



# FEED THE FUTURE

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

## Landscape Assessment: Food Processing in Feed the Future Investments

### Executive Summary



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FROM THE AMERICAN PEOPLE

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## About USAID Advancing Nutrition

USAID Advancing Nutrition is the Agency's flagship multi-sectoral nutrition project, led by JSI Research & Training Institute, Inc. (JSI), and a diverse group of experienced partners. Launched in September 2018, USAID Advancing Nutrition implements nutrition interventions across sectors and disciplines for USAID and its partners. The project's multi-sectoral approach draws together global nutrition experience to design, implement, and evaluate programs that address the root causes of malnutrition. Committed to using a systems approach, USAID Advancing Nutrition strives to sustain positive outcomes by building local capacity, supporting behavior change, and strengthening the enabling environment to save lives, improve health, build resilience, increase economic productivity, and advance development. This project contributes to the goals of the U.S. Government's Feed the Future initiative by striving to sustainably reduce hunger and improve nutrition and resilience.

## Disclaimer

This report was produced for the U.S. Agency for International Development. It was prepared under the terms of contract 7200AA18C00070 awarded to JSI Research & Training Institute, Inc. (JSI). The contents are the responsibility of JSI, and do not necessarily reflect the views of USAID or the U.S. Government.

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Cover photo: A quality control manager holds a container of fortified cooking oil at the BIDCO plant in Uganda. Daniel Cothran, JSI.

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# Background

Processed foods are an important part of the food supply throughout the world.<sup>1</sup> A range of processing can take place along food value chains that can influence the nutrient content of foods, bioavailability of nutrients, food safety, food preservation, and cooking time, among other considerations. The U. S. Agency for International Development (USAID) and its Feed the Future partners recognize the role that food processing can play in improving access, availability, and desirability of a year-round, safe, nutritious diet. To date, however, there has not been an analysis of the experiences of Feed the Future partners investing in food processing as it pertains to nutrition-related outcomes.

The purpose of the landscape assessment was to help USAID better understand how food processing has been included in Feed the Future programming and provide recommendations for improving food processing programming to increase year-round access to and consumption of foods that form part of a safe, nutritious diet. We found opportunities in food processing interventions within Feed the Future projects that could be exploited to improve diet quality. Our findings highlight key recommendations for USAID and implementing partners, and priority areas in which USAID Advancing Nutrition can potentially support USAID efforts to improve food processing for nutrition outcomes as part of Feed the Future.

## Methods

We searched the USAID Development Experience Clearinghouse (DEC), USAID website, and implementing partner websites for documents on Feed the Future projects with investments in food processing. We reviewed 142 Feed the Future projects, 63 of which had a food processing component; 26 of these projects had a food processing component with a nutrition objective. We defined projects with a food processing component as those with activities that involved any deliberate physical, chemical, or microbiological step to change food from its raw form. We defined projects with a food processing component that had a nutrition objective as those that indicated in their reports that a food processing activity was conducted to improve nutrient intake and/or nutritional status, either at the household or population level. The publication dates for the review of Feed the Future projects were from January 2010 to June 2019, which covers the first 9.5 years of the Feed the Future initiative. Data and information were analyzed and synthesized using an Excel spreadsheet. The project analyses and recommendations provided in this executive summary are based on the Feed the Future experience. The availability of documents varied by project, and lack of final evaluation reports limited the analyses.

## Findings

### Description of Feed the Future Projects with a Food Processing Component

Among the 63 Feed the Future projects with a food processing component, over one-third were in the East and Southern Africa regions (41 percent), and fewer than one-fifth were in Asia (Central, South, and Southeast Asia, 14 percent) and West Africa (13 percent), with a little over one-tenth in the Latin American and Caribbean region (11 percent).

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<sup>1</sup> Floros, John D. et al. 2010. "Feeding the World Today and Tomorrow: The Importance of Food Science and Technology." *Comprehensive Reviews in Food Science and Food Safety*. 9. 572–99. DOI: 10.1111/j.1541-4337.2010.00127.x. Weaver, Connie M., et al. 2014. "Processed Foods: Contributions to Nutrition." *American Journal of Clinical Nutrition*. 99. 1525–42. DOI: 10.3945/ajcn.114.089284.

More than three-quarters of the 63 projects that included a food processing component were focused on commercial food processing, by either individuals or micro-, small-, or medium-sized enterprises, and occasionally, larger food processing companies. In some cases, the size of the enterprises was difficult to determine from project documentation. Only a few projects focused on food processing solely for home consumption, while one-quarter of the projects included both commercial food processing for sale and food processing for home use.

Of the 63 projects working on food processing, about one-third were working with horticulture (vegetables or fruit), one-quarter were working with cereals (maize, sorghum, millet, wheat), one-fifth were working with dairy (mostly milk), nearly one-fifth were working with legumes, and just a few were working on processing nuts, tubers, meat, poultry, fish, oilseed, honey, bakery and snack items, or a blend of foods (for example, a blended flour of soybean, maize, and moringa).

Over one-half of the projects worked on improved drying techniques, about one-third on milling, one-fifth on threshing, one-fifth on cold storage, and over one-tenth on shelling. Just a few projects worked on developing or producing blended flours, used extrusion techniques, or involved frying, baking, roasting, seasoning, boiling, blending, straining, juicing, pasteurizing, homogenizing, smoking, expelling oil, washing, sorting, grading, or packaging food. One-quarter of the projects involved just one food processing technique, while the others included two or more food processing methods.

Over half of the projects used the term “processing” without defining it, so it was not always clear what type of processing was done. In terms of recovery and use of by-products from food processing, one project processed cassava peelings for animal feed to reduce waste from cassava processing, while another promoted the recycling of waste generated during maize processing (e.g., maize leaves, stalks, and cobs were reused as an energy source for company steam boilers and fine dust was used by farmers as manure and animal feed).

Of the 26 projects that had a food processing component with a nutrition objective, 9 were Feed the Future Innovation Lab projects and 17 were country-level Feed the Future projects.

## **How Food Processing Was Incorporated into Feed the Future Activities for Nutrition Objectives**

We found that Feed the Future Innovation Lab activities that supported food processing for nutrition objectives focused primarily on research and training, with just a few Innovation Labs supporting private sector food processors with technical assistance and provision of equipment. Varying numbers of Innovation Labs conducted the following activities:<sup>2</sup> market surveys and mapping of processed foods in the market (1), processed food product development/formulation (2), developing and testing new food processing technologies (6), analysis of willingness of consumers to pay for processed food products (1), clinical trials of processed foods (3), testing new crop varieties in processed foods (1), research on policy related to processed foods and health (1), and training of processors on various processing methods (e.g., extrusion, drying, and cooling) (5). One Innovation Lab trained women on household-level food processing. Four Innovation Labs supported private-sector food processors—either small- or medium-sized enterprises—with equipment and technical assistance. The projects aimed to use food processing activities to improve nutrition through increasing availability of protein and micronutrients such as vitamin A, iron, and zinc in foods; increasing access to therapeutic foods for treatment of acute malnutrition; and improving overall dietary diversity and adequacy. They also worked to improve food security through developing and testing processed foods that could increase year-round availability of safe, nutritious foods.

Feed the Future country-level projects supported food processing activities, primarily micro and small enterprises for income generation and at the household level for home use. Activities involved training

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<sup>2</sup> Number in parentheses represents the number of food processing Innovation Labs conducting the activity.

NGO staff, community members, and businesses in food processing and business skills; development and testing of household-level food processing technologies and products; and promoting private sector and government engagement to support the enabling environment and income-generation opportunities. In seven Feed the Future projects, training involved micro-enterprise-level food processing at the household level for improving income and household diets, while in four projects household-level food processing was mentioned in relation to improving household-level diets. Six projects supported small- and medium-sized enterprises in food processing. Two projects developed and tested household-level food processing technologies, specifically for drying meat and horticulture products and cold storage for horticulture products; one of these projects also pilot-tested new food processing products. Three projects directly supported the private sector by giving grants and incentives to millers to incorporate new technologies and produce new, safe, and nutrient-rich processed food products. Three projects also gave technical assistance and equipment to processors to produce fortified processed foods. One of these three projects trained processors to produce fortified, milled flours and to access finance, in addition to training local craftsmen to maintain and repair fortification equipment. This project also secured local government support for fortification efforts. Four projects mentioned extended shelf life of foods through food processing; two indicated food processing enhanced transportability; and one reported that food processing extended the seasonal availability of foods.

## Opportunities to Improve the Design and Implementation of Food Processing Activities and Recommendations for USAID and Implementing Partners

Based on an analysis of the 26 Feed the Future projects with a food processing component, we identified opportunities to improve the design and implementation of food processing activities and overall recommendations to improve incorporation of food processing in Feed the Future interventions to better contribute to a safe, nutritious diet. The opportunities and recommendations are summarized in Table ESI.

Opportunities to enhance diet quality through Feed the Future-supported food processing interventions include improving assessments, particularly taking into consideration nutrition when conducting assessments, such as analyzing gaps in food and nutrient intake to inform program design, and market analyses around availability, access to, affordability, and desirability of safe, nutritious foods. Better incorporation of gender in project design, implementation, and monitoring and evaluation, as well as improving social and behavior change interventions for demand creation, could also help support diet quality among key target groups.

Among country-level projects, engagement with the Feed the Future Innovation Labs and a range of private- and public-sector entities may also improve the effectiveness of food processing interventions. In addition, better linkages between project components and strategies to reach target groups could help achieve desired outcomes.

Lastly, monitoring, evaluation, and learning around food processing, including collecting data on coverage and reach of processed foods, cost of production, income generated, cost to consumers, and impact on nutrition and livelihoods, would better capture project outcomes and impact, as well as learning during implementation.

## Box I. Gender and Food Processing for Improved Diet Quality

Many projects reviewed in the landscape assessment worked with women or women's groups on household-level food processing, and in some cases with women entrepreneurs to create micro or small enterprises focused on food processing, either as owners or workers. However, there did not appear to be a strategic focus on better understanding gender issues as they relate to food processing and diet quality in the household and the wider community.

There is a need to study women's involvement in food processing at both the commercial and home levels to improve our understanding about the role that women, men, and other household members play in commercial food processing, as owners, managers, technicians, or workers; as well as in home food processing. Women's contributions—current and potential—to food processing for improved diet quality and nutrition, and how food processing affects women's lives and livelihoods, are poorly understood. For example:

- A project in Senegal found women were motivated to transfer to other women knowledge about food processing for improved diet quality, nutrition, and income generation, and project staff felt that food processing activities had a strong impact on women's empowerment in rural communities. However, women's empowerment and the impact on diet and nutrition outcomes has not been well studied.
- The final report for a project in Tajikistan advised that prior to planting crops, staff need to discuss with women farmers how much they expect to sell or be able to preserve through canning, which requires money for purchase of jars. Barriers women face, including market barriers for selling or barriers related to home food preservation, must be addressed to achieve project objectives around improving year-round diet quality.

Key recommendations for USAID include incorporating guidance into future projects/activities (as appropriate, given that various projects with varying objectives may operate in the same zones or market areas) related to—

- assessing diet and nutrient intake and food/nutrient gaps in target populations, to better use safe, nutritious processed foods to fill food/nutrient gaps across seasons, geographic regions, and socio-economic strata and other demographic groups
- business/market analyses and assessments of consumer demand for safe, nutritious processed foods, to better inform design and implementation of activities to improve diets through safe, nutritious processed foods
- social and behavior change interventions to increase consumer demand for safe, nutritious foods, including processed foods
- scale-up of effective, proven, nutrition-sensitive food processing technologies and nutrient-rich products developed through the Feed the Future Innovation Labs
- assessing stakeholder engagement, incorporating stronger engagement with a range of private-sector and public-sector actors, including on policy issues, and monitoring engagement during implementation
- gender considerations related to food processing in project design, to ensure program design and implementation fully incorporate gender for improved outcomes and impact on diets, including safe, nutritious processed foods

- project-level monitoring and evaluation guidance, including indicators on cost, reach/coverage, demand for processed foods, and gender issues related to food processing and use of processed foods; and guidance for evaluation of food processing activities during midterm and final evaluations.

We also recommend that USAID ensure adequate award funding and time for implementing partners to conduct the assessments and market analyses noted above, social and behavior change (SBC), and gender-related activities and monitoring for improved program design and implementation to enhance diets through safe, nutritious processed foods. USAID will also need to develop training materials and train implementing partners on indicator and guidance use/application. Given that one or even a few projects cannot do all things, it will be important for USAID to better plan and design the overlay of projects within its operating zones to achieve desired objectives related to improving diet quality through food processing. It is also critical that Feed the Future projects with food processing interventions include a specific objective to improve diet quality.

Key recommendations for implementing partners include conducting adequate assessments on diets and food/nutrient gaps, business/markets, private and public stakeholder engagement, policies, and gender to ensure effective project design and implementation to improve diets through safe, nutritious processed foods. Implementing partners also need to implement SBC interventions to increase consumer demand for safe, nutritious processed foods if other projects are not already tasked with doing so. We also recommend that implementing partners ensure they have staff or consultants with the expertise to carry out the assessments and project interventions with high quality. Project managers also need to incorporate mechanisms to strategically coordinate across project components, such as those related to income generation and nutrition, to improve outcomes and impact related to improving diets, including through the use of safe, nutritious processed foods. As relevant and appropriate, implementing partners should include in their project design the scale-up of available, effective, proven, nutrition-sensitive food processing technologies and nutrient-rich products developed through Feed the Future Innovation Labs. Partners also need to develop and implement project-level monitoring, evaluation, and learning systems with indicators of food processing, including indicators of cost; reach/coverage; demand for safe, nutritious processed foods; and gender issues related to food processing and use of processed foods. They should use qualitative methods to investigate the “why” behind the findings from quantitative monitoring data and use the findings to improve project interventions, outcomes, and impact.

## Next Steps

The immediate next step for USAID Advancing Nutrition is to validate the findings from the landscape assessment through discussions with select USAID staff and Feed the Future implementing partners. Based on the validation exercise, USAID Advancing Nutrition will develop a work plan for April – September 2020 to begin activities to improve food processing for nutrition for Feed the Future investments.

**Table ESI. Opportunities, Overall Recommendations, and Specific Recommendations for USAID and Implementing Partners to Improve Food Processing in Feed the Future Investments to Better Contribute to a Safe, Nutritious Diet**

Opportunity	Overall Recommendations	Specific Recommendations for USAID	Specific Recommendation for Implementing Partners
Assessments to inform project design around food processing	Assess diets, nutrient gaps, food safety, and the food system to strategically design food processing activities to fill nutrient gaps, considering seasonality, geography, and value chains in various seasons and geographic locations.	<ul style="list-style-type: none"> <li>• Incorporate guidance into procurement design for implementing partners to assess diets, nutrient gaps, food safety, and the food system to strategically design food processing activities to fill nutrient gaps, including the human resources and technical capacity to carry out the assessments.</li> <li>• Include in awards sufficient funding and time to carry out assessments of diets, nutrient gaps, food safety, and the food system, including funding for the human resources and technical capacity needed for these.</li> <li>• Develop training materials and train on use/application of the guidance materials, incorporating these into Feed the Future trainings on assessment, monitoring, evaluation, and learning.</li> </ul>	<ul style="list-style-type: none"> <li>• Plan and carry out assessments of diets, nutrient gaps, food safety, and the food system to strategically design food processing activities to fill nutrient gaps.</li> <li>• Hire staff and/or consultants with the capacity to conduct the assessments with high quality.</li> </ul>
Market analyses on processed foods and demand creation for safe, nutritious processed foods within the project design	Strategically incorporate business/market analyses on processed foods and SBC activities to create demand/willingness-to-pay for safe, nutritious processed foods.	<ul style="list-style-type: none"> <li>• Include guidance in procurement design for implementing partners to conduct business/market analyses on processed foods.</li> <li>• Include in procurement design the need for SBC activities to create demand/willingness-to-pay for safe, nutritious foods.</li> <li>• Include in awards sufficient funding and time to plan and carry out business/market analyses on processed foods and SBC activities to create demand/willingness-to-pay.</li> </ul>	<ul style="list-style-type: none"> <li>• Plan and carry out business/market analyses on processed foods.</li> <li>• If other projects are not already tasked to do so, plan and carry out SBC activities to create demand/willingness-to-pay for safe, nutritious foods.</li> <li>• Hire staff and/or consultants with the capacity to conduct business/market analyses with high quality.</li> </ul>

			<ul style="list-style-type: none"> <li>If other projects are not already tasked to do so, hire staff to conduct SBC activities with high quality.</li> </ul>
Linkages between project components	Coordinate across project components related to food processing for income generation and those related to improving nutrition.	<ul style="list-style-type: none"> <li>Incorporate into procurement design the need for projects to establish mechanisms to strategically coordinate across project components to improve efficiency, outcomes, and impact.</li> </ul>	<ul style="list-style-type: none"> <li>Ensure projects incorporate mechanisms to strategically coordinate across project components, and that staff coordinate across components and see the value of coordination to achieve their objectives.</li> </ul>
Links between Feed the Future country-level projects and Feed the Future Innovation Labs	Coordinate between Feed the Future Innovation Labs and other Feed the Future projects to support scale-up of effective, proven nutrition-sensitive food processing technologies and nutrient-rich products.	<ul style="list-style-type: none"> <li>Create coordination mechanisms or facilitate coordination among Feed the Future Innovation Labs and other Feed the Future projects to support scale-up of effective, proven, nutrition-sensitive food processing technologies and nutrient-rich products.</li> <li>Include in procurement design guidance on scaling up effective, proven, nutrition-sensitive food processing technologies and nutrient-rich products developed through the Feed the Future Innovation Labs.</li> </ul>	<ul style="list-style-type: none"> <li>With the approval of USAID Washington and the respective USAID Mission, establish direct, regular communication with relevant Feed the Future Innovation Labs related to food processing and the potential for collaboration for testing, adoption, and/or scale-up of food processing innovations.</li> <li>As relevant, include in project design the scale-up of available, effective, proven, nutrition-sensitive food processing technologies and nutrient-rich products developed through Feed the Future Innovation Labs.</li> </ul>
Reach of project-promoted safe	Include strategies in project design to ensure that project-promoted	<ul style="list-style-type: none"> <li>Incorporate into procurement design the need for projects to plan and implement strategies to</li> </ul>	<ul style="list-style-type: none"> <li>Plan and implement project strategies to ensure project-</li> </ul>

and nutrient-rich processed foods	safe and nutritious processed foods reach intended target populations.	ensure project-promoted safe and nutritious processed foods reach intended target populations, in terms of both availability and affordability.	promoted safe and nutritious processed foods reach intended target populations, in terms of both availability and affordability.
Engagement with a range of private-sector and public-sector actors	Assess stakeholder engagement based on project objectives, incorporate stronger engagement with a range of private-sector and public-sector actors, including assessing policies and engaging on policy issues, and monitor engagement during implementation.	<ul style="list-style-type: none"> <li>• Include in procurement design the need for a stakeholder assessment, as relevant based on project objectives, to incorporate stronger engagement with a range of private-sector and public-sector actors, including on policy issues, to improve implementation and sustainability of interventions around enhancing diets with safe, nutritious processed foods.</li> <li>• Include in procurement design guidance on effective incorporation of food processing in investments to improve diets, taking into consideration both private- and public-sector stakeholders.</li> <li>• Develop training materials and train Mission staff and implementing partners on use/application of the guidance materials, incorporating these into any existing training on engagement with the private sector.</li> <li>• Include in awards adequate funds and time for the stakeholder assessment and monitoring of stakeholder engagement throughout the project life cycle.</li> </ul>	<ul style="list-style-type: none"> <li>• Plan and conduct a stakeholder assessment, as relevant based on project objectives, to incorporate stronger engagement with a range of private-sector and public-sector actors, including policy assessment and engagement on policy issues, to improve implementation and sustainability of interventions around improving diets with safe, nutritious processed foods.</li> <li>• Monitor and adjust interventions to engage stakeholders, adding new stakeholders as needed, during the life of the project.</li> </ul>
Incorporation of gender in activities related to food processing for nutrition outcomes	Include gender considerations in project design and plan/conduct monitoring and assessment activities during implementation to better understand gender issues related to food	<ul style="list-style-type: none"> <li>• Include in procurement design guidance on effective incorporation of gender considerations in project design as related to food processing, including incorporating gender issues related to food processing in the project gender assessment, and monitoring and assessing activities during implementation to better understand gender issues related to food</li> </ul>	<ul style="list-style-type: none"> <li>• Include in the project gender assessment aspects related to commercial and/or household-level food processing and incorporate findings into final project design.</li> </ul>

	processing for nutrition outcomes.	processing for nutrition outcomes, and adjusting implementation according to learning. <ul style="list-style-type: none"> <li>• Develop training materials and train on use/application of guidance materials, incorporating these into Feed the Future training on gender issues and gender assessment.</li> </ul>	<ul style="list-style-type: none"> <li>• Monitor and assess activities during implementation to better understand gender issues related to food processing for nutrition outcomes and adjust implementation according to lessons learned.</li> </ul>
Monitoring and evaluation around food processing	Incorporate monitoring, evaluation, and learning around food processing in Feed the Future projects; include data on coverage and reach of processed foods, cost of production, income generated, cost to consumers, and impact on nutrition and livelihoods.	<ul style="list-style-type: none"> <li>• Include in Feed the Future M&amp;E guidance the indicators needed to better understand and learn from food processing activities in various contexts, including cost, reach/coverage, demand for processed foods, and gender issues related to food processing and use of processed foods.</li> <li>• Include in Feed the Future M&amp;E guidance the specific guidance needed to evaluate food processing activities during midterm and final evaluations.</li> <li>• Develop training materials and train Mission staff and implementing partners on use/application of the indicators and guidance materials, incorporating these into Feed the Future training on monitoring, evaluation, and learning.</li> <li>• Include in awards sufficient funding for projects to establish the necessary monitoring, evaluation, and learning systems to effectively monitor, evaluate, and learn from activities around safe, nutritious processed foods.</li> </ul>	<ul style="list-style-type: none"> <li>• Develop and implement project-level monitoring, evaluation, and learning systems that include indicators of food processing, such as indicators of cost, reach/coverage, demand for safe, nutritious processed foods, and gender issues related to food processing and use of processed foods; and complement with qualitative work to find out the “why” behind the findings from quantitative monitoring data.</li> </ul>

Source: Authors’ analysis of Feed the Future projects.



# FEED THE FUTURE

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

## USAID ADVANCING NUTRITION

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USAID Advancing Nutrition is the Agency's flagship multi-sectoral nutrition project, addressing the root causes of malnutrition to save lives and enhance long-term health and development.

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