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



WOMEN IN NON-PRODUCTION ROLES IN AGRICULTURE: A LITERATURE REVIEW OF PROMISING PRACTICES

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WOMEN IN NON-PRODUCTION ROLES IN AGRICULTURE: A LITERATURE REVIEW OF PROMISING PRACTICES

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DISCLAIMER

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ACRONYMS

CA	Collective Action
CBSP	Community-Based Seed Production
FAO	Food and Agriculture Organization
GERES	Groupe Energies Renouvelables, Environnement et Solidarités
HACCP	Hazard Analysis Critical Control Point
HKI	Helen Keller International
ICRISAT	International Crops Research Institute for the Semi-Arid Tropics
IIDS	Institute for Integrated Development Studies
MEDA	Mennonite Economic Development Associates
P4P	Purchase for Progress
SDC	Swiss Agency for Development and Cooperation
SMFM	Sell More For More
U.N.	United Nations
WFP	World Food Programme

EXECUTIVE SUMMARY

The USAID Feed the Future Initiative supports the development of agriculture as an engine of economic growth, food security, and poverty reduction. Key to the success of this initiative is the empowerment of women, who play a vital role in advancing agricultural development, food security, and nutritional outcomes. Much of Feed the Future's agricultural programmatic support to rural women thus far has been concentrated at the production stage. As a result, there is a wealth of information related to women's economic empowerment through production, but there is limited available data related to best practices and promising approaches for women's empowerment at other value chain levels.

This literature review aims to fill this knowledge gap by examining approaches to empower women or increase their incomes in four phases of the value chain outside of production: input and service provision, post-harvest handling, processing, and the marketing of agricultural goods. While some of the women who are beneficiaries of the strategies discussed in this review are not engaged in agricultural production, many are farmers who also work at other levels of the value chain. Often, these activities build on or add value to production interventions. The review focuses on three specific value chains: maize, groundnut, and horticulture (defined as fruit and vegetable production). Projects span the continents of Africa, Asia, and Latin America.

This review of literature reveals that there are many opportunities to increase women's economic empowerment beyond interventions focused on production. Overall, projects at all four value chain levels tended to direct women's empowerment efforts and activities through producer groups or cooperatives. It was most common for target groups to be comprised primarily or entirely of women. The groups supported by project activities ranged from small, informal organizations to large cooperatives. Notable outliers include projects that worked with agrodealers and market women, who tend to be small business owners. Unfortunately, these outlier projects do not have good data regarding incomes or empowerment so it is difficult to compare the two approaches. However, it is safe to say that interventions have successfully generated social and economic gains for women by working through producer groups of varying sizes.

Post-production interventions addressed a range of gender-based constraints. A common issue addressed through project activities is women's insufficient training, knowledge, or skills, which lead to low returns or exclusion from post-production entrepreneurship. Almost all projects included a training component, such as technical skills for seed production, post-harvest handling, and processing. Trainings may also have covered business topics, such as organizational management or marketing. One effective approach adopted by many projects was to offer a package of trainings that covered both technical and business knowledge. Capacity-building efforts have had notable impacts on women's skills, knowledge, and ability to effectively run their businesses.

Around a quarter of projects included a training component to address gender-specific issues, such as gender roles, leadership, or power. While it is difficult to say conclusively that these gender trainings improved economic or empowerment indicators for women, projects that included gender sensitization trainings did report positive changes in attitudes of both men and women on gender equity and perceptions of gender. Many of the projects that did not include gender trainings have still been successful in enhancing women's economic empowerment; however, they may have had a more profound impact if they had also addressed these deeper, and interrelated, social issues.

Another constraint addressed through project activities was women's generally low levels of assets and equipment. In some cases, project activities were selected based on their ability to work within the asset and equipment constraints. For example, one project identified seed production as an activity that did not require large amounts of land—a resource women lacked. Many projects also included technology or equipment provision in their approach, which served to close some of the gender gaps in access to resources and enabled women to be more effective in post-harvest handling, processing, or marketing activities. Additionally, technology provision addressed the issue of women's drudgery, especially in relation to post-harvest handling and processing. A review of the current data demonstrates that the impacts of these technologies on women's empowerment can be impressive. For example, because women are responsible for maize management, the provision of silo technology for maize storage contributed to women's economic empowerment by reducing their drudgery, enhancing their marketing options, and increasing their status. Scales for weighing maize enabled women to negotiate with buyers.

Women's limited market access due to a lack of linkages or mobility is another common issue addressed. Many projects noted that women face particular constraints marketing their products due to factors such as isolation, lack of knowledge, quality issues, and lack of bargaining power. In addition to capacity building in business or marketing topics, the most common marketing approaches were developing models for collective marketing and linking market actors to one another either informally or through contracts. In combination with support for the production and storage of high-quality products, the development of marketing institutions or linkages have led to both economic and social benefits for female farmers.

Projects demonstrated positive social and economic results for women. Analyses pointed to increases in sales and/or prices as a result of interventions as well as improvements in income. With regard to empowerment, common results include expected outcomes of project activities such as increased knowledge and skills, market access, participation in organizations, and assets. However, projects have also generated impacts such as increased confidence, shifts in decision-making power or voice at household and community levels, increased community connections or social support, increased leadership, a decrease in workloads, and an increase in bargaining power. A small number of interventions also generated shifts in both men's and women's perceptions of women's status, roles, and responsibilities.

This literature review points to quite a few good practices that generate positive socioeconomic impacts for women. These include the creation or strengthening of women's groups; strategies to increase women's participation in mixed groups; technical trainings for women; the provision of post-harvest or processing technology for women; collective marketing; and the inclusion of specific gender trainings in post-production interventions. In general, interventions provided packages of support and did not rely on a single approach. Therefore, in many cases, it is difficult to associate impact-level indicators with a single activity. The literature review did not yield any examples of practices that consistently did not work. However, it is interesting to note that the interventions included in the literature review generally used approaches that were similar to one another. An enlightening area for further research would be whether these similarities are due to current trends in development practice or due to failures of other types of interventions.

All of the projects included in this analysis have had some degree of success; however, some have had more modest results than hoped for. Of the projects that did report challenges or lessons learned, one common sticking point was issues related to planning and implementation, including gender mainstreaming issues such as a lack of staff gender capacity or coherent gender approaches in design. Projects also discussed implementation issues related to the environments in which they were operating, including gender norms that made it difficult to implement interventions or led to unintended consequences such as men taking over crops that had been seen as "female." Other challenges included limited profitability of enterprises as well as issues establishing linkages to finance or markets. Finally, interventions ran into difficulties related to gaps in institutional or human capacity, such as quality control issues or inadequate training in marketing. While these issues are not necessarily all gender specific, they are common problems faced by interventions aiming to increase women's economic empowerment.

The most significant issue that impedes analysis of post-production interventions is a lack of rigorous impact data related to women's empowerment and economic opportunities. Without this data, it is difficult to compare projects to one another or draw broad conclusions related to what works and what does not. Another challenge is that many project documents focus on describing successes while minimizing attention to failures or trouble spots. While there certainly is value in publishing and documenting success stories, a more evenly focused body of literature would make it easier to avoid repeating mistakes. Currently, we have a decent understanding of what is working but very spotty knowledge related to what has not worked and why.

Moving forward, there are four important areas for improving data collection related to women's post-production economic empowerment. The first is the development of a more robust body of published gender assessments and impact assessments. Reliable and transparent access to a greater body of data will enable practitioners to compare approaches to one another in a far more rigorous way. The second area is for increased collection of data on interventions and approaches to empower women engaged in service provision or marketing who are not farmers. While we know quite a bit about projects that have worked with female seed producers, producers, and processors, there is a significant gap related to projects that have worked with women at other value chain levels. It is unclear if this is because such projects do not exist or if there is successful work happening that has not been documented. On a related note, there are quite a few examples of interventions to empower women processors who are not necessarily farmers; however, the quality of the data is poorer than that of other value chain stages. Thirdly, another potential area for exploration could be promising practices for increasing women's participation in male-dominated organizations or sectors. While this literature review found a few projects that focused on this, the most

common approach was to increase women's economic empowerment through female-dominated groups or activities or through mixed groups with strong female representation. A more robust body of literature related to increasing female participation in male-dominated areas would be useful both for mainstreaming gender in such projects and for comparing whether it is more effective to target women's groups or to empower women through male-dominated sectors or associations. Finally, another information gap is data on women's control over their post-production earnings. While we know that projects have succeeded in increasing women's involvement in entrepreneurial activities, projects have not quantitatively documented how income is controlled within these women's households. Although there is some anecdotal evidence that women are able to retain control over their post-production earnings, more robust data would enable practitioners to better understand these dynamics.

INTRODUCTION

The USAID Feed the Future initiative supports the development of agriculture as an engine of economic growth, food security, and poverty reduction. Key to the success of this initiative is the empowerment of women, who play a vital role in advancing agricultural development, food security, and nutritional outcomes. Much of Feed the Future's agricultural programmatic support to rural women thus far has been concentrated at the production stage. As a result, there is a wealth of information related to women's economic empowerment through production, but there is limited data available related to best practices and promising approaches for women's empowerment at other value chain levels.

This literature review aims to fill this knowledge gap by examining approaches to empower women or increase their incomes in four phases of the value chain besides production: input and service provision, post-harvest handling, processing, and the marketing of agricultural goods. While some of the women who are beneficiaries of the strategies discussed in this review are not engaged in agricultural production, many are farmers who also work at other levels of the value chain. Often, these activities build on or add value to production interventions. The review of available literature reveals that there are many opportunities to increase women's economic empowerment outside of interventions focused on production.

The review focuses on three specific value chains: maize, groundnut, and horticulture (defined as fruit and vegetable production). Projects span Africa, Asia, and Latin America, and findings are divided into four sections based on value chain stage:

- production inputs and services
- post-harvest handling
- processing
- marketing

Findings are not disaggregated by value chain but rather identify commonalities, patterns, and contrasts across all three types of crops.

At each stage, the literature review identifies gender-based constraints and opportunities addressed by interventions, the types of enterprises supported, the types of approaches used, and successes and good practices. This information includes examples of how successful interventions have been designed and organized. The review also summarizes which types of interventions tend to engage multiple value chain stages, which generally focus on one stage, and their economic and social impacts. Although information related to programmatic challenges is more limited, a section at the end summarizes general findings related to these topics across all value chain stages. As the interventions reviewed below demonstrate, there is a great deal of potential to empower women in agricultural value chains at stages outside of production. Such interventions not only benefit women but also their families and communities. They also strengthen the agricultural sector and rural economies as a whole.

METHODOLOGY

This literature review focuses on projects in three crop value chains: maize, groundnut, and horticulture.¹ Projects were identified through keyword searches using a variety of combinations related to the commodities, value chain stages, and/or

¹ USAID/Bureau for Food Security selected the three commodities on the basis of their frequency of appearance in Feed the Future activities identified through keyword searches as potentially addressing nonproduction stages of the value chain; expectation of relatively high engagement with women based on knowledge of general agricultural programming and Feed the Future programming; and having at least one cereal and one noncereal included.

particular occupations or products within the value chains. Other keywords used include, among others, women, gender, empowerment, project, and program. Projects were also identified through bibliographies or because they were mentioned in webpages or documents found through the keyword searches. Due to the small quantity of rigorous materials on the topic, the researchers accepted materials beyond assessments or formal reports, including blog posts or success stories. They used the primary criteria that the intervention work with women on a post-production activity that was tied to income generation and that it document at least one example of a successful or promising approach. Projects that were selected were those that worked with women in farmer organizations or in micro, small, or medium enterprises. The literature review did not include efforts to improve working conditions for female employees in large companies or for female agricultural laborers. Not all projects included were successful in each of their aims. Projects that ended before 2005 were excluded from the literature review.

Although the word *empowerment* is frequently utilized in development projects, its precise definition varies across projects, organizations, and research studies. This literature review focuses on projects that increased women's access to knowledge and skills, physical assets, credit, participation in organizations, and linkages with value chain actors for both inputs and marketing, among other interventions. When discussing empowerment impacts, the review analyzes how such approaches have led to positive changes in women's agency or their capacity to bring about economic change for themselves. For example, increased women's business skills through training was not analyzed as an empowerment impact for programs that used business skills training as an approach. The acquisition or increase of skills is not in and of itself viewed by the researchers as empowerment; rather, it is the application or use of those business skills that demonstrates empowerment. Therefore, if the project documents that such skills training for women led to increased negotiating power, expansion of enterprise, or higher levels of confidence, this is treated as an economic empowerment impact.

The review looks for patterns, similarities, and differences across the three value chains at the four levels of post-production activities. In many interventions, there are overlaps between the different value chain levels. For example, an activity may combine post-harvest handling with processing or processing with marketing, etc. Similarly, there is not always a clean division of production and post-production activities. Improving marketing, for example, may involve trainings related to how to conduct market analyses to determine what to plant. For the sake of clarity, interventions have been grouped according to what is the most dominant activity. In cases where there are two distinctly separate activities, projects are mentioned twice in the review. Additionally, some projects worked with additional crops beyond the three the review focuses on. When results and activity data include several crops, this is noted in the figures at the beginning of each section.

Practitioners reading this document should be aware that this is an effort to disseminate the best information that exists to date rather than an analysis of rigorous studies. Due to a dearth of projects with external gender assessments or evaluations, some projects are included that do not have rigorous or detailed descriptions of their results. Similarly, some evaluations focus on the results but give very perfunctory descriptions of the activities implemented. Although the majority of projects have at least some level of results data, a few particularly innovative projects have been included even though they are in their initial stages.

BACKGROUND

Women have high levels of participation in the agricultural sector in all regions of the world. However, there are significant gender gaps in terms of access to resources and opportunities. Recently, much attention has been given to closing these gender gaps at the production level. For example, the United Nations' (U.N.) Food and Agriculture Organization (FAO) has found that "if women had the same access to productive resources as men, they could increase yields on their farms by 20–30 percent."²

Although most attention has been focused on empowering women at the production stage of the value chain, women are involved at other levels as well. According to the FAO:

Rural women often manage complex households and pursue multiple livelihood strategies. Their activities typically include producing agricultural crops, tending animals, processing and preparing food, working for wages in agricultural or other rural

² <http://www.fao.org/gender/gender-home/gender-why/key-facts/en/>

enterprises, collecting fuel and water, engaging in trade and marketing, caring for family members and maintaining their homes.³

Women’s participation in value chain activities depends on the commodity, value chain stage, and cultural context. Therefore, generalizations “regarding patterns of male and female participation in value chains and the various nodes within them are difficult to make – they are highly context specific even within the same value chain.”⁴ However, some generalizations can be made. For example, women tend to be concentrated in low-input, low-return activities such as domestic trade and small-scale processing. In sectors typically dominated by women, such as household processing or handicrafts, “markets are often saturated and offer low returns.”⁵ Conversely, “men tend to dominate functions with relatively high barriers to entry and correspondingly greater returns (rent), and to control chain management functions.”⁶ Additionally, female farmers tend to be less involved in marketing than in production or post-harvest handling.

In agricultural value chains, women are restricted by issues related to low capacity, lack of assets, and structural barriers including policies and cultural norms. Nonetheless, there are significant opportunities to enhance women’s economic empowerment in post-production activities. In fact, post-production work can hold promise for women who do not have the resources to be farmers, as “even the poorest of women, without key productive assets like land and machinery, can enter value chains by engaging in product development, processing, and marketing services.”⁷ However, as value chains are upgraded and formalized, women face the threat of being pushed out of these more informal roles. This literature review will explore strategies for increasing women’s economic opportunities while strengthening value chain stages outside of production.

FINDINGS

I. Production Inputs and Services

Ten interventions were reviewed related to production inputs and services. Of these interventions, two were in the horticulture value chain, one in the maize value chain, and one in the groundnut value chain, with six crossing more than one value chain (see Appendix I for intervention details).

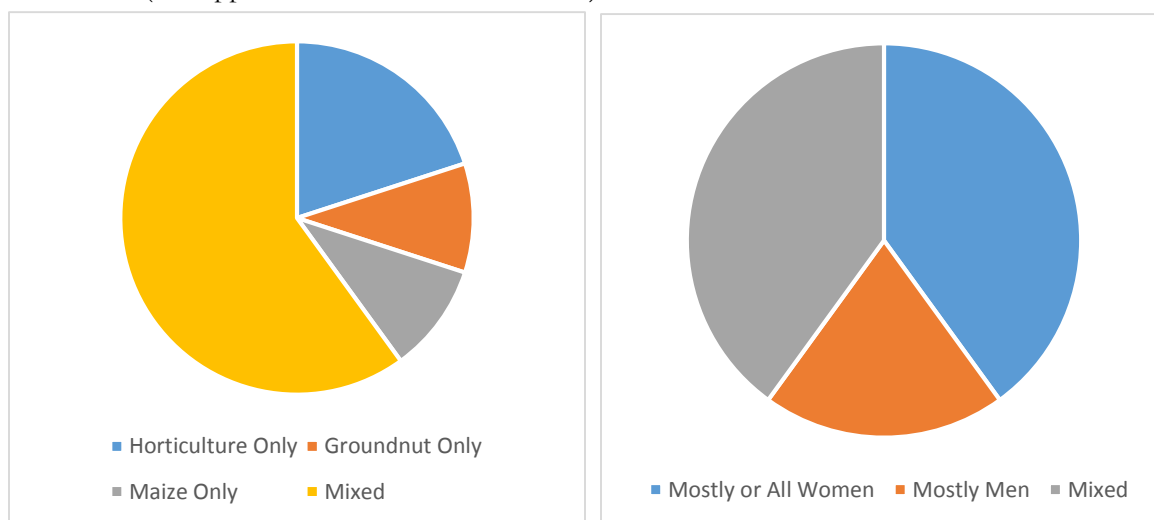


Figure 1 and 2. Production Inputs and Services Value Chains and Organizations or Enterprises

³ FAO, “The State of Food and Agriculture: Women in Agriculture Closing the Gender Gap for Development” (Rome, Italy: FAO, 2011).

⁴ Christopher Coles and Jonathan Mitchell, “Gender and Agricultural Value Chains: A Review of Current Knowledge and Practice and Their Policy Implications,” ESA Working Paper No. 11-05, FAO Agricultural Development Econ. Division (Rome, Italy: FAO, 2011).

⁵ World Bank, *Gender in Agriculture Sourcebook* (Washington, D.C.: World Bank, 2009).

⁶ Coles and Mitchell, “Gender and Agricultural Value Chains.”

⁷ World Bank, *Gender in Agriculture Sourcebook*.

GENDER-BASED CONSTRAINTS AND OPPORTUNITIES

With regard to input provision, six of the projects evaluated in the literature review identified opportunities to empower women or address constraints faced by women in seed, seedling, or planting material production. The reasons for projects' intentional actions around women's empowerment varied. In two Oxfam projects implemented in Nepal and Rwanda and DAI's Alternative Development Program-East in Afghanistan, seed, seedling, or planting material production was selected as a project focus specifically because it was an activity that had market potential and the potential to benefit women and/or smallholders given gendered constraints. The project in Rwanda identified lack of land as a constraint faced by women, and in Afghanistan, women's social restrictions and general lack of economic opportunities were identified as significant issues. Similarly, the Tropical Legumes II intervention in Niger was designed to overcome constraints faced by women groundnut farmers, including a lack of exposure to modern groundnut varieties, knowledge gaps, and marketing issues. The Hill Maize Research Project in Nepal and the Seeds of Life Project in Timor-Leste, on the other hand, mainstreamed women's empowerment into existing interventions focused on the development or dissemination of quality seed. In these cases, the initial impetus for seed production was not women's economic empowerment but rather overcoming general issues in the value chain. Seeds of Life's gender strategy addressed workloads, participation, literacy, land rights, and nutrition.

There are relatively few examples of women's economic empowerment through production support services beyond seeds and planting materials. Two projects that worked with agrodealers for a variety of value chains identified gender gaps in the number of female versus male agrodealers and made efforts to include women or to increase their business skills. The Agro Inputs Marketing project in Mozambique increased the proportion of female-owned input shops from 6 to 15 percent and, during the Agro Enterprise Development Project in Kyrgyzstan, female trade association membership increased from 10.9 percent to 25.8 percent over just two years. However, neither project described the processes by which they increased women's participation. The literature review only found one project, ACIDI/VOCA's PROFIT+ in Zambia, that placed a strong focus on increasing women's participation and capacity as agrodealers. This project built the capacity of selected lead farmers to become community agrodealers (CAD). It recognized that the CAD model not only had the potential to promote local job creation and more effective and efficient linkages with agribusinesses and service delivery to farmers but also presented a job opportunity for rural women. Cereal Systems for South Asia in Bangladesh, which works in the maize value chain, identified an opportunity to provide training to "infoladies," an existing network of "women entrepreneurs that use various information and communication tools (e.g., laptops, mobiles, blood sugar meters) to provide small-fee services to rural people in Bangladesh."⁸ However, this was not a major focus area in the project, and it is unclear if the training had any long-term success.

TYPES OF ORGANIZATIONS SUPPORTED

All but one of the six projects that worked with producers of seed, planting material, or seedlings implemented activities through cooperatives or groups. These groups differed both in terms of size and in their levels of formality. For example, Oxfam's Enterprise Development Program in Nepal, which worked with vegetable seed, supported a single cooperative with hundreds of members. The Hill Maize Research Project, on the other hand, supported over 200 community-based seed production groups, some of which it helped to consolidate into cooperatives. The six projects were evenly split between working with organizations that were all or predominantly women and working with mixed organizations with between 30 and 56 percent female membership.

Seed and planting material projects were evenly split between those that formed new groups or enterprises and those that focused on capacity building for existing groups. An Oxfam project that focused on pineapple planting material production in Rwanda, for example, worked through existing organizations whenever possible but encouraged women to establish new groups in areas where there were none. The Seeds of Life program in Timor-Leste, on the other hand, established a local seed production system both through community-based seed producer groups, which are small and produce community seed that is not tested, and through commercial seed producers, which are larger groups that produce seed that is tested for quality.

The four interventions that did not focus on producing seed, seedling, and planting material focused on enterprises rather than groups. Overall, men dominated in these projects. Three projects worked with existing entrepreneurs, although two of these projects did develop new associations. The Agro Enterprise Development Project in Kyrgyzstan, for example, worked with agro-input entrepreneurs and developed a trade association as part of its activities. The fourth project, PROFIT+, built the

⁸ Cereal Systems Initiative for South Asia – Bangladesh (CSISA-BD), *Cereal Systems Initiative for South Asia in Bangladesh, Annual Report for Financial Year 2013* (Washington, D.C.: USAID, 2013): 56.

capacity of lead farmers to become agrodealers in their communities. During this process, the project linked women with credit opportunities and also made sure that women received business mentorship and training. According to project reports, "in terms of gender empowerment, one-third (65) of the CADs are women who are showcasing continuous leadership efforts in the communities."⁹

Table I. Production Inputs and Services Types of Support

Common Approaches	
Approach	Percent of Interventions (Out of 10)
Input Production/Service Provision Training	90%
Business Skills, Marketing Training, or Capacity Building	80%
Assets (Capital, Technology, Infrastructure)	30%
Credit Linkages	60%
Linkages for Inputs and Markets, Contracts, Vertical Networking	60%
Participatory Research	30%
Gender, Leadership, Empowerment Trainings	20%

All of the interventions in this section included a technical training component. In 90 percent of cases, project documents mentioned offering technical trainings related to inputs, service provision, or planting material production. Most projects also offered training or technical assistance related to business skills, organizational strengthening, or marketing. Only two projects, both implemented by Oxfam, offered specific trainings focused on gender or empowerment: one program supported women with participatory learning classes "to raise women's awareness of their rights at various levels (e.g. household, cooperative, community)," and the other included gender as a topic for crosscutting trainings delivered to female producers.¹⁰ Other projects, however, offered examples of how they designed training activities to meet the particular needs of women or address gender gaps. ACDI/VOCA's PROFIT+, for example, ensured that "women were trained and mentored in business and entrepreneurship," which facilitated women becoming CADs.¹¹ The Seeds of Life Project, in which women were a minority among beneficiaries, focused particular attention on ensuring that trainings were accessible to women who did not speak the dominant language or were illiterate. The Hill Maize Research Project proactively targeted women to participate in trainings as well as all other activities.

Almost all of the projects created linkages with credit providers, input providers, or buyers. This was done through facilitation of relationships, meetings, or contracts. One example, the Hill Maize Research project, advocated for prioritization of women seed producers in contracts with seed companies. Oxfam's project in Rwanda, on the other hand, coordinated with a credit institution to provide women with access to finance and water pumps at cost.

Additionally, three projects provided equipment, technology, or capital. In two cases, both in the maize value chain, the projects provided labor-saving devices such as shellers or seed sorters to reduce women's drudgery or save labor. An assessment conducted by Seeds of Life found that the technology reduced women's labor burden and led to a more equitable division of post-harvest labor.

Three of the projects reviewed in this section were research projects focused on the development and dissemination of seeds. All of these projects conducted participatory research with farmers and included women in seed testing and selection processes. This meant that women's preferences and particular needs were considered when evaluating seed varieties. In the case of Tropical Legumes II, women's seed producer groups chose which varieties they wanted to produce.

⁹ ACDI/VOCA, Production, Finance, and Improved Technology Plus (PROFIT +) Annual Performance Report No. 3: October 1, 2014–September 30, 2015 (Washington, D.C.: USAID, 2015).

¹⁰ Bet Caeyers, *Impact Evaluation Report: Nepal-Pavitra Vegetable Seed Cooperative Project* (United Kingdom: Oxfam Enterprise Development Programme (EDP), 2014), 4.

¹¹ ACDI/VOCA, Production, Finance, and Improved Technology Plus (PROFIT +) Annual Performance Report No. 3: October 1, 2014–September 30, 2015 (Washington, D.C.: USAID, 2015).

SUCSESSES AND PROMISING MODELS

All of the projects included in this section of the literature review have had good results with regard to women's participation in interventions. All interventions except for the Cereal Systems for South Asia also reported positive changes with regard to the expansion of women's entrepreneurial activities through changes such as the creation of new enterprises, participation in new organizations, the adoption of new practices, or the acquisition of new assets. At one end of the spectrum is the Kyrgyz Agro Enterprise Development Project, in which women were a minority. This project established an association and increased the proportion of female trade association members from 10.9 percent in 2003 to 25.8 percent in 2005. At the other end is the Afghanistan Alternative Development Program-East, which worked exclusively with women in one component and established two successful input-related businesses: tree nurseries and vegetable plug seedling greenhouses. According to the project's final report, seedling greenhouses were successful and "farmers who have bought from the women's greenhouses have seen the benefits: higher yields and more money for their harvest. As a result, there is increasing demand for the plug seedlings from these women-owned and managed greenhouses."¹² Similarly, the report found that "all 38 women's nurseries are now operating on a sustainable basis, and sell varieties of fruit and forestry on the local market."¹³

Most projects provided evidence of improvements in women's knowledge or skills. In some cases, evaluations or reports specifically documented changes in knowledge or capacity. For example, the Tropical Legumes II project measured women's knowledge of modern groundnut varieties and found that it increased from 9.77 percent to 73 percent throughout the course of the project. In other cases, evidence is more anecdotal, such as women expressing happiness with their new knowledge. Other reports do not directly discuss increases in knowledge and skills. However, it can be inferred that interventions have been successful in increasing women's capacity from the fact that women were engaging in new entrepreneurial activities.

Not all of the projects included in this section provided information regarding women's incomes or tracked indicators related to changes in women's agency. However, four projects stand out in terms of their ability to demonstrate successes with regard to women's economic empowerment. The first of these projects, Oxfam's EDP in Nepal, supported a mixed-gender cooperative with business mentorship; capital; advisory and brokering support; support in "social mobilization, networking, and coordination," including the facilitation of small loans; and classes specifically for women focused on women's rights in their households, their communities, and the cooperative. An interim evaluation of the program found that beneficiaries' sales of seeds to the cooperative had gone up, but the evaluation was not able to demonstrate that these increases were statistically different from those of the control group. What is striking are the impacts that the evaluation found with regard to women's empowerment. According to the evaluation, "the results clearly show that the EDP intervention has successfully supported Pavitra in improving women's self-efficacy and their say in the running of the affairs of their enterprises and broader communities."¹⁴

Another Oxfam-implemented project in Rwanda showed demonstrable results with regard to women's incomes and empowerment. This project provided training and mentorship on technical topics, business development, and cross-cutting issues including gender, as well as access to credit for women to develop pineapple-planting-material businesses through groups. Oxfam conducted an evaluation with a treatment and control group. The evaluation found impacts that were the direct result of project activities, such as increases in access to credit, participation in producer groups, and confidence to engage in business. However, it also determined that "there were also significant differences found in terms of characteristics less directly linked to the project activities, including attitudes towards women's rights and women's economic roles, social connections, and involvement in decision-making in the household or community."¹⁵ While the evaluation was not able to conclusively demonstrate an increase in household assets, it did find that the majority of project participants reported an increase in income.

The Tropical Legumes II project in Niger, which was implemented by the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), worked with farmer association members that were 90 percent women. This intervention involved women in the selection of the varieties that they preferred, trained them in seed production and in running a business, and

¹² USAID/Afghanistan, *Alternative Development Program/Eastern Region Final Report 2005–2009* (Washington, D.C.: USAID, 2010), 10.

¹³ USAID/Afghanistan, *Alternative Development Program*, 12.

¹⁴ Bet Caeyers, "*Impact Evaluation Report*," 42.

¹⁵ Bet Caeyers and Rob Fuller, *Women's Empowerment in Rwanda: Evaluation of Women's Economic Leadership through Horticulture Planting-Material Business* (United Kingdom: Oxfam GB, 2015), 43.

facilitated market linkages with seed companies. According to project reports, women farmers had a guaranteed buyer and were getting a 30 percent higher groundnut price than the price offered in the market at the time of the transaction. ICRISAT also found indications of social changes in participating communities. For example, women in one village elected to rebuild a mosque that had fallen down.

Finally, a research project by the International Maize and Wheat Improvement Center in Nepal also contributed to increases in women’s incomes and empowerment. This project supported 207 community-based seed production (CBSP) entities with 56 percent female participation through trainings, equipment, and infrastructure, and advocacy for prioritization of women in contracts with seed companies. According to an external evaluation:

A clear and consistent message that came out during field survey[s] was that the CBSP group members, including women and [disadvantaged groups], were highly empowered as a result of project support. Participation in the CBSP has increased their incomes and their food security has gone up by at least 3 more months. The women have been empowered to take part in project meetings, seed selection, and other decision-making activities. Their confidence level has increased and they can raise and make their voices heard.¹⁶

II. Post-Harvest Handling

For this section, nine interventions were reviewed. This section is weighted toward the groundnut value chain. Four interventions are focused on groundnuts; three on maize and other crops; and two on horticulture. This is most likely due to the emphasis that has been placed on aflatoxin reduction in the groundnut value chain in recent years (see Appendix I for intervention details).

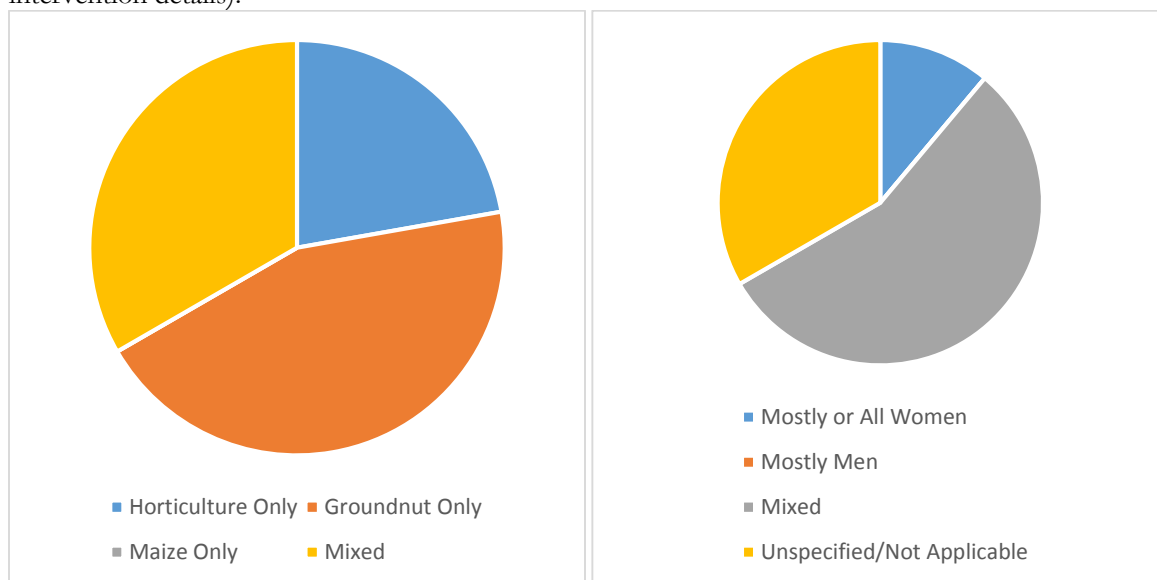


Figure 3 and 4. Post-Harvest Handling Value Chains and Organizations or Enterprises

CONSTRAINTS AND OPPORTUNITIES ADDRESSED

A strong theme that emerged is that women play a significant role in post-harvest work in all three value chains. All but one of the projects included explicitly considered gender-based constraints in their design. The constraints considered vary from project to project. Three of the four projects in the groundnut sector recognized that groundnut shelling, which is usually done by women, is tedious, painful, and time consuming. For example, one project implemented by Self-Help Africa in Ethiopia observed that groundnut shelling is traditionally “done by hand (generally by women) and is very time consuming and labor

¹⁶ Institute for Integrated Development Studies (IIDS), *Evaluation: The Hill Maize Research Project, Phase IV, Report of the External Evaluation* (Washington, D.C.: IIDS, 2014), 28.

intensive.”¹⁷ Another project, implemented in Malawi and Tanzania by CTI, recognized that groundnut post-harvest processes require “substantial, tedious family labor on a nearly continuous, daily basis.”¹⁸ Research for this project found that harvest and post-harvest technologies can decrease women’s drudgery and change the gender division of labor, as men are more likely to engage in mechanized post-harvest work.

Projects in the groundnut sector were also aware that because women often are significantly involved in the groundnut value chain, there are linkages between reducing aflatoxin contamination and increasing women’s empowerment. For example, a project implemented by TWIN simultaneously addressed aflatoxin contamination and women’s empowerment through capacity building and integration into markets because it recognized that women carry out both pre- and post-harvest activities. Similarly, the project implemented by the Peanut Collaborative Research Support Program also addressed gender and aflatoxin issues together because it recognized that “women are the key players in production and trade.”¹⁹ Projects also recognized that the same shelling improvements that reduce drudgery for women also reduce aflatoxin contamination.

On a similar note, two projects in the maize sector and one in the horticulture sector recognized women’s roles in post-harvest handling and the need to work with women to reduce loss. Two of these projects stated that post-harvest loss is a challenge faced by female farmers. For example, according to the Post-Harvest Training and Service Center Project in Ethiopia, women receive low prices for their horticultural crops because they have to be sold simultaneously during the harvest season and because intermediaries know that they too will suffer from post-harvest losses and, therefore, pay accordingly.

TYPES OF ORGANIZATIONS SUPPORTED

Post-harvest activities reached value chain actors in a variety of different ways. Most interventions evaluated for this literature review addressed post-harvest handling at the farm level while some focused on working with processors or traders. Around half of the interventions worked with specific farmer groups or cooperatives. With the exception of one outlier, these groups had mixed membership. The remaining projects either worked with a variety of different participants or worked with farmers but did not specify how they reached them.

In contrast to activities related to inputs and service provision, the interventions in this section generally did not establish new organizations. A notable exception is one project that developed a post-harvest training and services center “to provide practical and profitable technical information, goods and services related to improved postharvest practices” in the horticulture sector.²⁰ This pilot center was designed to provide training of trainers, local training demonstrations, research, services, and supply and equipment sale all in one locale. Although the center has encountered some issues related to the sales and research components, capacity-building activities were successful.

Table 2. Post-Harvest Handling Types of Support

Common Approaches	
Approach	Percent of Interventions (Out of 9)
Post-Harvest Handling Training	89%
Business Skills, Marketing Training, or Capacity Building	33%
Assets (Capital, Technology, Infrastructure)	44%
Credit Linkages	0%
Linkages for Inputs and Markets, Contracts, Vertical Networking	11%

¹⁷ “Improving food safety in Malawi’s groundnuts and giving a voice to women farmers,” NASFAM, accessed July 11, 2016, <http://www.nasfam.org/index.php/news-info/169-improving-food-safety-in-malawi-s-groundnuts-and-giving-a-voice-to-women-farmers>.

¹⁸ CTI, ICRISAT, and Sokoine University of Agriculture, Enhancing Child Nutrition and Livelihoods of Rural Households in Malawi and Tanzania through Postharvest Value-Chain Technology Improvements in Groundnuts, Year Four Project Report (Minnesota: McKnight Foundation, 2013), 1.

¹⁹ “VT 134: Improving the Health and Livelihood of People of East Africa by Addressing Aflatoxin and Gender-related Constraints in Peanut Production, Processing, and Marketing, Peanut CRSP Five Year Report on Activities: 2007-2012,” Feed the Future Innovation Lab for Collaborative Research on Peanut Productivity and Mycotoxin, accessed July 11, 2016, <http://pmil.caes.uga.edu/documents/VT134/FinalReport.pdf>.

²⁰ Diane Barrett, USAID Horticulture Collaborative Research Support Program (Horticulture CRSP), Pilot Project Preliminary Final Report. Project Title: Extension of Appropriate Postharvest Technology in Sub-Saharan Africa: A Postharvest Training and Services Center (Washington, D.C.: USAID, 2013), 3.

Common Approaches	
Participatory Research	22%
Gender, Leadership, Empowerment Trainings	33%

As with the inputs stage, the most common type of activity was training. Topics included post-harvest handling techniques, technology demonstrations, quality control, and aflatoxin reduction, among others. At this value chain level, less than half of interventions involved trainings in marketing or business skills. Although only three projects conducted training explicitly focused on gender or women's empowerment, over half of the projects considered gender in their training design. One example of a project that delivered awareness-raising trainings is the Horticulture Value Chain in Upper Egypt project, which covered equal opportunity, positive work environments, and harassment. The project also incorporated topics such as self-esteem and time management into its technical trainings for women. These trainings along with other activities succeeded in improving post-harvest centers where women worked as employees and increasing women's participation in associations. Another example is the Peanut Collaborative Research Support Project in Uganda, which conducted an aflatoxin awareness-raising campaign with the National Association of Women Organizations in Uganda. Although the report did not mention gender integration in materials, this collaboration increased women's membership in the association.

Another main intervention area was technology dissemination, which was a component or research focus in about half of the projects. In some cases, such as the dissemination of silos in Latin America, technologies were made available to farmers. In others, such as the Self-Help Africa project, technologies were provided through project funds. Examples of technologies include tarpaulins for drying maize, groundnut shellers, and silos for grain storage.

One approach, which is an outlier but is worth mentioning for its reach, is the research conducted by the Peanut Collaborative Research Support project. For this activity, the project worked with local partners to conduct gender-sensitive research on the "gender aspects of peanut postharvest activities"²¹ and to empower women through this process. This led to the 2010 publication of a book titled *Farmers' Stories from Kamuli: Groundnut Knowledge, Recipes, and Everyday Life*.²² The publication has been widely disseminated in the region and has led to improved practices.

SUCCESSSES AND PROMISING MODELS

As with input and service provision, the activities generally achieved good results with regard to women's participation in groups or interventions. For example, in the Horticulture Collaborative Research Support project, women comprised 407 out of 637 post-harvest training participants in the Postharvest Training and Services Center created by the project.²³ This center offered trainings, demonstrations, and advice as well as goods and services for a fee. Similarly, by requiring at least 50 percent female participation in Sell More For More (SMFM) trainings, CARANA was able to reach more than 22,000 women. The only project with potentially problematic results regarding female participation was the silo project implemented by the Swiss Agency for Development and Cooperation (SDC) in Latin America. An impact analysis of this program found that in the majority of cases, the decision to purchase silos was made by men. Nonetheless, this silo technology has had notable impacts on women's empowerment, which are discussed below.

All activities, but two, showed evidence of positive changes for women in terms of the usage of new practices or technologies as well as increases in the size or capacity of enterprises. For example, an evaluation of the Pro-Poor Horticulture Value Chain project in Egypt found that technical trainings increased women's productivity "and led to the adoption of hygienic handling and packaging practices."²⁴ Most projects also documented increases in women's skills and knowledge related to improved post-harvest handling or quality control. For those projects that did not demonstrate increases in skills, two – the SDC silo project and the CTI research project – were primarily focused on technology development and dissemination.

²¹ "VT 134: Improving the Health and Livelihood of People of East Africa."

²² Maria Elisa Christie, Peace T. Kyamureku, and Archileo Kaaya, *Farmers' Stories from Kamuli: Groundnut Knowledge, Recipes, and Everyday Life* (Kampala, Uganda: Office of International Research, Education, and Development (OIREED) at Virginia Tech, 2010), <http://www.oired.vt.edu/wgd/documents/FarmersStoriesFromKamuli.pdf>.

²³ Diane Barrett, USAID Horticulture Collaborative Research Support Program.

²⁴ UN Women, "Gender Mainstreaming Strategy in the Pro-poor Horticulture Value Chain in Upper Egypt (Salesal) MDG-F Programme," from *Advancing Gender Equality: Promising Practices: Case Studies from Millennium Development Goals Achievement Fund* (United States: UN Women, 2013), 95.

Although documentation for multiple projects did not provide impact data or even anecdotal evidence related to changes in sales, income, or agency, there are several examples of promising outcomes that are worth mentioning. The Post-Harvest Training and Services Center project demonstrated strong results with regards to income. According to a project evaluation that included costs, benefits, and changes in practices, “all the examples provided by the 42 [primarily women] respondents showed a positive and relatively rapid or immediate return on investment (ROI), since the increase in their earnings using the improved postharvest practice was higher than their initial monetary investment.”²⁵

Another example is the groundnut technology development project implemented by CTI, which found that technologies had the potential to significantly reduce women’s drudgery. Survey work also revealed that the introduced technologies were changing gender roles: “in interviews with farmers, 97.6% suggested that mechanization of groundnut postharvest operations encourage men to participate more than ever before.”²⁶ Although housework was mentioned most frequently (64.5 percent) as an outlet for how women could use the time they saved through post-harvest technology, 19.5 percent of respondents did suggest that women could start a small business. Project documents did note the importance of monitoring activities to ensure that men did not push women out of groundnut value chain activities.

A project that introduced metal silos in Latin America enabled farmers to store corn and sell it when prices are at a premium instead of selling it directly after harvest. The project report found that although men were the primary decision-makers in adopting silos, silos had both economic and social benefits for women, noting that “silos have improved the status and self-esteem of farmer women. This is because farmer women are the ones who manage silo content. Generally speaking, they are the ones who decide when and how much maize is needed for household consumption or sale on the market.”²⁷ Additionally, the project found that silo technology reduces women’s post-harvest workload and “offers more opportunities for women to sell corn since it is loose and clean, ready to sell at any moment.”²⁸

Anecdotal evidence from CARANA’s project showcases the changes that women in two cooperatives experienced after participating in SMFM trainings focused on post-harvest handling and marketing, among other topics. According to the project’s final report, “women emphasized that before SMFM, their post-harvest losses were high and they were affected by seasonal price variations that resulted in low prices at harvest (e.g., spot selling to itinerant traders). Following the SMFM trainings, these women farmers are now able to produce a higher quality product that sells at a premium price.”²⁹

III. Processing

The literature review includes 11 examples of women’s economic empowerment through processing activities. Of the interventions reviewed, five are in the horticulture value chain, one in both horticulture and maize, three in the groundnut value chain, one in the maize value chain, and one in various value chains including maize. Since fruit and vegetable processing is an activity that has historically been targeted at women, it is not surprising that there are a relatively large number of processing activities in the horticulture value chain (see Appendix I for intervention details).

²⁵ Lisa Kitinoja and Diane Barrett, “Extension of Small-Scale Postharvest Horticulture Technologies – A Model Training and Services Center,” *Agriculture* 5 (2015): 452.

²⁶ Alexandra Spieldoch, “Applying Farmer-Centered Design to Alleviate Women’s Drudgery and Reduce Quality Losses in Groundnut” (proceedings, First International Congress on Postharvest Loss Prevention, Rome, Italy, October 4–7, 2015).

²⁷ Swiss Agency for Development and Cooperation, *March 2008 Latin Brief: Central America: Fighting Poverty with Silos and Job Creation*, accessed July 12, 2016, https://www.eda.admin.ch/dam/deza/en/documents/publikationen/briefing-papers/latin-brief-3-2008_EN.pdf.

²⁸ Sabin Bieri and Annemarie Sancar, “Power and Poverty: Reducing Gender Inequality by Ways of Rural Employment,” (paper presented at the FAO-IFAD-ILO workshops on Gaps, trends, and current research in gender dimensions of agricultural and rural employment: differentiated pathways out of poverty, Rome, Italy, March 31–April 2, 2009).

²⁹ Nathan Van Dusen and Kristin Bayard, *Post-Harvest Handling and Storage (PHHS) Project: Final Report* (Washington, D.C.: CARANA Corporation, 2013).

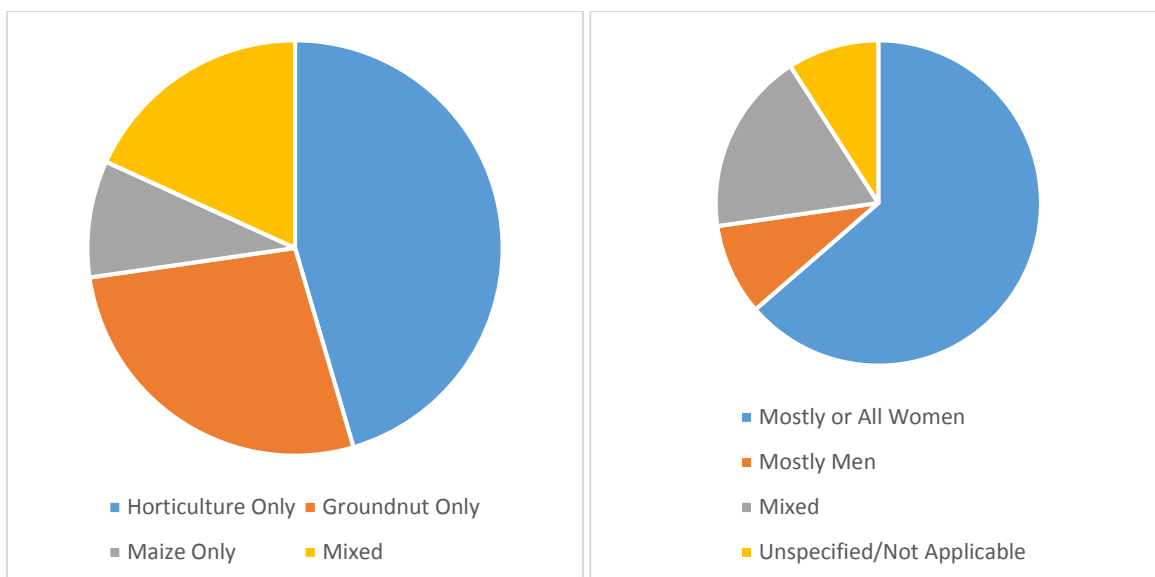


Figure 5 and 6. Processing Value Chains and Organizations or Enterprises

GENDER-BASED CONSTRAINTS AND OPPORTUNITIES

Whether for individual women entrepreneurs, producer groups, or large businesses, most of the food-processing activities reviewed for this study were designed to create economic opportunities for women or to increase women's incomes. The Agonlinmi project implemented by Groupe Energies Renouvelables, Environnement et Solidarités (GERES) saw an opportunity to empower women through the production of high-quality agonlin oil, which is a local groundnut oil that is "much appreciated in Benin because it tastes of grilled peanuts."³⁰ Completed in 2015, this project has not yet published its results. A packing facility in Afghanistan serves as another example that was part of a strategy to give women economic opportunities in a "conservative, closely knit, and patriarchal society."³¹ This packing facility achieved Hazard Analysis Critical Control Point (HACCP) certification and served traders who supply to national and international markets.

The majority of processing interventions also focused on addressing constraints faced by female entrepreneurs. Specific constraints related to processing include insufficient training or knowledge related to processing and to business skills, quality issues, lack of market access, lack of credit, and/or insufficient equipment. Some projects addressed drudgery or tedious labor related to processing. Interventions also pointed to more general gender-based constraints such as the perception that women are not farmers in Uzbekistan, have low levels of participation in the processing industry in Tanzania, or do not have economic opportunities in general in Afghanistan partially as a result of conservative social norms.

Two interventions that worked with women in processing did not seem to have an explicit focus on addressing constraints or opportunities for women. The impetus for one project, which established cottage industry peanut factories for a school program, was to secure a reliable market for the peanut sector. Although the cottage industry activities reached significantly more women than men, this did not seem to be because women were purposefully targeted. However, the project achieved positive impacts for the women both in terms of the knowledge they gained and in terms of profitability. The other intervention, Fruits of the Nile Company, was originally founded to take advantage of women's interest in having a market for products that they were drying using solar dryers. However, the company seems more focused on working with smallholders in general than on explicitly targeting women. Nonetheless, this company works with a large group of female suppliers of dried fruit who benefit from Fair Trade and organic certifications.

³⁰ GERES, *Annual Report 2012* (France: GERES, 2012), 38, <http://www.geres.eu/images/institutionnel/ra/ra-geres-2012-en.pdf>.

³¹ USAID/Afghanistan, *Alternative Development Program*, 10.

TYPES OF ORGANIZATIONS SUPPORTED

Processing projects have supported a variety of business models. Of the 11 cases reviewed, seven involved producer groups, clusters, or cooperatives. Out of the remaining four projects, one worked with individual microentrepreneurs, one with a small enterprise, one with business franchises, and one with cottage industries. Although relatively low, the representation of businesses is higher at this value chain stage than in post-harvest handling or marketing interventions for farmers. Across all interventions, it was most common to work with groups or enterprises that were entirely or predominantly women. The one outlier is the Tuboreshe Chakula project in Tanzania, which worked on food fortification with milling companies. This sector was in a male-dominated portion of the value chain; therefore, the project worked mostly with male-managed enterprises. However, the intervention did have some success in engaging and building the capacity of female entrepreneurs.

At the processing value chain level, it was most common for projects to establish new institutions or enterprises for processing and selling processed goods. For example, ICRISAT's project in the groundnut sector established pilot clusters of around 100 processors each, with management committees. DAI's Alternative Development Program-East established a packing plant run by women. Taking a slightly different approach to establishing new models, the Future in our Mind (FIOM) project upgraded associations into cooperatives by regrouping members and developing processing units that were shared among cooperatives.

Table 3. Processing Types of Support

Common Approaches	
Approach	Percent of Interventions (Out of 11)
Processing Training	91%
Business Skills, Marketing Training, or Capacity Building	73%
Assets (Capital, Technology, Infrastructure)	82%
Credit Linkages	18%
Linkages for Inputs and Markets, Contracts, Vertical Networking	55%
Participatory Research	0%
Gender, Leadership, Empowerment Trainings	9%

All of the projects included in this section provided some form of training or capacity building to processors. All but one mentioned technical trainings that covered topics such as processing methods and equipment usage as well as hygiene, safety, or quality. Some of the processing trainings focused on teaching women how to make new products. These included candied fruits, pickled vegetables, and fortified cereal products, among others. Other trainings helped processors of products such as groundnut oil to improve their techniques or methods. More than half of the projects also provided some form of business development training such as marketing, management, and business skills.

Almost all projects supported processors or processing groups with the provision of equipment and/or infrastructure. This took the form of direct donations of technology or financing for new equipment. A Peanut Collaborative Research Support Program project, for example, supported cottage industries with equipment and infrastructure. The Fruits of the Nile company provided dried fruit producer groups with one-third of the cost of a solar dryer as an interest free loan and facilitated the construction of these dryers. Reducing drudgery was also a motivation for providing equipment. For example, a mill project was designed to benefit both women interested in being mill managers and female customers, who would otherwise spend a significant amount of time grinding by hand. Similarly, a project to provide technology and infrastructure for groundnut oil processors was designed to mitigate “the arduous and time consuming” manual agricultural processing work that is generally done by women in Benin.³²

Over half of the interventions also supported processors with market linkages for their products. Activities in this area included finding new markets for processed goods, building relationships with buyers, and networking events. One project, implemented by the Peanut Collaborative Research Support Program, collaborated with the Guyanese government to develop cottage industries to supply a school feeding program.

³² “Project description. Local Female Entrepreneurship and Development (Agonlinmi),” accessed July 12, 2016, <http://www.geres.eu/en/our-actions/item/333-local-female-entrepreneurship-and-development-agonlinmi#project-description>.

One project with a minority of female beneficiaries, Tuboreshe Chakula in Tanzania, provided extra support to women to overcome gender gaps in the formal processing sector. This support included business formalization support, access to credit workshops, networks among female entrepreneurs and with female bankers, and women-to-women peer group workshops focused on gender issues. Through these activities, the project succeeded in reaching its target of 25 percent female- or jointly owned businesses.

SUCCESSES AND PROMISING MODELS

All of the processing projects included in this section were successful in terms of activity implementation. All projects, but two, documented evidence of adoption of new practices or expansion into new entrepreneurial activities. The two that did not provide this documentation were both food processing trainings, which did not track whether women used their new knowledge to engage in processing businesses. In both of these projects, the trainings were well received. An evaluation of Aglinks, for example, found that women's participation in food processing training programs had increased dramatically over the life of the project and that "women focus group participants were unanimous in their support for the program."³³ A successful processing activity in the groundnut sector is the establishment of cottage industries in Guyana to supply a school feeding program. This project was implemented by the Peanut Collaborative Research Support Program. According to the project's final report, "We have provided infrastructure support to seven cottage peanut butter factories that included the installation of a new higher capacity factory in Aranaputa that serves as a showcase and training facility for the region. ... [T]he trainings to men and mostly women associated with the cottage industries are likely to be the most long lasting" out of any interventions delivered in the program; the skills taught in these trainings are already being observed in other industries in the region.³⁴ Surveys conducted by the Peanut Collaborative Research Support Program found that the cottage industries were profitable.

Most projects showed an increase in women's skills or knowledge, including business skills and improved processing techniques. Some projects directly documented these changes. For example, the Women's Development Center project in Cambodia reported that processing training participants were satisfied with their new skills. Similarly, a project that worked with groundnut processors in Niger found that women had gained knowledge through business skills training, such as the differentiation of profit and gross revenue. Others noted that women were able to process new or higher-quality products.

Around half of the projects reported positive economic impacts for women as measured by profitable enterprises, increased incomes, or better prices. Two interesting examples are the Sukhrod Packing Facility in Afghanistan and the Fruits of the Nile dried fruit company in Uganda. The Sukhrod Packing Facility set up by DAI in Afghanistan is certified to high international food safety standards.³⁵ At the time that the project's final report was written, it was entirely run by women, who were provided training in hygiene as well as management and operation of the facility. According to the project's final report, this facility "provides high-quality, fresh produce from regional farms under the brand, Pride of the Eastern Region. The facility regularly provided packing services to traders of the Eastern Region who supply fresh fruits and vegetables" in Afghanistan and abroad.³⁶ In the first nine months that it charged traders for its services, the facility earned \$34,500 in profits. Unfortunately, project reports do not provide information regarding individual incomes.

The FAO/United Nations Development Programme Post-Harvest Programme introduced solar dryers for food security. However, "it soon found that rural groups were more interested in solar dryers for income generation than for food security."³⁷ Fruits of the Nile was formed "to exploit this commercial interest."³⁸ Producer groups use solar dryers to dry fruit, which is then sorted and marketed by the company. According to a project summary from 2010, dried fruit producers who supplied the company at that time earned \$2,200 per year, around 50 percent of which was profit.³⁹ It is unclear if this refers to

³³ Mendez, England & Associates, *Performance Evaluation of the Agricultural Linkages (Aglinks) Project, September 2013* (Bethesda, Maryland: Mendez, England & Associates, 2013), 2.

³⁴ Greg McDonald and Robert Kemerait, *The Development of the Peanut Sector for Guyana and Selected Caribbean Countries (UFL 155): Final Report (2007-2012)*, accessed July 12, 2016, http://pmil.caes.uga.edu/documents/UF155/Final_Report_UF155_MacDonald_FY2012.pdf.

³⁵ HACCP standards.

³⁶ USAID/Afghanistan, *Alternative Development Program*, 13.

³⁷ Jane Okalebo, "Why women adopt solar dryers," *ENERGLA News* 3 (1997).

³⁸ Jane Okalebo, "Why women adopt solar dryers."

³⁹ The Ashden Awards Case Study, *Case study summary: Fruits of the Nile, Uganda*, accessed July 12, 2016, <https://www.ashden.org/files/Fruits%20of%20the%20Nile%20full.pdf>.

groups or individual producers, although data seem to be broken down on a per capita basis. The company has been successfully using this model for over 20 years.

Almost none of the projects reviewed reported on changes in women’s agency at this value chain stage; when changes are reported, they are anecdotal in nature. One example is the ICRISAT project, which showed that its pilot model improved the agency of female processors in addition to increasing incomes. This project tested a model to form processors into clusters and link clusters with inputs, credit, and markets; create and train cluster management committees; train two members of each cluster in equipment operation; and provide equipment. It found that the processing equipment yielded high returns and saved the processors a significant amount of time. According to a report, “women processors are ... now engaged in managing the processing machines through management committees set up and trained in monitoring and use of equipment and repairs. They are also confidently taking decisions on when to replace the equipment.”⁴⁰

IV. Marketing

At the marketing level, the literature review examined 12 projects. The majority of interventions are in the horticulture value chain or in mixed value chains that include horticulture. Several groundnut projects with marketing components tied them to aflatoxin reduction and post-harvest handling, and these interventions are included in the post-harvest handling section. Thus, there is only one groundnut value chain project included at this stage.

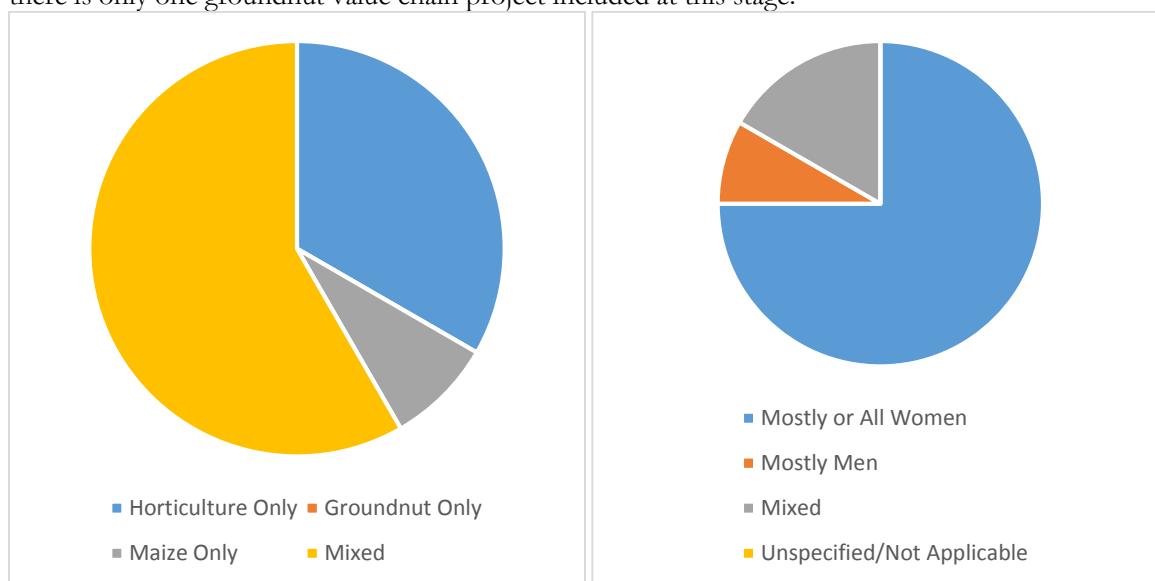


Figure 7 and 8. Marketing Value Chains and Organizations or Enterprises

GENDER-BASED CONSTRAINTS AND OPPORTUNITIES

Projects designed to increase women’s economic empowerment through marketing focused both on farmers and on market women or traders. All interventions that focused on marketing for female farmers addressed gender-based constraints or issues faced by women. The exact nature of the constraints addressed varied between projects. For example, Helen Keller International’s Making Markets Work for Women was designed because tribal women in the project area were engaged in agriculture, but “ethnic exclusion and geographic isolation have hampered tribal women in accessing markets.”⁴¹ Similarly, a vegetable production and marketing project implemented by Mennonite Economic Development Associates (MEDA) was designed for women in Afghanistan because they lacked economic opportunities as well and other basic human rights and services. On a related note, one Farmer-to-Farmer niche project provided marketing support to women because it recognized

⁴⁰ ICRISAT, Inclusive Market-Oriented Development: Demand driven innovation benefiting the poor, *ICRISAT IMOD Exemplars - Volume II* (Telangana, India: ICRISAT, 2015), 42.

⁴¹ Erica Roy Khetrin, “Making Markets Work for Women in Bangladesh,” *New Agriculturist* (November 2012), <http://www.new-ag.info/en/research/innovationItem.php?a=2835>.

that women had limited business skills, which restricted their access to profitable markets and contributed to exploitation by traders. These projects also supported female farmers to improve production.

In the examples of horticulture projects, activities focused on expanding women's existing predominant role in production into marketing opportunities so women could benefit from crops they were already producing. Maize, however, is frequently viewed as a "male crop," complicating women's access to it for marketing. In some cases, such as TechnoServe's JEEViKA project and the Farmer to Farmer niche project, women were already producing maize.

The two projects focused on market women addressed women's inadequate resources or working conditions and their historical position of being overlooked in projects and policies, despite market women playing a significant role in the economy. Of these, the Markets for Change project, implemented by UN Women in the Asia Pacific region, also addresses market women's lack of voice in market governance by working with vendors to form and run associations.

TYPES OF ORGANIZATIONS SUPPORTED

Of the 12 interventions examined in this section, nine focused on marketing for farmers. Eight of these were interventions that supported or established groups; one is a case study of a cooperative. The majority of marketing interventions that focused on farmers worked with groups that were entirely or almost entirely women. Collective marketing was the most common approach, and projects are evenly divided between creating new groups or institutions and developing new marketing systems for existing groups. An example of working with existing groups is TechnoServe's JEEViKA project. In this pilot, TechnoServe developed a model for farmer groups to aggregate and jointly market their products through an electronic platform. Helen Keller International's (HKI) Making Markets Work for Women, on the other hand, took the approach of creating new marketing committees for female farmers.

One notable outlier is the World Food Programme's (WFP) Purchase for Progress (P4P) program. Through this program, the WFP signed contracts with producer organizations for the procurement of commodities that were later redistributed as food aid. This global initiative worked with a large number of producer organizations, which in aggregate had significantly more male than female members. Although this program is very different from the others included in this section, it is an example of a deliberate effort to increase female participation in male-dominated cooperatives through such activities as gender sensitization trainings, setting targets of 50 percent female participation in training activities, and prioritization of women in contracts, among other activities. This project did not succeed in reaching its ambitious gender target of 50 percent participation in P4P; however, it did make notable progress, which is discussed in the Successes section.

The two projects that focused on market women both worked with individual entrepreneurs who sold goods and focused specifically on female beneficiaries. One of these projects worked with vendors to develop market associations.

Table 4. Marketing Types of Support

Common Approaches	
Approach	Percent of Interventions (Out of 12)
Agricultural Training	67%
Business Skills, Marketing Training, or Capacity Building	83%
Assets (Capital, Technology, Infrastructure)	50%
Access to Credit	42%
Contracts, Market Linkages, Networking	67%
Participatory Research	8%
Gender, Leadership, Empowerment Trainings	25%

As with other value chain levels, capacity building was the most common approach. Of the nine interventions that worked with women farmers, eight mentioned training on specific business or marketing topics, including among others business skills, market surveys, literacy and numeracy training, recordkeeping, and joint marketing. The majority of interventions that worked with farmers also provided training related to other value chain stages, such as post-harvest handling, production, or quality control. Three projects offered gender sensitization or awareness trainings.

All nine projects that worked with farmers also put in place either systems or linkages for collective marketing. Almost all facilitated connections with buyers. A few projects focused on formal marketing agreements, while others supported networking and relationship building. An example of a relatively unstructured marketing intervention is HKI's Making Markets Work for Women, which facilitated networking with market actors such as vendors or buyers. According to the project, these relationships were strong and expected to be long lasting. At the other end of the spectrum is Farm Concern International, which organized farmers of African leafy vegetables into marketing support units of around 25 farmers each. These units were clustered in four commercial villages in Kenya; in total, 60 percent of the producers were female. This project facilitated linkages between farmers and a wide range of buyers, ranging from partnerships with informal traders to contracts with supermarkets.

Just under half of the projects that worked with farmers also provided technology to facilitate marketing. Three projects that worked in the maize value chain provided farmer groups with scales for weighing corn. These projects disseminated scales because historically maize has not been weighed accurately, leading to lower sales totals for farmers. In some cases, traders are even purposefully dishonest. One of these projects also provided producer groups with moisture meters to evaluate maize quality. In all three cases, equipping women with these technologies increased their bargaining power with buyers.

Slightly less than half of all marketing interventions also facilitated access to credit. Although the credit extended was generally for production, in two cases it was tied to marketing activities such as contracts or the formulation of effective business plans. In another case, Farm Concern International developed a fund specifically to enable farmers to sell in higher-value markets that do not make immediate payments.

The two projects that worked specifically with market women both provided trainings—such as literacy, financial literacy, or business skills training—and also built or rehabilitated market infrastructure. Additionally, the Sirleaf project established micro-credit for market women, and the project implemented by UN Women focused on forming market groups or associations and increasing women's voices in existing institutions. The two projects working with market women began relatively recently and, therefore, do not yet have impact data.

SUCCESSSES AND PROMISING MODELS

Many of the findings from the marketing section of this literature review support Oxfam's conclusions from its research on women's collective action (CA) in Tanzania, which studied large marketing associations, small women-centered groups, and informal alliances. According to Oxfam's report, CA has "significant economic benefits" for women in both marketing and production.⁴² Women in CA groups earned 68 percent more than women who are not group members.⁴³ However, there was no one type of group that was universally more beneficial to women.

In general, marketing projects have stronger information related to impacts than those at other value chain levels. All of the interventions showed positive changes in women's entrepreneurial activities, including market women's usage of new facilities and farmer participation in collective marketing models. Almost all of the projects also reported increases in women's skills or knowledge, including business knowledge, literacy, and planning skills, among others. Of the nine projects that worked with female farmers, all contributed in some way to economic gains or increasing women's agency, although the degree of measurable success varies across projects. All projects have examples of successful activities or interventions; however, some had better overall results than others.

It is important to note that economic benefits from marketing activities are often tied with improvements or changes in production. The over 800 percent⁴⁴ increase in income among women in MEDA's project in Afghanistan arose from the introduction of vegetable gardening as well as marketing the vegetables. To address mobility and cultural constraints to market access, MEDA introduced a model in which it trained a group of women who were relatively mobile to be sales agents. These women, who were also lead farmers, facilitated market access for other project participants who did not have any mobility.

⁴² Martin Walsh, *Women's collective action in the vegetable sector of Tanzania, Realizing the potential of collective action groups, Coordinating approaches to women's market engagement* (United Kingdom: Oxfam, 2013).

⁴³ Martin Walsh, *Women's collective action in the vegetable sector of Tanzania*.

⁴⁴ USAID, *Pathways out of Poverty Case Study: Integrating Female Farmers in Rural Afghanistan into Sustainable Market Systems* (Washington, D.C.: USAID, 2012).

One particularly interesting project is a pilot conducted by TechnoServe as part of its JEEViKA project in Bihar, India. TechnoServe developed a pilot in which maize was aggregated from 10 women's producer organizations at the federation level. The project also facilitated a partnership "with an online commodity exchange, NDEX e Markets Limited, to sell the maize on an electronic platform."⁴⁵ Additionally, the pilot introduced moisture meters and electronic scales for producer organizations along with equipment and financing. In June 2015, the federation had procured "1014 tons of maize from across 10 producer groups, well above the target of 800 metric tons."⁴⁶ The knowledge and tools gained in the project also increased female farmers' bargaining power with local buyers. A description of this project stated that "thanks to direct electronic access to institutional buyers, elimination of intermediaries, and transparent weighing and grading practices, the groups saw a 15.8 percent increase in price for their maize."⁴⁷

Another interesting example is a project focused on marketing African leafy vegetables, implemented by Farm Concern International and other partners. This project used a commercial villages approach, in which farmers were clustered into marketing support units in four commercial villages. Women comprised about 60 percent of the producers in the commercial villages. The project connected the marketing support units with business service providers as well as buyers. Farm Concern International recognized that a main trade barrier for farmers to sell through formal channels was a lag between when produce is delivered and when farmers are paid. Therefore, it designed a catalytic fund to overcome this gap, although farmer groups were required to start building their own savings funds and move away from the project fund. The four commercial villages generated an estimated 100 million Kenyan shillings (close to US\$1 million) in annual sales of African leafy vegetables.

Several reports described changes in women's voice and agency. Examples include an increase in active roles for women in the community through GIZ's project in Bosnia Herzegovina as well as opportunities to "socialize and band together for mutual support" through the development of market infrastructure in Liberia.⁴⁸ Another example is HKI's Making Markets Work for Women project, which reported increases in income levels as well as other successes. The project has positively impacted women's mobility, access to markets, engagement in their communities, and skills in negotiating prices.⁴⁹ Prior to these interventions, women did not travel; now they regularly go to markets and can bargain for fair prices for their produce. Because the project focused on a variety of value chains, these successes were not limited to horticulture crops.

Although the WFP's P4P program did not meet its targets of 50 percent female membership and leadership in farmer organizations due to unanticipatedly low baseline percentages, it did have positive outcomes related to increasing women's participation in male-dominated cooperatives. WFP developed a global gender strategy and targets, which guided individual countries' gender analyses and approaches. Gender mainstreaming activities included a wide range of activities, such as gender training for both men and women, literacy training for women, and labor-saving technology provision. According to a report, "the participation of women in P4P supported [farmer organizations] increased by ten percentage points from 19% in 2009 to 29% to date [in 2013]"⁵⁰ and "in terms of leadership, the efforts of P4P country teams resulted in an increased female presence on FO leadership committees and boards, with 36% of women occupying positions on P4P-affiliated [farmer organization] boards globally by the end of the programme."⁵¹ Among P4P's important achievements, the report cited "women's increased level of confidence, the shifting gender-transformative dynamics at household and community levels and the opportunities that this opened up to women to access further resource assets."⁵²

A more local example is the Manyakabi Area Cooperative in Uganda, which participated in several projects, including P4P. This umbrella organization supported farmer groups with predominantly female membership. A study found that the

⁴⁵ "Leveraging technology to improve rural livelihoods for women," TechnoServe, accessed July 12, 2016, <http://www.technoserve.org/blog/leveraging-technology-to-improve-rural-livelihoods-for-women>.

⁴⁶ "Leveraging technology to improve rural livelihoods for women," TechnoServe.

⁴⁷ "Leveraging technology to improve rural livelihoods for women," TechnoServe.

⁴⁸ Sirleaf Market Women's Fund, "God first, second the market." *A case study of the Sirleaf Market Women's Fund of Liberia* (Monrovia, Liberia: Sirleaf Market Women's Fund, 2012), 3.

⁴⁹ *2012 Lesson Learning Report: HKI*, Shiree, accessed July 12, 2016, <http://www.shiree.org/wp-content/uploads/2012/12/Lesson-Learning-Report-HKI.pdf>.

⁵⁰ World Food Programme, *P4P's Women's Empowerment Pathways: Roadblocks and Successes 2014* (Rome, Italy: World Food Programme, 2014), 26.

⁵¹ World Food Programme, *P4P's Women's Empowerment Pathways*, 29.

⁵² World Food Programme, *P4P's Women's Empowerment Pathways*, 44.

Manyakabi cooperative provided some economic benefits to women. However, the most significant benefits to female members were related to empowerment: “women have developed greater independence and status; have gained leadership and business skills, and argue that they have improved their coping strategies in general. These intangible benefits have empowered female farmers in [the zone].”⁵³

OVERLAPS ACROSS VALUE CHAIN STAGES

This review has divided projects into four value chain levels for the sake of organization and clarity. However, in general, the projects took a more holistic approach and did not work only at one stage. While there are a few examples of successful outliers that focused on one particular need or area for improvement, most interventions recognized that value chain activities are interconnected. It was especially common to combine marketing interventions with interventions from other value chain stages.

At the level of production inputs and services, about half of the 10 projects included women in production, crop marketing, or other value chain activities. One illustrative example is the PROFIT+ project, which built the capacity of women to run businesses both to provide inputs and to market farmers’ crops. For the projects that concentrated only on input or service provision, it is important to note that many of these projects focused on seed production. Although this paper has considered seed production in its place at the beginning of a crop value chain, it is in reality a value chain all in itself. Therefore, even projects that concentrated on input provision could involve a production, post-harvest handling, and market component as well as the provision of foundation seed and other inputs for seed multiplication.

At the post-harvest-handling level, all but one of the nine projects crossed value chain stages. In most cases, this crossover involved working with farmers on post-harvest handling as well as production or marketing. However, two projects also crossed value chain stages by working with both farmers and processors on improved post-harvest practices and storage techniques. One example is a project conducted by the Peanut Collaborative Research Support Program, which worked with both producers and processors to reduce aflatoxin contamination. Major activities implemented with women included training, awareness raising, and research.

The majority of the 11 processing interventions worked with women as processors. Three projects worked with women both as producers and as processors. One illustrative example is the Fruits of the Nile company, which provided support both for production of fruits and for solar drying. While there were many more farmers than dried fruit producers, those who engage in drying often worked at both value chain levels. Interventions that supported processing enterprises in proper storage or marketing also worked in multiple value chain phases.

All of the nine marketing interventions for producers also worked at other value chain levels, including production, post-harvest handling, and processing. In most cases, improving product quality through improved techniques and strengthening marketing institutions or linkages were activities that built on one another. This approach makes sense as there is no advantage to producing a premium crop without a premium market. Similarly, access to high-value markets is dependent on the quality and reliability of production. For example, WFP’s P4P project gave women access to reliable markets through contracts. The program recognized, however, that in order for this to be feasible, it was necessary to provide farmers with assets and training to meet contracts’ standards. The two projects that worked with market women focused only on the marketing value chain level.

SUMMARY OF ECONOMIC IMPACTS

Economic impacts were primarily measured through (1) women’s improved entrepreneurial position and (2) returns as measured by income, sales, or profit. No projects measured women’s control over income, and several projects measured returns at the enterprise or household levels, leaving women’s control over returns unclear. While no projects have quantitatively measured control over income, some do include empowerment indicators or more qualitative evidence indicating that women have been able to decide how their earnings are spent. HKI’s Making Markets Work for Women found through focus group discussions, for example, that women stated that they would not have seen benefits if their husbands had been the ones to receive project support.⁵⁴ Other projects documented the purchases that women have made with their

⁵³ H Ferguson and Thembela Kepe, “Agricultural cooperatives and social empowerment of women: A Ugandan case study,” *Development in Practice* 21,3 (May 24, 2011): 425, accessed July 12, 2016, doi:1.

⁵⁴ 2012 Lesson Learning Report: HKI, Shiree.

incomes, such as education costs for their children or new household items. While this evidence does indicate that women have retained at least some control over their earnings, this is an important area for further examination.

Projects' assessment of economic impacts ranged in rigor, from measuring incomes across treatment and control groups to anecdotes gleaned from success stories or reports of women's perceptions. Approximately half of the projects in the review provided income or sales information, which was often measured at an aggregate level or not rigorously. Common limitations of the information found through this review include inability to attribute change to project efforts; measuring returns at group, enterprise, or household levels; insufficient time has passed to meaningfully assess returns; or returns were not assessed. In general, the economic data found for processing activities is especially vague, largely at the group or enterprise levels and includes no evaluations. Marketing interventions, on the other hand, have much clearer data related to economic impacts for women.

Although it is impossible to rigorously compare projects with the current data, it is worthwhile to point out general patterns that emerged.

The vast majority of projects reported positive changes in women's entrepreneurship in terms of women's expansion into new entrepreneurial activities, increases in participation in organizations or enterprises, or the strengthening of existing businesses through the usage of new skills, technologies, or business networks. The few projects that did not show results recorded successful implementation of activities and in many cases women's enthusiasm for new knowledge or technologies. However, they either did not track application of new practices or technologies or reported that it was too early to demonstrate results. For example, the Women's Development Center project in Cambodia trained women in food processing and reported that some women planned to open businesses but did not follow up with trainees to track uptake of new practices.

In the production inputs and services phase, there is strong evidence that seed or planting material production through groups or cooperatives can increase women's sales and profits. Three of the six seed and planting material production projects demonstrated profits or increases in sales or income for women. For example, one assessment with a treatment and control group found that the production of planting material had led to an increase in total sales for women and that there was some indication that this was reflected in higher incomes. A fourth project conducted an evaluation with a treatment and control group and did not find that the project beneficiaries were significantly different from the control group in terms of increases in household income. One other planting material project offered more anecdotal evidence of increase in profits.

Although the economic data for post-harvest activities is largely anecdotal and measured at the group level, it indicates that the post-harvest interventions included in this literature review raised women's incomes or sales. In three cases, these impacts come from a reduction in post-harvest losses and/or access to new markets. Another project increased the incomes of the female employees as well as the number of women employed by the center. The one robust analysis focused on a cost-benefit analysis of post-production technologies adopted by project participants. The majority of the sample was women. It found that the adoption of post-harvest technologies led to a relatively rapid return on investment.

Of the 11 processing projects, four discussed economic results for individual processors or for groups. Information found for the four projects indicates that participants, a majority of whom were women, were earning money or were able to obtain better prices than before the project. One of these projects found that the equipment provided to processors substantially reduced costs. Three projects provided economic information at the enterprise level. In two cases (one all-female enterprise and one enterprise with a female majority), the enterprises were profitable, and in one case a cooperative still needed economic support (this enterprise also was mixed with a female majority). None of the processing interventions provide data that are the result of evaluations.

Marketing interventions generally saw to positive economic returns for women. However, because projects with marketing interventions also worked at a variety of value chain levels, associated increases in incomes are likely better attributed to improvements in production and post-harvest handling combined with better marketing. Increases in income range from a striking 800 percent in Afghanistan to more limited gains in Bosnia Herzegovina, which fell under the project's target. Of the nine projects that focused on marketing for farmers, six indicated increases in income for female beneficiaries. Two more projects did not include income data but reported increases in sales or revenues. The two marketing interventions that focused on market women did not provide economic data, so no inferences can be made related to their economic impacts.

SUMMARY OF SOCIAL IMPACTS

This section summarizes changes in women's agency or power in their households and communities in relation. Projects engaged with a variety of aspects of women's empowerment: participation, leadership, drudgery reduction, skills, agency, confidence and self-esteem, and power. Much of the literature included in this analysis either measures empowerment as an outcome or provides anecdotal examples. Unfortunately, it is difficult to draw comparisons because what is counted and discussed in terms of changes for female beneficiaries differs greatly across projects.

The majority of projects included in this literature review worked with organizations in which women comprised at least the majority of members or worked specifically with women. Therefore, there is relatively little data related to increasing women's participation in male-dominated sectors or institutions. Across all value chain stages, there are some examples of projects that aimed to increase women's membership in groups or associations with a majority male membership. All of these projects succeeded in increasing women's participation, although to varying degrees of success. There are also examples of projects that purposefully targeted women for project activities in male-dominated sectors. These projects all succeeded in enhancing women's participation in post-production enterprises. In some cases, women comprised 50 percent of project participants. However, in others, levels of female participation were still as low as 15 or 25 percent. One notable project was implemented by UN Women in Egypt. This project increased women's participation in producer organizations by almost 70 percent through a combination of gender trainings, the formation of women's committees, and capacity building for women.

Nearly all projects demonstrated changes with regard to women's knowledge or skills. Improved knowledge and skills were shown through quantitative assessments of changes in knowledge, anecdotal discussions of increases in women's capacity, and successful adoption of new practices or expansion into new activities. WFP's P4P program implemented a strong gender strategy that yielded economic returns for women as well as increases in women's skills, literacy, and access to credit.

Several projects assessed impacts related to power and agency. While some projects measured empowerment through indicators such as self-efficacy, other descriptions of empowerment were more anecdotal in nature. A strong theme that emerged was changes in women's decision making at the household or community levels and their connections and support within the community. For example, one project that worked with market women found that after the development of improved market infrastructure, women were able to come together to support one another. Another frequently mentioned shift was an increase in bargaining or negotiating power for women. This change was more frequently seen in marketing interventions where change was brought about through increases in knowledge, marketing institutions, and scales for properly weighing products. Women's increased confidence or self-esteem was a strong theme that emerged across different phases of the value chain. Improved confidence arose from knowledge and skills gained through training, asset ownership, and participation in groups or business activities.

The limited information on changes in perceptions of women's roles comes primarily from marketing interventions and also seed and planting material production. Changes included men's willingness to help with housework, a movement away from extremist ideologies in Afghanistan, and more positive outlooks on women's engagement in entrepreneurial activities. As always, it is important to note that many of the marketing interventions included in this literature review were very closely tied to production or processing interventions. In some cases, these shifts in perception on the part of men may be more tied to gender trainings focused on farming or on s

Several projects with processing and post-harvest activities reduced women's workloads and drudgery through new equipment and technology. Although one study showed that women most commonly answered that this free time would be used for other household tasks, the second most common answer was opening small businesses.

ISSUES AND TROUBLE SPOTS IN INPUT PROVISION, POST-HARVEST HANDLING, PROCESSING, AND MARKETING

As this analysis has demonstrated so far, data related to project impacts on either income or empowerment are inconsistent and difficult to compare. However, data related to issues and trouble spots tend to be even sparser and reporting is even more inconsistent. This literature review draws on sources ranging from external evaluations to blog entries, some of which are very forthcoming about lessons and difficulties areas, while others focus primarily on what worked. However, some general themes can be noted in the documents that did provide a more balanced assessment of strengths and shortcomings. Not all of the issues discussed below are gender-based or particular to women. However, because the majority of projects included in this literature review worked either entirely with women or with female-dominated groups, it can be inferred that these are trouble

spots that commonly impact efforts to increase women's economic empowerment. The information that has been accessible suggests that while all projects have achieved some degree of success with regard to women's economic empowerment, there remains opportunity for more intentional and effective interventions that empower women beyond the production phase of the value chain.

One sticking point for projects seems to be issues related to planning and implementation. Although some issues were general, several reports mentioned problems related to gender mainstreaming. These include a lack of staff gender capacity, inadequate gender integration in monitoring and evaluation, and/or the absence of a coherent gender approach in project design and implementation. For example, a gender evaluation of one project found that the program did not have a systematic, theoretical approach to gender mainstreaming; had not adequately identified socioeconomic, cultural, and institutional constraints faced by men and women; and did not have an adequate sex-disaggregated monitoring and evaluation system. Additionally, "the program team lacked sufficient technical capacity to systematically integrate and address gender issues. The gender coordinator's self-rated assessment of her knowledge and skills to tackle gender issues was 'very low.'"⁵⁵

Projects also discussed implementation issues related to the environments in which the projects were operating. Although they both had notable successes, the two projects implemented in Afghanistan, in particular, faced implementation issues related to the restrictive gender norms in which they were working. DAI's Alternative Development Program/Eastern Region (ADP/E) had difficulties related to finding female staff and as well as "difficulty recruiting program participants due to social stigmas."⁵⁶ MEDA's Through the Garden Gate could only find 12 women who had the mobility to work as traders. Other projects faced logistical issues that were not necessarily gender based. For example, HKI's Making Markets Work for Women intentionally targeted female beneficiaries from tribal groups in remote areas. While these beneficiaries were arguably those most in need of support, the remoteness of their living situation made it difficult to effectively implement program interventions.

Three of the reports included in this literature review discussed problematic unintended consequences arising as a result of the environment in which projects were taking place. All three of these examples are gender related. While implementing its project to design technology in the groundnut value chain in Malawi, CTI found that after the development of labor-reducing technologies, men became interested in what had historically been seen as women's crops. Although this may not be problematic in settings where women and men cooperate, CTI suggested that changes in gender roles should be monitored in future activities. With regard to finances, CARE found in its mid-term review that women's increasing incomes through groundnut and sesame production and marketing was leading to an effect in some instances in which men were "retracting some of their financial support to the household."⁵⁷ The WFP found in some contexts that "women used P4P [programs] as a concrete tool for deterring gender-based violence;"⁵⁸ however, a Malawi case study also found that "there were cases where the increasing empowerment of women was met with forceful resistance at the household level, and often resulted in some women experiencing domestic violence."⁵⁹

Establishing effective linkages to markets or finance were other trouble areas common to projects. For example, HKI faced logistical difficulties in linking women in very remote areas to markets. One method tried by the project was the introduction of donkeys for women to transport produce. The project evaluation found that donkeys were not common in Bangladesh, creating a multitude of logistical difficulties such as the need to train participants to care for a new animal as well as a need for skilled veterinary care. In spite of the incomplete planning for this intervention, the project did have some success in training beneficiaries to use donkeys for marketing. Several projects also reported that effective linkages to capital or credit remained an issue, even after project interventions. For example, interviews with Sirleaf Market Women's Fund project participants found that loan amounts were too small to meet their needs. While the market and finance issues mentioned above are not necessarily gender based, an Oxfam research project on collective action in the vegetable sector in Uganda did find that, in general, interventions have not focused sufficiently on women's empowerment in markets or on the specific constraints that women face in producer organizations.

⁵⁵Sonia Akter, *Gender Assessment of Seeds of Life (SoL) Program in Timor-Leste* (Timor-Leste: Seeds of Life, 2015), 2, <http://seedsoflifetimor.org/wp-content/uploads/2013/10/Sol3-Gender-Assessment-Report-Final-Nov-20-2015.pdf>.

⁵⁶ USAID/Afghanistan, Alternative Development Program.

⁵⁷ CARE, *Pathways to Empowerment: Mid-term Review, Malawi 2015*, accessed July 12, 2016, http://www.carepathwaystoempowerment.org/wp-content/uploads/2015/04/MTRSummary_Malawi-4-1-15-PDF.pdf.

⁵⁸ World Food Programme, P4P's Women's Empowerment Pathways.

⁵⁹ World Food Programme, P4P's Women's Empowerment Pathways.

Another common trouble spot was institutional or human capacity gaps related to quality, marketing, gender integration, or institutional sustainability. One example is the Peanut Collaborative Research Support Project, which was able to self-correct. This project found that after it expanded cottage industries for peanut butter production, aflatoxin levels increased. However, the program was able to put in place protocols and equipment for correcting this issue. Another example is an assessment of the Hill Maize Research Project in Nepal, which found that seed producer groups had weaknesses in “improved agronomic practices, market-based production, post-harvest processing and quality control, and marketing.”⁶⁰ It is important to note that this assessment was conducted about nine months before project completion. However, it determined that at the time of evaluation only about half of the groups had the technical capacity to be sustainable. This assessment also determined that the groups had not received adequate training related to gender equity and social inclusion.

Not all projects succeeded in significantly increasing women’s incomes or in strengthening enterprises to the point where they were generating substantial profits. An impact evaluation of Oxfam’s support to the Pavitra Seed Cooperative found, for example, that members’ incomes had increased but not significantly more than members of cooperatives that had not received Oxfam support. Another project evaluation also found that the women’s groups supported by the intervention were generating an income but that it was limited and below the project target. Similarly, a study of a producer cooperative founded by women found that there were “relatively small” economic impacts due to the small size of the cooperative. Even projects with limited financial earnings, however, can have significant impacts on empowerment indicators. This ability to promote significant empowerment impacts was demonstrated by the Pavitra project, which had striking results with regard to women’s empowerment in the cooperative and communities as well as people’s perceptions of women’s roles in economic systems.

It is clear that although many projects had notable successes in increasing women’s economic empowerment, there are also many potential areas for improvement. A greater number of candid assessments and reports that focus both on successes and failures would help to elaborate which issues are in fact the most common and which interventions are the most likely to encounter problems. Due to the complicated environments in which development projects operate, it is unlikely that any intervention would ever be without flaws and trouble spots. However, a more open discussion could enable interventions to avoid needlessly repeating mistakes. Additionally, there are many examples of interventions building on past projects to provide continued support to producer organizations. Building on past projects to meet needs for ongoing capacity support can be an effective strategy to ensure the sustainability of women’s post-production enterprises.

CONCLUSIONS

As this literature review has demonstrated, there is a great deal of potential to increase women’s economic empowerment in the value chain stages of production services and input provision, post-harvest handling, processing, and marketing. In the three value chains reviewed, horticulture is the value chain with the most examples of projects that have worked with women. This is not surprising, considering that this value chain includes a greater variety of crops than the others and also has historically been a focus of interventions targeting women. There was no discernable difference between the attention given to women in marketing, processing, and post-harvest handling activities. With the exception of seed production, examples of efforts to increase women’s economic empowerment at the input stage are relatively sparse.

One important gap to point out is that although these projects operated at value chain stages outside of production, many were still focused on producers. There is a lack of literature related to interventions that work with female traders, vendors, and other value chain actors that are not farmers. The exception to this trend is projects that work with small-scale processors, who may not also be producers. This gap is of particular importance because small-scale middle actors could in fact be negatively impacted by interventions focused on moving producers up the value chain. An important area for further research could be whether there are opportunities to incorporate these women into formal value chains rather than bypassing them in efforts to find higher-value markets for female producers. Interesting areas for investigation would be to see if the common strategies mentioned in this study such as group formation, capacity building, and linkages could be adapted in projects targeting traders or vendors.

In general, most of the interventions reviewed work with groups of farmers or entrepreneurs. There is a wide range of organizations in terms of size, sex composition, and degree of formality. There are examples of successful initiatives in male-

⁶⁰ Institute for Integrated Development Studies (IIDS), Evaluation: The Hill Maize Research Project.

dominated organizations, in groups with relatively even membership, in groups with a female majority, and in all-female enterprises. However, the most common approach was to empower women in groups, enterprises, or sectors that were female dominated.

The most common activities for increasing women's economic empowerment were trainings on topics related to technical skills for specific activities as well as business, management, or marketing. Relatively few projects included specific gender or empowerment trainings, but these did seem to strengthen efforts to increase women's economic empowerment or change perceptions. This literature review also highlights the power of technology to increase women's bargaining power, improve product quality, and/or decrease women's workloads. One striking example is the provision of scales for weighing maize, which enabled women to receive an accurate price for their produce and avoid exploitation by traders. Additionally, technical support for strengthening linkages to markets, inputs, or credit can have a profound impact on women's incomes and bargaining power. In all of the examples of marketing projects that worked with farmers, marketing support took the form of collective marketing. While some collective marketing models and linkages were intricate and involved many components, there are examples of simpler collective marketing efforts that focused on relationship building among value chain actors.

While there are a wide range of promising models and approaches to increasing women's economic empowerment surrounding post-production activities, rigorous impact data related to this topic is relatively sparse. This review has included the best information available, rather than restricting the interventions reviewed to those with rigorous impact data or evaluations. Nonetheless, there are examples of models with demonstrable results that have increased women's economic and social empowerment throughout the value chain.

APPENDIX I: PROJECT DETAILS

Table 1. Input and Production Service Interventions

Value Chain	Intervention Reaching Women	Project	Scope of Intervention and Project	Organization
Horticulture (vegetables)	Support for seed production, marketing, and women's empowerment through the Pavitra Seed Cooperative	Enterprise Development Program (Nepal, 2008–Present)	Project supports and invests in small enterprises. Has supported 17 enterprises in 15 countries. Pavitra is one such enterprise. The Pavitra project is £167,000. Prior to EDP, Pavitra had 216 members, now has 816.	Oxfam
Horticulture (pineapple)	Empowerment of women through economic opportunities in the pineapple value chain	Women's Economic Leadership Through Horticulture Planting Material Business (Rwanda, 2011–2014)	216 women were trained, as well as an unspecified number of men. The intervention was the entire project, which was part of a larger program.	Oxfam
Horticulture (vegetable, fruit) and others	Women's sapling and plug seedling businesses	Alternative Development Program-East (Afghanistan, 2005–2009)	\$118.4-million project, which reached millions of people. Gender and microenterprise development was one of eight program priority areas. Within this area, many activities focused on other value chains or sectors.	DAI
Maize	Establishment of local seed production system, mostly through female farmers	Hill Maize Research Project (Nepal, 1999–Present)	Project has reached nearly 51,000 households. About 5,000 people are in the 207 CBSP groups.	CIMMYT
Maize, groundnut, and others	Women's participation in seed production activities	Seeds of Life (Timor-Leste, 2000–Present)	In 2014–15, there were 14,821 CSPG members and 1,495 CSP members. Numbers were not given for research participation.	Timor-Leste Ministry of Agriculture & Fisheries
Maize and others	Training for female entrepreneurs	Cereal Systems for South Asia (Bangladesh, 2009–Present)	Transferred technology to 60,000 families. Expectation to reach another 300,000 families through field days, farmer-to-farmer field days, and technology transfer. This intervention is a small project component.	IRRI
Groundnut	Groundnut seed production and marketing for women	Tropical Legumes II (Niger, 2007–2013)	Intervention worked with 870 seed producers. Project works in six value chains and nine countries, although not all countries work in all value chains.	ICRISAT

Value Chain	Intervention Reaching Women	Project	Scope of Intervention and Project	Organization
			Groundnut seed production in Niger is just one component of the project.	
Horticulture, maize, and others	Increasing the number of female agro-input dealers through activities to strengthen input markets for a variety of crops	Agricultural Input Markets Strengthening (Mozambique, 2006–2015)	Project trained 201 agrodealers	IFDC
Horticulture, maize, and others	Training and association membership for agro-input dealers	Kyrgyz Agro Enterprise Development Project (2003–2008)	Project had a USAID contribution of \$4 million and project contribution of another 30%. Capacity building for 9,100 dealers, farmers, and others. Trade association had 170 members.	IFDC
Maize, groundnut, and horticulture (tomato and onion)	Development of community agro-input dealer network	Production, Finance, and Improved Technology Plus (Zambia, 2012–Present)	Project had budget of \$24 million and target of reaching 200,000 smallholders. Promotion and capacity building for CADs was one activity. In 2014–15, project promoted 200 CADs.	ACDI/VOCA

Table 2. Post-Harvest Handling Interventions

Value Chain	Intervention Reaching Women	Project	Scope of Intervention and Project	Organization
Horticulture (fruits and vegetables)	Gender mainstreaming strategy for horticulture project	Pro-Poor Horticulture Value Chain in Upper Egypt Project (2010–2013)	Project had a budget of \$7,499,704. It targeted six farmer associations and three post-harvest centers. UN Women had 10 percent of budget but not all of it went to post-harvest activities.	UN Women
Horticulture (fruits and vegetables)	Post-harvest training and services for professionals and farmers	Extension of Appropriate Postharvest Technology in Sub-Saharan Africa: A Postharvest Training and Services Center (2010–2014)	Training of trainers for 36 professionals and trainings for 637 participants. Budget of approximately \$429,000. Intervention was entire project.	Horticulture Collaborative Research Support Project
Maize and others	SMFM training in collaboration with WFP's P4P program	USAID Post-Harvest Handling and Storage Project (Rwanda, 2009–2013)	Project had \$8.3 million budget. 60,085 individuals were trained, and 83,676 are using post-harvest centers developed by project. SMFM training was just one project activity, which reached 22,000 female smallholder farmers by September 2012.	CARANA

Value Chain	Intervention Reaching Women	Project	Scope of Intervention and Project	Organization
Maize and others	Promoting the fabrication and distribution of affordable metal silos for family grain storage	Multiple projects in Latin America	Between 1983 and 2009, 670,000 silos were transferred in Latin America, benefitting 415,000 households. Almost half were transferred after project ended in 2003. Project implemented in Guatemala, Honduras, Nicaragua, and El Salvador. New projects being expanded to other countries.	SDC
Maize and others	Support to women in post-harvest handling and marketing	Strengthening Value Chains for Maize and Soybeans for Ugandan Women Farmers (2012–2013)	180 female beneficiaries. In total the project had five objectives, and one relates to maize post-harvest quality.	FtF Niche Project
Groundnut	Research and training with women	Improving the health and livelihood of people of East Africa by addressing aflatoxin and gender-related constraints in peanut production, processing, and marketing (Kenya and Uganda, 2007–2012)	Project included 219 men and 355 women in workshops and short-term trainings. Project has nine objectives. Not all activities have a gender focus, but many target and/or reach women in post-production activities.	Peanut Collaborative Research Support Project
Groundnut	Gender-sensitive technology development	Enhancing Child Nutrition and Livelihoods of Rural Households in Malawi and Tanzania through Post-Harvest Value-Chain Technology Improvements in Groundnuts (Malawi and Tanzania, 2009–2013)	\$333,000 grant. Technology development was one of two components.	Compatible Technology International
Groundnut	Combining women's empowerment and aflatoxin reduction	Working with Women Smallholders to Produce Safe Groundnuts in Malawi (2012–2015)	No information	TWIN and NASFAM
Groundnut	Support for women's post-harvest work	Market Innovation for Smallholder Groundnut Farmers Project (Ethiopia, 2012–2013)	Project had 770 farmer beneficiaries. Grant from Electric Aid was EUR 17,585. However, this just covered technology. Project covered seed multiplication, production, post-harvest handling, and marketing.	Self-Help Africa

Table 3. Processing Interventions

Value Chain	Intervention Reaching Women	Project	Scope of Intervention and Project	Organization
Horticulture (fruits)	Household food processing trainings for women	AgLinks and AgLinks Plus (Uzbekistan, 2007–2012 and 2011–2015)	AgLinks had \$5,607,084 budget and AgLinks Plus had a budget of \$12 million. Household food processing was one activity.	DAI
Horticulture (fruits and vegetables)	Establishment of packing facility	Alternative Development Program-East (Afghanistan, 2005–2009)	\$118.4-million project, which reached millions of people. Gender and microenterprise development was one of eight program priority areas. Within this area, many activities focused on other value chains or sectors.	DAI
Horticulture (fruits)	Income generation through fruit solar drying	Fruits of the Nile company (Uganda, formed in 1992)	In 2009, company had 930 farmers and 139 producer groups in network. They sold 37.3 tons of dried banana and 35.5 tons of dried pineapple. Turnover in 2007 was \$672,000. In 2009, turnover fell to \$243,000.	Private company
Horticulture (vegetables)	Cooperative vegetable processing	IMAI Cooperative (South Africa, founded in 2010)	Annual turnover was \$19,900 in 2011, and organization had six full time members and six workers. Cooperative focused on production as well as processing.	Producer cooperative
Horticulture (fruits and vegetables) and others	Trainings in food processing through women's development centers	Women's Development Centers (Cambodia 2006–2010)	\$2,747,000 project with around 3,300 direct beneficiaries, including 2,400 women. Food processing training was one activity.	Cambodia Ministry of Women's Affairs
Maize, horticulture (tomato and pineapple), and others	Cooperative processing for women	Empowering Women through Cooperative Development Project (Rwanda, 2012–2014)	EUR 269,901 project, which targeted 600 women in five areas including maize processing, pineapple processing, and tomato processing.	FIOM Rwanda
Maize	Women-managed maize franchise	Millennium Mills Project (Mozambique, 2013–Present)	Entire project was pilot of three mills	TechnoServe
Maize and others	Increasing women's participation in the processing of fortified food	Tuboreshe Chakula (Tanzania, 2011–2015)	Project worked with 733 millers and 141 blenders, slightly over 25 percent of whom were women. Three out of five products involved maize. Project also included a behavior change component.	Abt Associates
Groundnut	Income generation through peanut processing in cottage industries	The Development of the Peanut Sector for Guyana and Selected Caribbean Countries (Guyana, 2007–2012)	\$83,974 project, in Haiti and Guyana. Activities in Guyana focused both on production and on the cottage industries. Snack feeding program was for 4,000 children.	Peanut Collaborative Research Support Program

Value Chain	Intervention Reaching Women	Project	Scope of Intervention and Project	Organization
			Project worked at the production level as well in Guyana.	
Groundnut	Pilot experiment in organizing and supporting female processors	Empowering women farmers through access to processing equipment (Niger, 2012–2014)	Five clusters, each with around 100 women. Entire project focused on female processors.	ICRISAT
Groundnut	Equipment and capacity building for cooperative oil production	SETUP (Benin, 2008–2013)	27 female cooperative members and 300 cooperative employees who are mostly women.	GERES

Table 4. Marketing Interventions

Value Chain	Intervention Reaching Women	Project	Scope of Intervention and Project	Organization
Horticulture (vegetables, fruit spices), maize, and others	Marketing as part of income-generating opportunities for extremely poor women	Making Markets Work for Women (Bangladesh, 2009–2012)	Shiree fund issues innovation grants. One of 12 innovation grants issued in two rounds. Round 1 value was \$1,541,283 and round 2 was \$1,794,863. 450 households. Project focused on production, post-harvest handling, and processing in addition to marketing.	Helen Keller International
Horticulture	Economic opportunities for women through groups	Through the Garden Gate (Afghanistan, 2007–2011)	Reached 2,349 women. 90% producers. Project focused on production and post-harvest handling in addition to marketing.	MEDA
Horticulture (fruits and vegetables)	Support to women through a network of groups	Promoting Entrepreneurship in the Fruit and Vegetable Sector of Bosnia Herzegovina (2000–2009)	EUR 6,279,110 project. Support to women's groups is one activity.	GIZ
Horticulture (vegetables)	Research on women's collective action in the production and marketing of vegetables	Women's Collective Action (Tanzania, 2013)	Survey of 28 groups and in-depth study of four groups. Groups focused on production and/or marketing.	Oxfam
Horticulture (fruit and vegetables) and others	Improving market conditions and increasing the voice of market women	Markets for Change (Pacific Islands, 2014–Present)	Over \$17 million, implemented in three countries. Market women sell a variety of goods, including vegetables.	UN Women
Horticulture and others	Improving conditions for market women who sell vegetables and other products	Sirleaf Market Women's Fund (Liberia, launched in 2006)	Multiple grants from different donors, all focused on projects that target market women. Women sell a variety of commodities, including vegetables.	Local nonprofit

Value Chain	Intervention Reaching Women	Project	Scope of Intervention and Project	Organization
Horticulture		Enhancing Market Access for African Leafy Vegetables (2003–2006)	Project implemented in Kenya and Tanzania. Reached 27,000 producers in Kenya. Marketing is the focus of the FCI project, along with improved production and seed provision. Part of a larger initiative.	Farm Concern International
Maize and others	Support to women in post-harvest handling and marketing	Strengthening Value Chains for Maize and Soybeans for Ugandan Women Farmers (2012–2013)	Project reached 180 farmers. Project addresses entire value chain. In total, it has five objectives; one relates to maize marketing and another to production and marketing records.	FtF Niche Project
Maize	New marketing system for women	JEEViKA (Bihar, 2007–2016)	\$235.8-million project. TechnoServe's component is a pilot within the project. Technical assistance project for JEEVIKA. Maize marketing is one of two elements of TechnoServe support.	TechnoServe
Maize and others	Increase women's participation in marketing through farmer organizations	P4P (2009–2013)	Project implemented in 20 countries, reached 1.7 million farmers (25 percent of whom were women).	WFP
Maize and others	Collective marketing	Manyakabi Area Cooperative Enterprise (Uganda, 2002–Present)	Cooperative with 28 farmer groups in 2011. Has 7,146 female members and 694 male members.	Local cooperative
Groundnuts and others		Pathways to Empowerment (Malawi, 2012–Present)	Targets 12,000 female farmers in Malawi. Malawi is one of six countries.	CARE

APPENDIX II: SOURCES

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