerns that the development gains achieved over the last decade—including Feed the Future's—will be rolled back as healthcare systems, economies, societies, and access to food are disrupted.

PRESSURES ON AGRICULTURE

A wealth of studies conducted over decades has shown that, compared to growth in other sectors, agricultural growth can be two to three times more effective in reducing poverty in low-income countries and has been a key factor in the rapid decline of global poverty around the world since the 1950s.^{9,10} The development and spread of improved, high-yielding seed varieties and fertilizers, combined with new approaches to agronomic management, were the drivers for dramatic increases in agricultural productivity and reduced rural poverty, especially in Asia and Latin America.¹¹

Today, however, the convergence of multiple stresses—conflict, climate change, environmental degradation, changing diets, and a global health crisis—is challenging the model of productivity-centered investment that has guided U.S. and global efforts on agricultural development for over 60 years. In the sections below, we review the impacts of these stresses on food and agricultural systems.

The disruption of conflict. When rural families are endangered by conflict, many flee for their lives, often

leaving behind food stores, agricultural equipment, and land. Agricultural output is immediately reduced, and food supplies shrink. The continuing threat of violence and loss of assets limit the possibilities for near-term recovery of agricultural production.

Food is always a core element of the global humanitarian response to conflict. In recent years, direct delivery of food has often been replaced by cash, vouchers, or electronic benefit cards. These approaches are more efficient, foster the continued operation of local food and agricultural markets, and preserve dignity and food choice for vulnerable populations. Keeping local systems going is important because today's conflicts affect populations for long periods of time, humanitarian assistance is insufficient to provide healthy diets indefinitely, and local systems provide the foundation for economic recovery.^{12,13}

To improve the resilience of affected populations, the Food and Agriculture Organization and humanitarian organizations support both agricultural production and market-based income-earning opportunities.¹⁴ Host communities that can offer access to land, employment, and services also enable displaced groups to become more self-reliant and food-secure.^{15,16}

The challenges of climate change. Agricultural systems are inextricably linked with the process of climate change.¹⁷ Climate change is raising ambient temperatures and reducing yields, shifting seasonal rainfall patterns, and increasing the frequency and severity of extreme weather events such as drought and flooding.¹⁸ Water stress already impacts a quarter of the world's agricultural production.¹⁹ Higher temperatures are affecting the density of essential nutrients in crops, including iron, zinc, and protein.²⁰

Climate stresses also lead to upticks in social tensions and conflict. In West Africa, for example, changing rainfall patterns have forced herders into cropped areas in search of grass and water. The damage is exacerbating tensions and leading to more frequent outbreaks of conflict across the savanna.²¹

Climate crises on-farm can readily lead to food crises far outside the production zone, with effects transmitted through markets and trade. When multiple breadbasket regions of the world experience climate-related disasters at the same time, global food security is threatened, as was the case in 2007/08.

Agricultural practices will have to adapt to climate change, but agricultural systems themselves must change to help mitigate agriculture's impact on climate.

Agricultural production, especially in advanced systems, generates greenhouse gas emissions through land use, livestock production, and the use of energy-intensive inputs.

Agriculture's unsustainable use of natural resources. Expanding land use, deteriorating soil quality, loss of biodiversity, and contamination of waterways and air through excess nutrient run-off and GHG emissions are already pushing agriculture's consumption of natural resources past the limits of planetary sustainability.^{22,23} Available research and analyses are converging around the urgent need to strike a better balance between sustaining the natural resource base, producing food, and improving peoples' access to nutritious diets.

Analysts have jointly modeled human health and environmental outcomes associated with the quality of diets at a global level.²⁴ The research generally finds that, with some exceptions, increasing the consumption of plant-based foods and decreasing reliance on animal-source foods is likely to result in better human health and improved environmental sustainability.²⁵

Poor diets are negatively affecting human health. Food consumption has been increasing more rapidly than population growth in recent decades, responding to rising incomes, increasing agricultural production and trade, and changing food preferences.²⁶ Expanding demands for animal-source, processed and ready-to-eat foods have been met by private sector-led efforts to increase the availability of these commodities in global and local supply chains.

The increasing consumption of animal-source and processed foods runs counter to the emerging evidence on healthy diets. In addition, public policies remain largely focused on improving the productivity of major staple food and feed crops—rice, maize, wheat, and cassava—as the basis for national food security.²⁷ Available evidence suggests that the goal of making staple foods relatively less expensive has inadvertently contributed to less diversity in agricultural systems and a food environment unable to provide an adequate variety of affordable, safe, and nutrient-dense foods.^{28,29}

Today, poor diets are the leading contributor to the global burden of disease, with negative health effects resulting from inadequate calories (hunger), over-consumption of calories (overweight/obesity), and insufficient intake of micronutrients (hidden hunger).³⁰ The relative costs of healthy, nutrient-rich foods such as fruits, vegetables, and legumes are a factor: a substantial share of the world's population remains too poor to afford a nutritious

diet.^{31,32,33} But simply increasing incomes will not solve the problem of poor nutrition and ill health.³⁴

A new source of pressure: Covid-19. The coronavirus pandemic is adding new stresses to food and agriculture systems in low- and middle-income countries. In addition to the health impacts, closures of businesses and public spaces have decimated employment and livelihoods, especially in towns and cities. Farmers have been unable to acquire needed production inputs or get their foods to market. Market disruptions have made healthy foods less accessible both physically and financially.

The pandemic is shedding new light on the fragility of food and agricultural systems. The sources of fragility include the growing reliance on food/agricultural trade over long distances; the important role of informal, often migratory, labor throughout the value chain; and the ubiquitous but largely hidden role of small and medium-scale enterprises (SMEs) in virtually all aspects of the food system.

RESPONDING TO THE PRESSURES: OPPORTUNITIES FOR U.S. FOREIGN ASSISTANCE

The Global Food Security Strategy guiding Phase 2 of Feed the Future introduced resilience as a new strategic priority, increased the focus on fragile countries, and expanded attention to nutrition. Yet, three years after the launch of Phase 2, Feed the Future's strategic reorientation remains tentative even as the pressures on agriculture grow.

Addressing the array of challenges will require transforming food and agricultural systems to become more sustainable, not just more productive; provide healthier diets at affordable prices; and adapt to rapidly changing local and global contexts. Realizing this vision in fragile countries will require Feed the Future to apply lessons of experience from Phase 1, but also to embrace innovative approaches to agriculture, food security, and sustainable growth.

Success will also depend on the ability of local partners to lead collaborative action; harness science and technology; and facilitate investments to strengthen their countries' social, economic, and environmental resilience over the long term. Here, we review emerging opportunities for Feed the Future to work alongside its partner countries to create next-generation food and agricultural systems.

AGRICULTURE AND RECOVERY FROM CONFLICT

Historically, agricultural development has played a foundational role in ensuring food security and creating inclusive economic opportunities in almost every country.³⁵

When agricultural systems are disrupted, the challenge of rebuilding is often daunting. However, crises also provide an opportunity to “build back better” and strengthen the resilience of people, organizations, and the environment.

After the genocide, Rwanda's leaders recognized the importance of focusing on agricultural recovery to help the majority of Rwandans rebuild their lives with what they had—land and labor. The resulting programs for sustainable land management, input provision, and expanded irrigation spurred inclusive economic growth that contributed to widespread poverty reduction.³⁶

In Nigeria's oil-rich Delta region, social and political unrest has persisted for nearly 50 years. Chevron's partnership with USAID and the United Kingdom's Department of International Development (DFID), through the U.S.-based Niger Delta Partnership Initiative (NDPI) and its local counterpart, the Foundation for Partnership Initiatives in the Niger Delta (PIND), helped diversify the economy and develop agriculture-related employment opportunities, demonstrating the potential of agricultural initiatives to foster the recovery of societies and economies.³⁷ Aquaculture and cocoa innovations increased producer incomes and facilitated the development of small enterprises providing key services. Training in organizational development, accounting, and business planning complemented technical training to create a local ecosystem of empowered and capable local organizations.³⁸

Mali, Nigeria, and Niger are among the Feed the Future focus countries where conflict and political instability are rising challenges. The examples above illustrate the central role that agricultural development programs have played in rebuilding fragile economies and societies. Today, there is an important opportunity for Feed the Future to concentrate more attention and programming on helping at-risk, conflict-affected regions lay a foundation for longer-term development, working in close collaboration with humanitarian and governance/security partners.

CLIMATE-SMART R&D AND ENVIRONMENTAL SUSTAINABILITY

Reorienting agricultural development to focus on production system resilience can help avert poverty backsliding. Investments in agricultural research, for example, can use cutting-edge science to improve the capacity of crops and animals to withstand high temperatures, droughts, floods, and pests, in part through rediscovering genetic characteristics that were less of a focus for productivity-centered research. Increasing research investments on food safety to reduce the incidence

of toxins and pathogens in food systems and curb animal-human disease transmission will also be critical.

Climate adaptation will require going beyond the farm to reflect how agriculture interacts with water, forest, and other natural resources. Shifting to a broader landscape perspective can facilitate the development of agronomic techniques that help producers adapt their systems and mitigate environmental degradation. Greater investments in research to expand the diversity of crop and animal production systems to incorporate local fruits, vegetables, and other underutilized crops would increase nutritional resilience by expanding healthy, affordable dietary choices and add environmental resilience through ecological diversification.

Rethinking agricultural systems to ensure environmental sustainability will require extensive input from stakeholders, including consumers; contributions from a broader range of scientists including meteorologists, soil scientists, and entomologists as well as crop and livestock breeders, economists, anthropologists, and big data analysts; and an economic accounting framework that makes natural resource contributions to food and agriculture, and the toll that food and agriculture takes on natural systems, measurable and visible.³⁹

Ongoing field initiatives provide important examples of how to integrate production, resilience, and sustainability approaches. In the Sahel, farmer-managed natural regeneration of forests and farmland has demonstrated results on several million hectares.⁴⁰ Landscape development strategies in Ethiopia's degraded Tigray region are showing promise, with contributions from food-for-work and other donor investments.⁴¹ In post-genocide Rwanda, government policies and donor food-for-work programs facilitated a large terracing effort to restore eroded hillsides. By 2008, an estimated 1.8 million hectares, or 62 percent of Rwanda's cultivable land area, were protected by anti-erosion measures.⁴²

MORE RESILIENT, EFFICIENT, AND INCLUSIVE MARKET SYSTEMS⁴³

Markets in conflict-affected areas. Even in unstable regions, affected people continue to rely disproportionately on markets rather than direct food aid. As a result, the humanitarian community is shifting to cash-based assistance and other mechanisms that help sustain existing local market operations.

Development initiatives can help to further build market resilience in these fragile settings. Feed the Future programs have excelled at private sector engagement and market systems development in stable regions.⁴⁴ There are

important opportunities to build on this work to expand market networks and economic activity, and increase stability, in more fragile regions.

Humanitarian programs focus on the neediest individuals and households, not on strengthening the whole economic system. Adding a development lens in protracted crises can help diagnose and address underlying factors that affect market function and contribute to instability, such as lack of income-earning opportunities or unequal access to key resources. Working together, humanitarian and development colleagues can define more comprehensive, strategic responses.⁴⁵

Mozambique's introduction of an auction system for local sale of yellow maize food aid from the United States in 1992, at the end of its civil war, illustrates how food and agricultural program interventions during conflict or early recovery can influence long-term production and market system development. The auction and pricing rules facilitated the growth of the informal marketing system and the local small-scale milling industry. These continue to operate today to link Mozambican producers and consumers and provide affordable maize products.⁴⁶ The country's long civil war also led to a lasting development solution for meeting the food needs of urban populations cut off from rural, food-producing areas. The government opened land tracts in and around the cities for agriculture, provided seeds and tools, and formed local cooperatives that produced and sold vegetables. This initiative improved the economic viability and nutrition of poor households, especially those headed by women.⁴⁷ By 2005, the cooperatives were the country's largest producer of poultry.^{48,49}

There are also some cautionary tales. Humanitarian assistance can undermine markets and agribusinesses.⁵⁰ Direct seed distribution to populations affected by conflict or natural disasters has been a common response to food and seed shortages. By 2008, Ethiopia had received 34 years of nearly continuous seed aid.⁵¹ More effective market-based approaches would sustainably improve farmers' access to and choice of seeds as agro-input providers gain confidence in the market potential.^{52,53}

Humanitarian assistance projects are typically funded for short periods of time, often one year. This makes it difficult to partner on longer-term market system and capacity development. A Mercy Corps pilot program working with displaced Sudanese refugees in Uganda, for example, provided cash/voucher subsidies to local and refugee farmers to stimulate their demand for

improved seeds and services. It also supported local traders and input suppliers in engaging farmers and building relationships with national suppliers. An initial evaluation was promising: new seed companies began to work with local agro-dealers, and host and refugee farmers participated in markets and were introduced to improved technologies. But it is impossible to guess at the sustainability of this approach after a one-year project.⁵⁴

Market development takes time, especially amid the uncertainties of more fragile and remote areas. The temptation is great to measure short-run outcomes, including numbers of individuals trained or farmers applying an improved technology. The Mercy Corps effort and other projects in fragile zones suggest that sustained results and resilience depend more on the hard, indirect work of training and enabling local leaders and community organizations to respond effectively to market opportunities, rather than directly providing services. This includes working with local private entrepreneurs and firms to help them understand the market, develop appropriately- scaled products for the market, and develop their own distribution channels to reach the target farmers.⁵⁵

Markets as a continuum of informal to formal

agribusinesses. Agribusinesses, particularly SMEs, play a much larger role in Africa's food systems than previously recognized.^{56,57} Today, urban and rural consumers in Africa buy an estimated 80 percent of their food in small and large markets that handle a range of highly processed and fresh, perishable products and respond to the widely varying needs of consumers for access, price, and convenience.⁵⁸ The firms that supply and operate these markets are significant investors in African agriculture and play a critical role in determining sector efficiency and its ability to respond to shocks. SMEs play a key role in input supply; on-farm production; and distribution, processing, and retailing of food, especially in urban areas. But they remain at the margins of conventional finance, development assistance, and policy discussions.⁵⁹

SMEs and other agribusinesses are part of a continuum of formal and informal sector marketing agents responding to increasing urbanization, changing food demands, and the resulting economic opportunities.⁶⁰ They are demonstrating their ambition and ability to adapt to evolving demands and contexts in various ways, changing their business models to respond to Covid-19 challenges, and meeting farmer demands for local and improved seeds for a diverse array of crops. Agribusinesses are innovating and selling new products, including locally grown and

processed fortified cereals, quick-cook grains, and snack foods. They also serve as a trusted, local source of information to producers and consumers about improved technologies, market prices, and nutrition.^{61,62}

Facilitating cost-effective, sustainable input and marketing services to small farmers in more remote and often fragile regions has presented a continuing challenge. Innovative mixed commercial-social enterprise models are emerging that harness resources and expertise from nongovernmental organizations and social enterprises.⁶³

Increasingly, digital applications for agriculture are helping to "level the playing field" for agribusinesses, providing SMEs a cost-effective means to access markets and consumers.⁶⁴ Input importers and commodity aggregators, as well as SMEs, are also beginning to offer innovative digital services to producers, including drones and other tools for precision agriculture, and extension advice tailored to climate as well as market indicators.

Extending energy networks and cold-storage facilities to improve wholesale and retail marketing offers new opportunities to SMEs and other agribusinesses. The availability of refrigerated collection trucks, for example, can help to reduce waste and reduce the cost of fruits, vegetables, and animal-sourced foods that are vital to healthy diets.⁶⁵

Increasing access to improved technology, financing, business mentoring, and information is fundamental to expanding opportunities and capacities for enterprises of all sizes. A focus on strengthening SMEs will help to create a food system that is more sustainable, responsive to change, and better able to provide customers with safe, affordable, and nutritious foods.⁶⁶

Finance and risk management challenges. Savings from commodity sales and earnings from off-farm work continue to provide the major source of investment capital for smallholder farmers and SMEs. They are a critical factor in the ability to recover from shocks and sustain production systems.⁶⁷

The expanding availability of digital finance tools and mobile banking services holds great promise for improving access to savings and credit services, especially in rural areas distant from physical banks. The promise is constrained by limited and/or expensive internet connectivity, the reluctance of many small businesses to accept digital payments due to high fees, and lack of trust, including concerns about the vulnerability of personal information in the absence of strong regulatory frameworks and enforcement.⁶⁸

As farms and other food and agricultural businesses grow in scale, their need for external capital increases, and the financial risks associated with variable agricultural production conditions and volatile markets expand. Medium to large-scale agribusinesses are often able to work with formal financial institutions to buffer their risks, but smallholder farmers and SMEs are not so lucky. The risks of agriculture, combined with the high cost of lending to dispersed small borrowers, discourage commercial bank investment.⁶⁹

Many governments provide public support to farms in an effort to reduce financial risks: subsidies to reduce the costs of production inputs; lowered rates for crop insurance or agricultural loans; public investments in market-stabilizing infrastructure such as roads, warehousing, and cold storage facilities; commodity exchanges; and market information that stabilizes expectations and averts panic selling or buying.

Insurance and finance innovations. Recent innovations in information technologies and analytical methods show the increasing potential of insurance as a scalable, cost-effective risk management tool for farmers and herders. Index-based insurance harnesses seasonal data, including satellite data, to objectively estimate crop yield or livestock losses across a wide area.⁷⁰ Combining drought-tolerant seed with insurance provides additional benefits.⁷¹

Challenges include the expense and scarcity of data, the continuing difficulty of convincing poor farmers and herders to invest in hard-to-understand insurance programs, the inexperience of insurance companies, and the fact that the market is still very small.⁷² A shift away from the objective of full privatization of insurance to increasing the cost-effectiveness of insurance products is underway. There may be a continuing need for public subsidy—justified by the need for building economic resilience in agriculture. The costs of a shock and humanitarian assistance needs will outweigh the expense of reducing risks efficiently through insurance.⁷³

Blended financing. Public, private, philanthropic, and nongovernmental partners are working together to attract more diverse sources of capital to low-income countries. Blended finance approaches typically address market failures and/or are expected to deliver social and environmental impacts. Some partners will anticipate a negative financial rate of return, while others seek capital preservation, below-market, or market-rate returns. The objective is to leverage grant or low-interest funding to bring in additional private capital.^{74,75}

SME recipients of finance, including blended finance, require continuing technical assistance for business planning, mentoring, and market development. Costs of technical assistance can be high, but initial experiences are generating learning that can be applied to future SME programs.⁷⁶

RESHAPING POLICIES AND PROGRAMS FOR HEALTHIER DIETS

A great share of the global population today consumes diets that are not optimal for their nutrition and health, even when food markets are well stocked and household incomes and purchasing power are adequate.⁷⁷ This has made poor diets a leading contributor to the global burden of disease. Evidence that malnutrition poses real constraints to economic growth as well as individual well-being in low- and middle-income countries is mounting.

The reduction of stunting among children under five was a key objective for Feed the Future at the outset of the initiative. However, a 2016 evaluation found that the initiative's progress in *integrating* agriculture and nutrition interventions to improve nutrition remains limited.⁷⁸

For Feed the Future and other major agricultural development programs, a focus on strengthening farmer participation in value chains was expected to increase household income and lead to improved household nutrition. This nutritional outcome was often unmet.⁷⁹ Increasing production and commercialization of starchy staples such as rice and maize reflected the high priorities of partner governments concerned with national food security and the ability of farmers to readily access markets for staple foods.

Production and market development of nutrient-dense commodities received lower priority. Nutrition interventions were disconnected from major production programs and broadly aimed at behavior change programs for women and households, complemented by home gardens and other initiatives to expand direct family consumption of fruits and vegetables.

Over time, a push for more nutrition-sensitive agriculture programming led Feed the Future to increase attention to improving nutrient qualities of agricultural commodities, including biofortification to increase the Vitamin A content of sweet potatoes or the iron content of beans. More emphasis was placed on increasing the diversity of smallholder crop and livestock systems to support more nutritious diets as well as better managing crop production, storage, and processing for food safety and nutrient conservation.

However, Feed the Future and other development programs continue to struggle with the integration of agricultural and nutrition objectives and approaches throughout the food system. For example, most agricultural research funding is still directed to a handful of staple crops.⁸⁰ Two situations illustrate the challenge of balancing productivity, resilience, and nutrition objectives.

R&D. Breeders developing new crop varieties often prioritize drought and pest/disease resistance characteristics. These qualities add resilience but may not maximize yield or nutrient quality. Are stability and nutritional quality of the food supply as important as rising production? Agronomic research for improved management of soil and water will contribute to building resilience in the face of climate change, but the evolving nature of climate conditions make this a long-term commitment. Are long-term investments in resilience to be traded off against immediate production results?

Markets. Agricultural market development prioritizes enhancing market predictability for producers by fostering relationships between farmers, farmer organizations, and large-scale private buyers that have invested in processing or retail facilities (e.g., rice mills, breweries, feed mills, and supermarkets). This reduces income risks for farmers and encourages the emergence of a large-scale food industry. However, such initiatives may inadvertently crowd out emerging SMEs that could diversify food markets and add economic resilience to the sector.

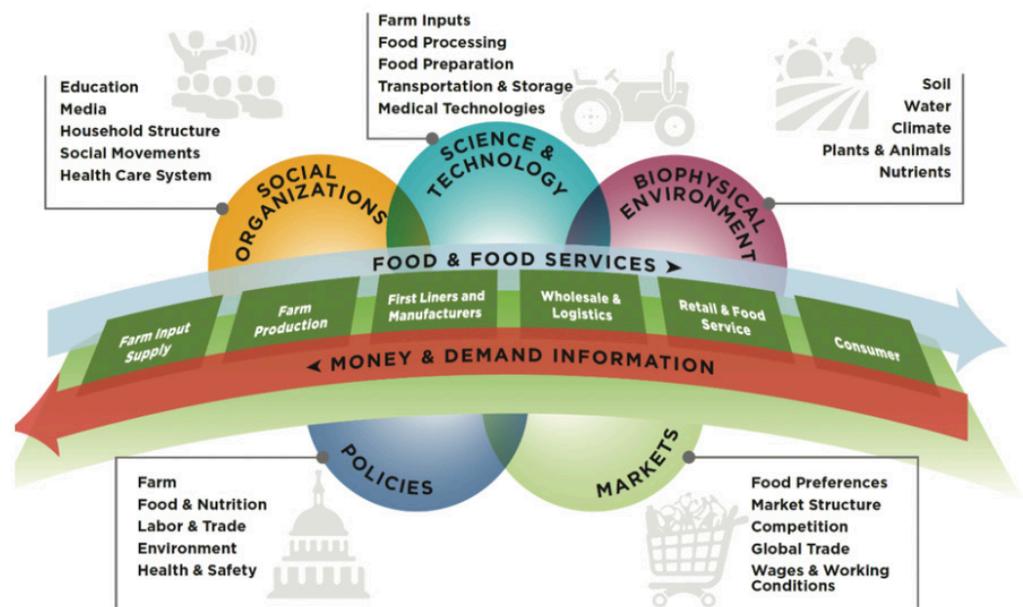
Food systems approach. The food systems framework—which envisions food production, trade, processing, retailing, and consumption as elements of an interactive, dynamic system—offers a potentially useful tool for incorporating the broader range of factors, impacts, and interactions affecting the food and agricultural system. Figure 1 provides one example of a food system framework that encompasses the operation of food supply chains from “farm to fork,” as well as the reverse flow of funding and market information from consumer to producer. Farm-

level agricultural production remains central to the food system, but the many functions carried out by other businesses and organizations and their roles in shaping production and the system are also represented.

Missing from Figure 1 is an explicit connection to healthier diets and optimal nutrition, which arguably should be the central focus for all food systems, although there are few countries where national policies coalesce around this goal.⁸¹ It is widely recognized that diets play a pivotal role in translating agricultural production, processing, marketing, and consumer food demands into nutrition outcomes. However, the policy and program actions needed to promote access to healthy diets and spur related behavior changes continue to be insufficient, as reflected in the high rates of morbidity and mortality associated with poor diets and diet-related diseases.

The Food Systems Dashboard aspires to redress some of these issues by providing a living source of easy-to-access data to help identify and prioritize ways to sustainably improve diets and nutrition in specific food systems.⁸² The breadth of information needed is wide, recognizing that the quantity and quality of nutrients in individuals’ diets is the result of choices that they make, given their resources, time, and information constraints. The nutritional quality of diets also reflects agricultural policies, trade and markets, climate and weather, soil and water qualities, economic

Figure 1. Example of a Food Systems Framework



Source: National Academy of Sciences, Engineering, and Medicine, *Innovation in Food Systems: Exploring the Future of Food, Proceedings of a Workshop* (Washington, DC: The National Academies Press, 2020), 5, <https://doi.org/10.17226/25523>.

infrastructure, education, social aspirations, and many other variables.

Designating nutrition as a key objective of Feed the Future was an important step in the right direction. However, to date, nutrition is still regarded primarily as a health challenge by the U.S. government and its foreign assistance programs. While malnutrition inarguably has devastating impacts on children and women in their reproductive years, this focus misses important opportunities to address nutrition more broadly by influencing food system development to increase dietary diversity, improve the nutrient value of common foods, and increase food safety. The appointment of USAID's first chief nutritionist provides an opportunity to articulate a more comprehensive vision and programmatic strategy to meet nutrition goals, as well as the role of Feed the Future in achieving those goals.

LOCAL CAPACITY AND INCLUSIVE DEVELOPMENT

Each of the pressures discussed in this report will require food and agriculture systems to change in significant ways and to keep adapting over time. Local people, institutions, and organizations are often best placed to understand complex local conditions and lead these adaptation efforts, but maintaining funding and policy support for strengthening local capacity—enabling them to plan and take effective action while learning from their experiences—has been challenging.

During its first phase, Feed the Future successfully aligned its agricultural assistance strategies with those of recipient countries but did less well in improving local capacity.⁸³ Human and institutional capacity development programs were often conceived as stand-alone training activities rather than a long-term, iterative process across programs, institutions, and partners.⁸⁴ Pressures for short-term results and inadequate monitoring and evaluation measures discouraged investments in capacity development.

USAID took important steps to refocus on local capacity under former administrator Mark Green, including developing roadmaps to facilitate partner country “journeys to self-reliance” and track country commitment and abilities to plan, finance, and implement solutions to their development challenges.⁸⁵ Successful local capacity was redefined—no longer based on an organization's ability to receive and manage U.S. funding directly but on “the strengthened performance of local actors and local systems in achieving and sustaining demonstrable results.”⁸⁶

The Covid-19 pandemic is now presenting an unanticipated opportunity to accelerate the shift to

local leadership. USAID and international implementing organizations have had to withdraw external staff and rapidly transfer responsibilities to local staff and partner organizations. As recovery from Covid-19 proceeds, the empowerment of local organizations and institutions can be sustained and expanded if deliberate efforts are made to strengthen their abilities.

Developing organizational capacity in partner countries.

Individual technical training has been the focus of capacity development efforts for decades and remains important, but individuals are rarely effective on their own. Broader sets of skills are needed to enable individuals to join their efforts in organizations that can work effectively across a system and address issues of equity and empowerment. Feed the Future's own experience in organizational development may offer some guidance here.

In recent years, USAID has made good progress in becoming a monitoring, evaluation, and *learning* organization capable of intentional change. Strengthening the capacity of partner country organizations implies enabling **them** to make the large transition from “implementing partner” to “learning organization and partner.” Effective learning organizations are better able to set and revise their strategy and to work productively together toward common goals.⁸⁷

As an important strategic focus for U.S. investment, institutional and organizational capacity development includes investing in universities, vocational, and other training institutes to help adapt management training to local needs. In sub-Saharan Africa, for example, increasing the number and quality of public management institutes or management consulting practices accessible to local organizations could improve the development and implementation of effective agricultural strategies.

Linking organizational capacity to economic opportunity.

The experiences of NDPI/PIND in Nigeria's Niger Delta region illustrate how a long-term investment in organizational capacity can create an anchor for complementary investments which, in turn, develop economic opportunities for marginalized groups.⁸⁸ Chevron's investment in NDPI/PIND addressed underlying social problems and developed the capacity of local community organizations and small business networks. NDPI/PIND and affiliated groups have now catalyzed over \$100 million in additional investments into the Niger Delta, including from USAID and DFID. A recent evaluation concluded that the NDPI/PIND-donor organization partnerships demonstrate the synergistic value of combining deep development experience with local private sector contextual expertise,

business practices, and established local networks.⁸⁹

RECOMMENDATIONS

Agriculture is under pressure globally, but especially in the fragile, climate- and conflict-affected areas that are a focus of Feed the Future efforts in Phase 2. Addressing the array of challenges will require applying a development lens to complement humanitarian efforts in fragile regions; transforming food and agricultural systems to become more sustainable, not just more productive; providing healthier diets at affordable prices; and adapting to rapidly changing local and global contexts. Realizing this vision will require Feed the Future to apply lessons of experience from Phase 1, but also to articulate innovative approaches to agriculture, food security, and sustainable growth and to empower local organizations to lead the way.

There are two overarching recommendations of this report. **First, there should be a much stronger focus on resilience across all Feed the Future programming. Second, Feed the Future should add a fourth strategic objective: enable and empower national- and community-based organizations to drive the transformation of food and agricultural systems.** Local organizations—public and private—are best placed to understand complex local conditions and lead adaptation efforts over the long-term. Local governments, civil society organizations, and the private sector have been at the center of the Covid-19 response. There is now an unanticipated opportunity to accelerate a more permanent shift to local leadership of development programs. Sustained investments in strengthening local organizational capacity are needed, with priority given to expanding and improving local management and technical training through universities, technical and vocational institutes, and private/non-profit organizations. SMEs and agribusiness networks will be a particularly important focus for these policy and program efforts.

There are five specific priorities for action:

- **Integrate humanitarian and development assistance activities in areas of protracted crisis**, with developing market systems and improving access to healthier diets the main focus of collaboration.
- **Shift from a dominant focus on agricultural productivity to a broader food systems approach**, factoring in environmental sustainability and nutrition, health, and food safety considerations. A better balance of research investments among staple crops, horticulture, and animal-source foods is needed, along with a more decisive emphasis on landscape

approaches, connecting rural and urban areas, innovations in urban and peri-urban agricultural systems, and food security among urban residents. Attention to strengthening the capacity of SMEs is important to improve the sustainability of production; promote more diverse, affordable diets; and generate new income-earning opportunities, particularly for women and youth, including in urban areas, and for displaced populations and the communities hosting them.

- **Put risk management at the center of agricultural research, production, and market development programs.** Research, data, and programming priorities should better reflect major risks and innovative approaches for managing them at farm, community, landscape, and economy levels. Diversity of crop and livestock systems should be emphasized along with increasing the productivity and efficiency of individual commodities and value chains. Feed the Future programs should put more focus on innovations that expand access to savings and credit facilities that are critical to the ability of SMEs to recover from shocks and sustain production systems. Innovations range from increasing access to digital financial tools and mobile banking services, index-based insurance, and the use of blended financing to attract more diverse sources of capital to the food and agricultural sector from public, private, philanthropic, and nongovernmental partners.
- **Accelerate the utilization of information and communication technologies** for inclusive development of food and agriculture systems. Priorities include infrastructure investments to expand broadband and wireless connectivity; policy and regulatory improvements to improve data security and increase access to market information and mobile payment systems; and investments in satellite and mobile-based data collection and utilization to transform research, extension, and marketing services.
- **Embrace the management, monitoring, and evaluation changes that will be required to operationalize the shift in focus to resilience, sustainability, and local organizations.** Increasing the focus on resilience and on national and local organizations will have profound implications for the internal procedures and incentives that guide U.S. foreign assistance programs for agricultural development. One challenge is to embrace adaptive

management that recognizes and facilitates major program changes in response to ongoing monitoring and reflection throughout program life. Major changes in metrics, monitoring and evaluation, procedures, and incentives will be needed to shift Feed the Future's focus from short-term tangible outputs to longer-term, sustained organizational capacity and systemic change. ■

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80. The 2019 launch of the CGIAR “Crops to End Hunger” initiative reinforced the focus on staple crops. See “Official Launch of CGIAR’s ‘Crops to End Hunger’ Initiative at Borlaug Dialogue,” CGIAR, October 17, 2019, <https://www.cgiar.org/news-events/news/official-launch-of-cgiars-crops-to-end-hunger-initiative-at-borlaug-dialogue/>. See also Rhys Manners and Jacob van Etten, “Are agricultural researchers working on the right crops to enable food and nutrition security under future climates?” *Global Environment Change* 53 (November 2018): 182-194.

81. Global Panel on Agriculture and Food Systems for Nutrition, *Food systems and diets*.

82. Food Systems Dashboard, <https://www.foodsystemsdashboard.org/food-system>.

83. Kimberly Elliott and Casey Dunning, *Assessing the US Feed the Future Initiative: A New Approach to Food Security? CGD Policy Paper 075* (Washington DC: Center for Global Development, 2016), <https://www.cgdev.org/sites/default/files/CGD-Policy-Paper-75-Elliott-Dunning-Assessing-Feed-the-Future-2016.pdf>.

84. Ibid.

85. “Self-Reliance Roadmap,” USAID, <https://selfreliance.usaid.gov/>.

86. USAID, *Acquisition and Assistance Strategy* (Washington, DC: USAID, 2018), <https://www.usaid.gov/sites/default/files/documents/1868/AA-Strategy-02-04-19.pdf>.

87. See “Peter Senge and the Learning Organization,” infed.org, <https://infed.org/mobi/peter-senge-and-the-learning-organization/>.

88. “Without jobs, there can be no sustainable peace,” as one CSIS roundtable participant put it.

89. Gifford, DeVries, Knott, and Mant, *Pioneering New Operating Models and Measurement Techniques*.