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TANZANIA AGRICULTURE PRODUCTIVITY PROGRAM (TAPP)

FINAL REPORT 2009 - 2015



October 2009 – August 2015

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Cover photo: Over the course of the project, USAID-TAPP market linkage facilitation generated more than \$2 million in sales and helped increase incomes for thousands of smallholder farmers.

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The author's views expressed in this publication do not necessarily reflect the views of the United States Agency for International Development (USAID) or the United States government.

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ACKNOWLEDGEMENTS

The accomplishments of the USAID Tanzania Agriculture Productivity Program (USAID-TAPP) would not have been possible without the hard work and collaboration of so many partners, counterparts, and client beneficiaries.

Firstly, it was the vision of USAID/Tanzania that guided US government investment from the onset and throughout the project's five years of operation. As a key part of Feed the Future in Tanzania, USAID-TAPP's success would not have been possible without the leadership and management support the Mission provided. We would particularly like to extend our gratitude to David Nyange, Maurice Shines, Mark Henderson, Alicia Contreras, Adam Stefan, David Charles, Tom Hobgood, Mary Hobbs, and Randy Chester, who worked tirelessly with us to ensure rapid delivery of program products and services, and to find solutions to any challenges that arose.

We were very fortunate to collaborate with an exceptionally strong and dedicated array of local organizations and government bodies in Tanzania. A total of 52 organizations, both private and nonprofit partnered with USAID-TAPP to better serve the horticulture industry. Working with our partners and the Government of Tanzania, USAID-TAPP targeted efforts on selected crops, especially in SAGCOT, to transform the country's food security. It is these organizations and their commitment to smallholder integration and synergistic value chains that will ensure the ongoing success and development of the Tanzanian horticultural industry. We also want to extend a special thanks to TAHA for their collaboration and leadership.

USAID-TAPP was able to meet, and in most cases, exceed project targets, changing the perception of horticulture farming in Tanzania. This would not be possible without the unwavering dedication of our outstanding program staff. This team personified what we believe development work is all about: hard work, skill, respect, and heart. You honored our company, this program, and Tanzania. Congratulations on a job extremely well done.

Finally, the success of USAID-TAPP is directly tied to the hard work and entrepreneurial spirit of the smallholder Tanzanian farmers who were willing to take on the new technologies and good agricultural practices we introduced. Our clients were the cornerstone of USAID-TAPP and represent the future of the agricultural sector in Tanzania.

So, to the thousands of smallholder farmers who participated in our trainings, demonstration plots, marketing activities, and field days – a huge thank you and hearty congratulations.



Claire Starkey
President,
Fintrac Inc.





I. EXECUTIVE SUMMARY

The primary goal of the Tanzania Agriculture Productivity Program (TAPP), funded by the United States Agency for International Development (USAID) as part of the Feed the Future initiative, was to increase smallholder incomes, improve nutrition, and expand markets. Established in October 2009, this five-year project impacted **61,584 households** across 12 regions, exceeding the project's goal by almost 54 percent. Focusing on high-value horticultural crops including African eggplant, avocado, cabbage, green beans, Irish potato, onion, sweet pepper, tomato, and watermelon, the project successfully:

IMPROVED SMALLHOLDER PRODUCTIVITY

Under USAID-TAPP, introducing improved technologies and good agricultural practices to smallholder farmers was a key driver for improving crop yields, reducing production costs, and increasing farm incomes. Major accomplishments included:

- **61,584** rural households achieved average gross margins of **\$3,906** per hectare (from a target of \$3,500 per hectare).
- Yields for select high value crops increased by **203 percent** (from 9 tons to 27.3 tons per hectare).
- The project recorded **85,590 unique trainees**, exceeding the project's overall target.

- Improved agricultural technologies introduced on USAID-TAPP's demonstration sites were adopted by **52,968 smallholder farmers** across **23,159 hectares** of land.

INCREASED MARKET ACCESS

USAID-TAPP ensured that Tanzanian farmers were able to capitalize on increased production and compete on a regional level. The project implemented market orientated interventions through which:

- Total incremental sales over the life of the project exceeded **\$90 million**. Farm level sales represented **63 percent** of this total and remaining sales were from project partners working along the horticulture value chain.

- USAID-TAPP market linkage facilitation generated more than **\$2 million** in sales.

- **Forty-nine value added products** were successfully introduced to the market.

ENHANCED LOCAL CAPACITY

USAID-TAPP's partnership program was a critical piece in the project's strategy to build a productive, efficient, and profitable horticulture sector for smallholder farmers. As a result:

- USAID-TAPP worked with **52** formal partners in the horticulture sector in addition to **1,158** enterprises, organizations, and associations.

- Partners impacted more than **23,600 direct beneficiaries**, trained over **40,000 individuals**, invested **\$6.9 million** in horticultural value chains, and saw more than **\$33.7 million** in incremental sales as a result.

IMPROVED ACCESS TO INPUTS AND TECHNOLOGY

One of the biggest constraints to Tanzanian smallholder farmers in achieving increased productivity is lack of access to quality agriculture inputs. To address this gap:

- USAID-TAPP partnered with **11** input, technology, and service providers across multiple regions to increase access to essential inputs.

- The project initiated a voucher program which resulted in **1,000 farmers** purchasing **\$380,000 in inputs**, and new sustainable procurement networks.

- USAID-TAPP partnered with **nine financial institutions** in a pilot finance program, and all nine have committed to

continuing the loan program despite the close of the project.

INTEGRATED GENDER AND YOUTH

Recognizing the importance of integrating women and youth into the Tanzanian agriculture sector, USAID-TAPP introduced specific time saving technologies, and marketing and business development techniques tailored to their needs, which underscored the viability of agriculture as a business.

- **40 percent** of USAID-TAPP's training participants were women and **26 percent** were youth.

INTEGRATED HIV AND VULNERABLE HOUSEHOLD INTERVENTIONS

USAID-TAPP conducted trainings and provided support concentrated on HIV/AIDS prevention and targeted vulnerable households through which:

- **68,424** individuals and or groups received HIV prevention interventions.

- **4,000 vulnerable households** benefited from USAID-TAPP assistance.

IMPROVED NUTRITION BEHAVIORS

In 2012, USAID-TAPP expanded activities per Feed the Future guidance to include nutrition. Through strategic partnerships, USAID-TAPP implemented activities to improve nutrition resulting in:

- More than **10,700 individuals** having access to home or community gardens established under the project.

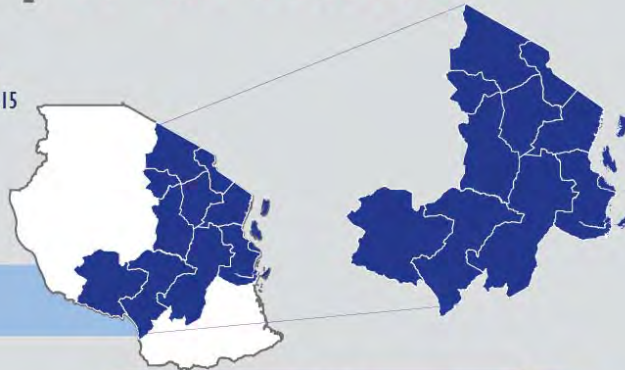
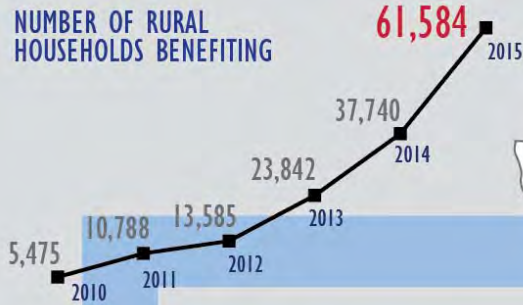
- **2,071 nutrition-related trainings** were conducted with more than **42,000 participants**.

The final status of all project indicators is presented in the Annex section of this report. Following is an infographic showing USAID-TAPP's impact, as seen through select indicators.



USAID-TAPP BY THE NUMBERS

NUMBER OF RURAL HOUSEHOLDS BENEFITING



TRAINING

TOTAL NUMBER OF TRAINEES

70,301

FARMERS APPLYING TECHNOLOGIES

52,968

TOTAL INVESTMENT **\$22.4 million**

ADOPTION

TOTAL HECTARES UNDER IMPROVED TECHNOLOGIES: **23,159**



20,557

OPTIMAL PLANTING DENSITY



14,510

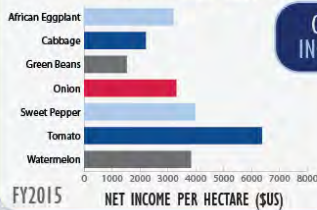
CROP ROTATION



13,195

RAISED BEDS

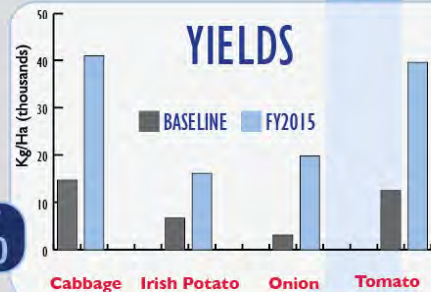
GROSS MARGINS BY CROP



ON AVERAGE, NET INCOME INCREASED **188%**

ON AVERAGE, NET YIELD INCREASED **203%**

YIELDS



INCOME

TOTAL VALUE OF INCREMENTAL SALES **\$90.5 million**

TOMATO SALES **\$18,488,260**

ONION SALES **\$5,018,234**

IRISH POTATO SALES **\$4,223,314**

YIELDS



2. OVERVIEW OF PROJECT

2.1 PROJECT DESCRIPTION

USAID-TAPP increased incomes for smallholder farmers, improving nutrition, and expanding markets through agricultural innovation and commercialization. The program was part of Feed the Future, the US government's global hunger and food security initiative to break the cycle of hunger and poverty in the developing world. Feed the Future is focusing on the Southern Agricultural Growth Corridor (SAGCOT), a region the Tanzanian government has identified as the most conducive for agricultural growth. Working with our partners and the Government of Tanzania, USAID-TAPP focused efforts on selected crops and regions, including SAGCOT, to help transform the country's food security.

2.2 GOALS AND OBJECTIVES

The overall goal of USAID-TAPP was to raise rural incomes, improve nutrition, and expand markets. The program benefited more than 61,000 rural families (299,000 individuals) by effectively transferring technology and business skills to farmers, attaining sustainable increases in rural incomes, and enhancing institutional capacity in the public and private sectors. The program integrated efforts to address the impact of HIV/AIDS in rural communities and placed a strong emphasis on encouraging women and youth to better understand the potential of horticulture as a business. The principles of good agricultural practices (GAPs) guided all cropping programs to ensure that the environment would be protected and enhanced.

2.3 APPROACH AND METHODOLOGY

To raise rural incomes and improve nutrition, USAID-TAPP focused on the horticulture value chain as a whole, and actively addressed the main constraints faced by smallholder farmers in the target regions. Activities included:

- **Transferring good agricultural practices to smallholder farmers:** Smallholder farmers need programmed, reliable technical assistance and training to experience the full benefits of the

USAID-TAPP-promoted technological package in order to enhance adoption. Two key characteristics of USAID-TAPP implementation were:

- 1) Regular and recurrent (weekly) technical assistance visits to project beneficiaries, and
- 2) Practical training (learning by doing), where in addition to the theory behind certain technologies, project staff executed the technologies on farms together with participants.

- **Reducing logistics costs:** Costs were reduced through the creation of production clusters to generate higher volumes in a focused zone, including programming of harvest days, which substantially reduced time and distances of produce collection for buyers.
- **Leveraging resources and markets through partnerships:** Partnerships with small, medium, and large companies increased opportunities for smallholder farmers to obtain updated inputs, new technologies, and reach markets, which also allowed the project to expand its outreach and results. A total of 52 organizations, both private and nonprofit, partnered with USAID-TAPP to better serve the horticulture industry.
- **Training rural enterprises in business management:** Business skills were taught to farmers in parallel with agronomic skills to ensure sustainability of profitable farm operations. USAID-TAPP's multi-skilled teams worked in close coordination for integrated support.
- **Increasing availability of inputs and financial products:** When the benefits of utilizing the new technologies promoted by USAID-TAPP become evident to farmers, the demand for these inputs increased. USAID-TAPP facilitated the entry of reputable input providers into the zone of influence, and established initial links between input providers and farmer communities. Once farmers start adopting new production systems, the risks associated with farming are substantially reduced. USAID-TAPP introduced financial institutions to its farming technologies and models, and assisted them in developing tailor made financial products to better serve horticulture farmers.
- **Creating new, longstanding buyer linkages:** Project marketing specialists worked together with buyers in the main markets to better understand their needs and specific requirements, and worked closely with the production team to develop production programs to meet the beneficiaries' needs. This resulted in the establishment of long-term business relationships between project farmers and buyers.
- **Market-led production:** USAID-TAPP highlighted the importance of crop selection based on market potential. For beneficiaries to farm on a commercial scale, they need to understand which crops to produce. This is the starting point of farming as a business.
- **Integrated interventions** (all technical areas): USAID-TAPP's intervention involved all stakeholders in the value chain, which was essential to efficiently maximize results and improve sustainability.
- **Nutrition interventions:** The nutrition activities touched all USAID-TAPP beneficiaries with training on the fundamental importance of an improved nutrition for young children and nursing or pregnant mothers. In addition to this, all farmers and their families were encouraged to plant nutritious fruits and vegetables on their farms and in their homes or communities and were supported by local USAID-TAPP partners. Participating households learned how to grow nutritious vegetables in their homes through different low-cost and low-input production systems such as sack gardens, keyhole gardens, small plots with nutrient-rich crops, and community gardens. To promote behavioral change, recipes were developed featuring nutritious foods and cooking demonstrations were carried out in all zones of influence. Improved farmer productivity was demonstrated thanks to better nutrition.

During implementation, the project considered several factors to achieve successful interventions and provide alternative options for a diverse group of farmers. Some examples of factors included:

- Selection of high value horticulture crops, varying by location.
- Distances from farms to potential markets.

- Market demands and opportunities.
- Specific climatic and agronomic conditions.
- Participants' attitudes and willingness to apply new technologies.
- Provision of a diversity of crop alternatives requiring different levels of investments and different levels of technology requirements, to suit a wider range of potential beneficiaries.

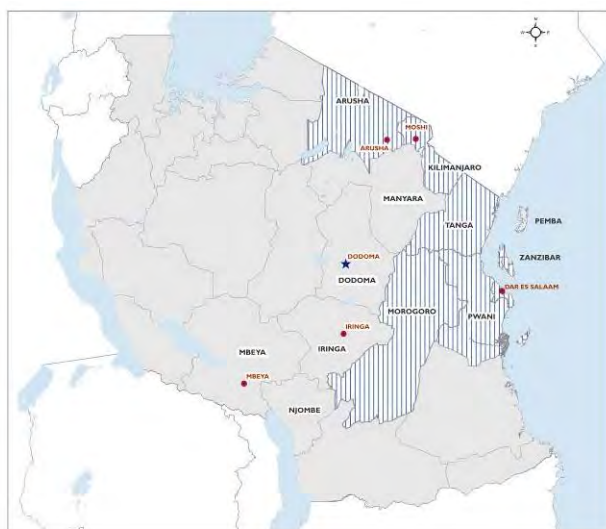
2.4 ZONE OF INFLUENCE EXPANSION

Initially, in late 2009, USAID-TAPP's statement of work was based on the USAID/TZ Economic Growth Framework, under Strategic Objective 12: Incomes of Small Farmers Increased in Selected Agricultural Commodity Subsectors (Horticulture Sub Sector). The USAID-TAPP program goal was to "scale up and sustain achievements made by two predecessor projects: Tanzania Air-Freight Project (TAP), and Smallholder Horticulture Vegetable Outgrowers Promotion (SHOP)". The program was to reach out to at least 10,000 farmers, and cover select districts in Kilimanjaro, Arusha, Tanga, Coast, Dar es Salaam, and Morogoro regions and the Zanzibar Isles.

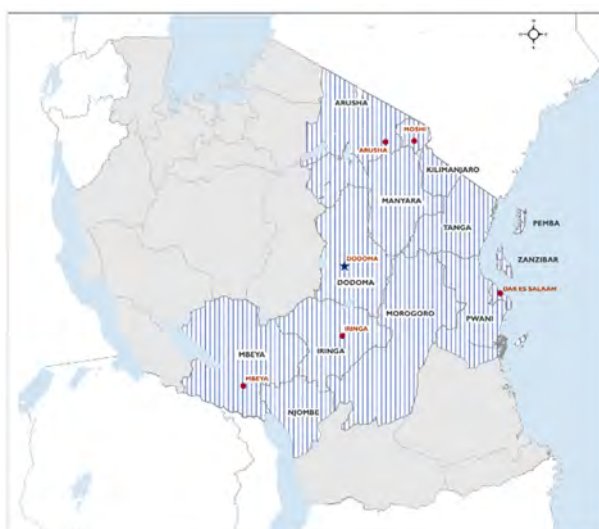
At the start of FY 2012, in response to the new Feed the Future initiative, USAID-TAPP realigned its Zone of Influence and expanded into the Southern Agricultural Growth Corridor of Tanzania (SAGCOT), and Manyara. During this time, the program was required to scale up activities and results, increasing the total number of beneficiaries to be reached to 40,000.

Below are maps of the project's zones of influence pre- and post-Feed the Future.

2010



2015



2.5 PRODUCTION TECHNOLOGIES

USAID-TAPP regularly advocated and demonstrated a core package of recommended technologies to all beneficiary farmers. The technologies included the following:

- **Good Land Preparation Practices**, including careful plot selection, land preparation, soil amendment, and improved soil structure, results in higher productivity and product quality.
- **Hybrid Seeds** increase yields by up to 100 percent more than traditional open-pollinated seeds, ensuring maximum seed germination and plant yield.
- **Seed Trays** ensure that the right amount of soil and water are used when germinating plants, reducing seedling loss and producing strong, healthy seedlings for planting.

- **Proper Plant Spacing**, preventing plants from competing for light, water, and nutrients maximizes yields on even the smallest of plots.
- **Raised Beds** provide plants with light, airy soil that offers better access to water, air, and nutrients, ensuring healthy root development and strong plant growth.
- **Plant Trellising** raises fruit and vegetable crops off the ground to decrease crop loss due to rot, blight, and disease; trellising also improves pest management and harvest practices.
- **Integrated Pest Management (IPM)** improves the quantity and quality of production through the systematic monitoring of pest levels, identifying outbreaks early, and combining natural, mechanical, and chemical controls to reduce the need for expensive pesticides.
- **Irrigation Systems**, especially water-conserving drip irrigation, greatly reduce farmer reliance on unpredictable rains and ensure more reliable, sustainably managed production.

USAID-TAPP-promoted technologies are spreading across the country as more and more farmers experience substantial increases in yields and income. Neighboring farmers and stakeholders are visiting highly profitable farms in regions with a USAID-TAPP presence in addition to the Practical Training Centers (PTCs). Lead farmers proudly and willingly offered their farms as training sites for field days throughout the life of the project. Through feedback from other development initiatives in Tanzania, USAID-TAPP-supported farms stood out and generated significant interest and recognition. This helped start the transformation of making USAID-TAPP technologies and practices become the 'new norm' in the horticulture sector.



3. INDICATORS, TARGETS, AND RESULTS

USAID-TAPP was able to meet and, in most cases, exceed project targets, changing the perception of horticulture farming in Tanzania. Throughout the project, thousands of farmers across Tanzania improved their lives through increased productivity, stimulating further investments in horticulture, and permanently changing their way of living. Companies providing goods and services to the sector also observed substantial improvements in their operations. USAID-TAPP's main activities focused centrally on contributing to the Mission's Objective #1: Inclusive Agricultural Sector Growth, and its intermediate results, namely:

- Intermediate Result 1: Improved Agricultural Sector Productivity
- Intermediate Result 2: Expand Markets and Trade
- Intermediate Result 3: Increased Private Sector Investment in Agriculture and Nutrition Related Activities

The following chapter describes the project's main targets and its final results by objective, results, and intermediate results.

3.1 HIGH-LEVEL RESULTS

USAID-TAPP exceeded its high level targets: 61,584 rural households benefited from project interventions (from a target of 40,000), and achieved average gross margins of \$3,906 per hectare (from a target of \$3,500 per hectare).

Table 1: High-level Results

Indicator	Type	Achieved Through FY 2014	FY 2015 Achieved	FY 2015 Target	Achieved to Date	LOP Target	Units	
OBJECTIVE: Inclusive Agricultural Sector Growth								
1	Number of rural households benefiting directly from USG interventions	FTF 4.5.2-13	37,740	23,844	2,260	61,584	40,000	Rural Households
2	Gross margin per hectare of selected product*	FTF 4.5-16	3,750	3,906	3,500	3,906	3,500	US\$/Ha/ Crop Cycle
Intermediate Result 1: Improved Agricultural Productivity								
3	Percent change in yields of targeted products*	TAPP	148	203	45	203	45	Percent

In the last few years of implementation, and as an exit strategy, the project focused on properly supporting farmers who joined in late 2013 and 2014 to change their farming methods permanently, only setting modest targets for new rural households benefiting and reduced the number of new project participants. This did not take into account the growth momentum of partner operations and their continued expansion of their outgrower or client bases. In addition, neighboring farmers of USAID-TAPP beneficiaries who had seen positive results in their areas started to participate proactively in trainings and attended farmer field days. Before adding these participants as beneficiaries, the project conducted a survey to determine whether these groups had adopted new technologies or business practices in their farms. The recent survey showed that the participants had not only attended trainings, but also adopted modern farming practices and achieved better results on their farms.

From the onset, USAID-TAPP identified high-value crops and examined market windows and opportunities to improve gross margins for smallholder farmers across the zone of influence. In addition to helping farmers make informed, market-led crop selection, the project focused on transferring modern farming practices. These practices had high rates of adoption and resulted in farmers increasing their yields from 9 tons per hectare to 27 tons per hectare (a 203 percent increase). This combination of informed market decisions on what to produce, and higher productivity led to high gross margins.

Table 2: Gross Margins and Productivity Changes for Select Key Horticulture Crops.

Crop	Baseline Yield (Tons/Ha)	2015 Yield (Tons/Ha)	Percent Change in Yield	Baseline Gross Margin (USD/Ha)	2015 Gross Margin (USD/Ha)	Percent Change in Gross Margin
Cabbage	14	40	178%	1,860	2,211	19%
Green Beans	1	5	415%	710	1,525	115%
Irish Potato	6	16	142%	489	1,769	261%
Onion	3	19	539%	659	3,306	401%
Sweet Pepper	2	16	734%	1,221	3,971	225%
Tomato	12	39	215%	1,986	6,373	221%

USAID-TAPP promoted crop diversification to increase market opportunities and lower risks of relying too heavily on one crop. By 2015, farmers were less dependent on growing tomatoes due to better understanding of market opportunities and a confidence in growing other crops. For example the baseline for tomato was 20.4 percent of all area under production by USAID-TAPP farmers. By 2015 tomato production accounted for only 16 percent.

USAID-TAPP took a crop specific approach for interventions, ensuring that each intervention took into consideration regional environmental issues. Specific interventions based on crops are described in Table 3:

Table 3: Crop Specific Interventions

Crop	Interventions
Tomato	<ul style="list-style-type: none"> Broad adoption of hybrid seed varieties – Assila FI, Anna FI, Eden, Shanty, Devine, Nowara Proper trellising of tomatoes Better disease control
Onion	<ul style="list-style-type: none"> Broad adoption of hybrid seed varieties – Neptune & Jambar Use of plant marker for optimal plant spacing Planting in raised beds
Watermelon	<ul style="list-style-type: none"> Broad adoption of hybrid seed varieties – Zukari FI & Pata Negra Improved cultural practices
Irish Potato	<ul style="list-style-type: none"> Collaborated with Mtanga Farms in Iringa to introduce their new potato varieties to USAID-TAPP farmers Improved disease control through basic practices
Carrots	<ul style="list-style-type: none"> Improved germination and crop density through use of simple planting and thinning technologies
Banana	<ul style="list-style-type: none"> Promote use of tissue culture planting material to avoid pests and diseases Promoted high density plantings for a 3 to 4 fold increase in number of plants and harvested bunches

USAID-TAPP finalized data collection through a sample survey which finished in August 2015. As part of the final survey, the respondents indicating that their income was higher than before working with USAID-TAPP also provided interesting findings. For example, 73 percent invested in education, 58 percent made home improvements, 52 percent invested in health, 41 percent made investments in their farm, and 16 percent added to their savings.

3.2 IMPROVED PRODUCTION PRACTICES AND TECHNOLOGY ADOPTION

Table 4: Improved Production Practices and Increased Technology Adoption

Indicator	Type	Achieved Through FY 2014	FY 2015 Achieved	FY 2015 Target	Achieved to Date	LOP Target	Units	
Sub-IR 1.1: Improved Production Practices								
4	Number of individuals who have received USG supported short-term agricultural sector productivity or food security training ¹	FTF 4.5.2-7	54,693	27,937	15,000	70,301	38,545	Individuals
			33,702	16,960		42,753	22,800	Individuals (Male)
			20,991	10,977		27,548	15,745	Individuals (Female)

Indicator	Type	Achieved Through FY 2014	FY 2015 Achieved	FY 2015 Target	Achieved to Date	LOP Target	Units	
Sub-IR 1.2: Increased Technology Adoption								
5	Number of hectares of land under improved technologies or management practices as a result of USG Assistance*	FTF 4.5.2-2	12,189	23,159	9,500	23,159	21,000	Hectares
6	Number of farmers and others who have applied improved technologies or management practices as a result of USG assistance*	FTF 4.5.2-5	28,539	52,968	30,000	52,968	21,000	Farmers
			16,716	34,122		34,122	12,500	Farmers (Male)
			11,823	18,846		18,846	8,500	Farmers (Female)
7	Number of private enterprises, producer organizations, water user associations, women's groups, trade and business associations and community-based organizations (CBOs) that applied new technologies or management practices as a result of USG assistance	FTF 4.5.2-28	1,085	73	40	1,158	1,125	Orgs/Assns

USAID-TAPP's main approach to demonstrating improved production practices was to deliver training and technical assistance. To maximize outreach, the project trained smallholder farmers directly, and also worked closely with government and partner stakeholders to build the capacity of extension workers. Throughout the project, USAID-TAPP trained 70,301 individuals (61 percent male, 39 percent female) in a wide range of agricultural sector productivity or food security training (figure is exclusive of other USAID-TAPP focused trainings like nutrition or HIV). Trainings mostly took place in small plots

Table 5: Individuals Trained by Region

Region	Females	Males	Total
Arusha	2,917	5,878	8,795
Dar es Salaam	118	211	329
Dodoma	447	687	1,134
Iringa	6,603	7,701	14,304
Kilimanjaro	2,627	5,336	7,963
Manyara	822	2,283	3,105
Mbeya	1,809	3,967	5,776
Morogoro	4,593	7,905	12,498
Njombe	3,801	3,265	7,066
Pwani	566	1,134	1,700
Tanga	1,461	2,792	4,253
Zanzibar	1,784	1,594	3,378
Total	27,548	42,753	70,301

throughout the project's zone of influence. Simple, low-cost basic practices such as improving plant spacing, selecting hybrid seeds, and doing proper land preparation were the entry point for farmers who, after experiencing better results, continued adding additional technologies into their farms.

Table 5 shows individuals trained by region. Iringa had the most individuals trained at 14,304, (46 percent women); followed by Morogoro region, with 12,498 individuals trained (37 percent women). Njombe had the highest percent of women trained at 54 percent.

To determine the extent farmers are putting into practice the USAID-TAPP-promoted technologies, the project regularly reported on three indicators. By the end of the project, a total of 52,968 farmers (an application rate of over 99 percent for rural households receiving agricultural technical assistance) were applying improved technologies or management practices on 23,159 hectares of land as a result of project intervention. Some of the technologies and management practices most commonly adopted by farmers included spacing, crop rotation, hybrid seeds, and raised beds. During the final survey, carried out in July – August 2015, 91 percent of



Photo by Fintrac Inc.

Bahati Malekela, farmer and group leader at Faraja Idodi, shows off recently harvested tomatoes at his farm near Iringa.

farmers said they would continue to use the good agricultural practices they learned while participating in USAID-TAPP, even after the project ends. Farmers who indicated they would not continue did so because of the cost issues. This demonstrated that farmers see the value in what they have learned, and are now capable of applying new technologies in agriculture without the need of project support.

3.3 INCREASED PRIVATE INVESTMENT

Table 6: Increased Private Investment

Indicator	Type	Achieved Through FY 2014	FY 2015 Achieved	FY 2015 Target	Achieved to Date	LOP Target	Units	
Intermediate Result 2: Increased Investment								
8	Value of new client and counterpart investments	TAPP	12.448	9.982	2.613	22.430	13.000	US\$ Million
9	Value of new private sector investment in the agriculture sector or food chain leveraged by FTF implementation	FTF 4.5.2-38	6.365	0.533	2.000	6.898	-	US\$ Million

When farmers and other stakeholders from the private sector make investments in horticulture, it indicates they see opportunities in the area. Throughout the project, farmers and other counterparts invested more than \$22.4 million, exceeding the project target by 72 percent. Individual farmer investment accounted for \$13.08 million, partners invested \$6.90 million, and producer groups \$2.46 million.

Investments occurred on all sections of the value chain. Export companies such as Arusha Blooms, Africado, Rungwe Avocado Company, and HomeVeg made investments in packing, grading, transport/logistics, and collection centers to boost their business. Processing companies such as Golden Food Products, Med Foods, Natural Extract Industries, Nature Ripe, Mariet, and Bella View invested in

processing equipment to improve their production capacity, product quality, and efficiencies. Input suppliers invested in establishment of new wholesale or retail outlets, new product lines, and support for agents and representatives in new regions, among other investments. The overall results of these investments were increased sales, lower costs, and increased productivity. In general, these investments represented steady growth for the sector. Of the total investments reported under USAID-TAPP, 31 percent came from the private sector.

Despite the fact that most smallholder farmers have limited resources, their investments exceeded the project's projections. Farmers from all regions with project presence invested in drip irrigation systems, greenhouses, low cost bench nurseries, shallow wells, boreholes, reservoirs, and purchased additional land to expand their operations. Farmers' investments (both as individuals and in groups) totaled over \$15.5 million.

3.4 EXPANDING MARKETS AND TRADE

Table 7: Expanding Markets and Trade

Indicator	Type	Achieved Through FY 2014	FY 2015 Achieved	FY 2015 Target	Achieved to Date	LOP Target	Units	
Intermediate Result 3: Expanding Markets and Trade								
10	Value of incremental sales (collected at farm-level) attributed to FTF implementation*	FTF 4.5.2-23	39.04	17.78	15.00	56.82	35.00	US\$ Million
11	Value of incremental sales (collected at partner/firm level) attributed to FTF implementation ²	TAPP	1.15	32.50	1.35	33.65	5.00	US\$ Million

USAID-TAPP exceeded the incremental sales targets indicating that the vast majority of participating farmers and companies expanded their markets. Total incremental sales for the life of project exceeded \$90 million, with 63 percent of incremental sales (\$56.80 million) coming from the farm level, and \$33.60 million from project partners working along the horticulture value chain.

USAID-TAPP market linkage facilitation resulted in 1,513 sales, generating over \$2 million in over 4,597 tons of various horticulture crops. Tomatoes resulted in the most tons sold, 1,863 tons, followed by watermelon. New markets were identified for a wide range of commodities in different strategic locations. Tomato, watermelon, and



Photo by Fintrac Inc.

Humphrey Charles (in black and white), a USAID-TAPP produce buyer, weighs and sells green peppers to a customer in a market in Morogoro.

sweet pepper farmers in Iringa and Morogoro regions established solid relationships with buyers in Dar es Salaam. Large volume buyers in the main markets in Zanzibar, who were previously importing almost all of the fruits and vegetables from the mainland, are now working closely with USAID-TAPP farmers in the Islands of Unguja and Pemba. Numerous buyers from Kenya and Arusha bought onions produced in the northern regions of Kilimanjaro, Arusha, and Manyara. Potato, cabbage, and carrot farmers in Njombe and Mbeya found reliable markets for their produce in Dar es Salaam and Makambako markets.

Similarly at the firm level, processors of tomato paste, spices, juices, vanilla extract, among others, obtained new markets and expanded their market presence, both locally and regionally. Packing and exporting companies of fine beans, spices, and avocados increased their export volumes while working in partnership with USAID-TAPP. All agro-input companies that partnered with USAID-TAPP experienced substantial incremental sales.

3.5 VALUE ADDED PROCESSING AND IMPROVED VALUE CHAIN INTEGRATION

Table 8: Increased Value-added Processing and Improved Value Chain Integration

Indicator		Type	Achieved Through FY 2014	FY 2015 Achieved	FY 2015 Target	Achieved to Date	LOP Target	Units
Sub-IR 3.1: Increased Value-Added Processing								
12	Number of new value-added products introduced	TAPP	39	10	0	49	28	Value-Added Products
Sub-IR 3.3: Improved Value Chain Integration								
14	Number of firms receiving capacity building assistance to export	USAID 4.2.2-3	73	0	0	73	75	Firms
15	Number of food security private enterprises (for profit), producers organizations, water users associations, women's groups, trade and business associations, and community-based organizations (CBOs) receiving USG assistance	FTF 4.5.2-11	1,085	73	40	1,158	1,100	Orgs/ Assns

In addition to working with fresh produce, USAID-TAPP supported processing and value addition activities. A total of 49 value-added products were successfully introduced to the market with project support. Examples include a wide range of sundried fruits and vegetables, vanilla and orange extracts, spices and ground condiments, sauces, tomato paste, dried chilies, and fruit juices. These firms also provided a reliable market for USAID-TAPP farmers.



Photo by Fintrac Inc.

Processing and value addition firms help smallholder farmers introduce their products to the market.

For the subsector to grow, it needed a well-integrated value chain and to address the challenges the different stakeholders face. To address this, USAID-TAPP provided support in areas such as certification of plants and products, training of outgrowers, complying in international quality and standards, linkage to foreign markets and transport companies, among others. In order to expand outreach and establish valuable interactions between different actors, USAID-TAPP worked with farmer groups, organizations, and associations, both formal and informal. In total, USAID-TAPP worked with 1,158 enterprises, organizations, and associations throughout the zone of influence.

3.6 CROSS-CUTTING INDICATORS

Improved Access to BDS Services

As Feed the Future Tanzania's horticulture value chain activity, USAID-TAPP undertook the responsibility of working with companies and organizations in the horticulture sub-sector to make the value chain work more effectively, especially for smallholder farmers. This was a critical piece of the project's market facilitation strategy of demonstrating opportunities and encouraging growth in areas that traditionally were considered a challenge. In particular, the project looked at markets for smallholder farmers, access to inputs, quality technical support, smallholder finance, and improved coordination across the value chain.

While there were a number of interactions and initiatives with value chain actors through the project's direct field program, the main mechanism for engagement was through the project's 'grants under contracts' facility. This took the form of partnerships, where specific initiatives with the partner companies and organizations were planned and supported. During the life of project, a total of 66 Private Public Partnerships were formed. Activities and results achieved under the partnerships program are described in Chapter 4 of this report.

Table 9: Cross-cutting Indicators

Indicator	Type	Achieved Through FY 2014	FY 2015 Achieved	FY 2015 Target	Achieved to Date	LOP Target	Units	
Cross-cutting Indicators to Foster a Sustainable Enabling Environment & Improved Domestic Capacity								
Improved Access to BDS Services								
16	Number of public-private partnerships formed as a result of FTF assistance	FTF 4.5.2-12	64	2	5	66	50	PPPs
17	Number of organizations undergoing capacity assessments as a result of USG assistance	TAPP	1,149	75	45	1,224	1,150	Organizations
Improved Household Nutrition								
19	Number of beneficiaries with access to home or community gardens	USAID 3.1.9-3	8,457	2,246	215	10,703	5,500	Beneficiaries
				1,271				Male
				975				Female
Gender/Youth Equity Promoted								
20	Percentage of women/youth membership in producer organizations ³	TAPP	40	34	40	40	40	Percent (Women)
			26	25	30	26	30	Percent (Youth)
Standards								
21	Number of certified farmers	TAPP	1,491	190	209	1,681	1,700	Farmers

Improved Household Nutrition

In 2012, USAID-TAPP readjusted its focus to align with the Feed the Future Presidential Initiative, resulting in increased emphasis on nutrition activities. Through strategic partnerships, USAID-TAPP implemented activities to improve nutrition resulting in 2,071 nutrition-related trainings conducted with more than 42,000 participants. USAID-TAPP also worked on making nutritious foods available in vulnerable homes. Promoting sack gardens and keyhole gardens, which are low cost, and demand no or low inputs, making it easy for people to grow. By the end of the project 10,703 people have access to home or community gardens established under the project.

Gender and Youth Equity Promoted

Recognizing the importance of integrating women and youth into the Tanzanian agriculture sector, USAID-TAPP introduced specific time saving techniques, marketing and business development skills, and provided trainings targeted at showing women and youth the viability of agriculture as a business. USAID-TAPP provided specific trainings at times and locations more suitable for gender and youth participation. As a result 40 percent of USAID-TAPP's training participants were women and 26 percent were youth.

More information on USAID-TAPP works on nutrition, gender, and youth is in the cross-cutting section.

Standards

USAID-TAPP supported efforts for project partners in farmer certification to enable them to receive access to formal markets, as the need for certification has grown with the organization of the horticulture subsector in Tanzania. Certification programs such as GlobalGAP, Fair Trade, and various organic programs have expected farmers to adhere to certain predetermined practices to ensure food safety, environmental stewardship, traceability, and labor protection, amongst others.

To meet this need, USAID-TAPP provided certification trainers, organized farm visits, and funded training events. The companies involved in certification included export avocado companies Africado and Rungwe Avocado with 905 GlobalGAP-certified farmers; export fine bean and peas companies Arusha Blooms and Serengeti Fresh Ltd with 157 GlobalGAP-certified farmers; and export spice company Golden Food Produce with 623 IFOAM-certified farmers.

USAID-TAPP also funded a video created by Africado and a Kenyan film company that is used to help present key GlobalGAP practices by company extension agents in Tanzanian villages.

3.7 PRESIDENT'S EMERGENCY PLAN FOR AIDS RELIEF (PEPFAR) INDICATORS

PEPFAR indicators and activities were designed from project startup. In 2012, USAID-TAPP readjusted its indicators to align with the Feed the Future Presidential Initiative, resulting in a reduced focus on AIDS relief work and an increased focus on nutrition. USAID-TAPP utilized NGO partners identified for implementation of nutrition activities, as well as direct staff working on the nutrition component who already were knowledgeable on HIV prevention and care, to continue the scaled-down PEPFAR-related trainings. This enabled the project to continue creating awareness and connect with local health workers for the provision of care services. Results achieved under the PEPFAR activities include:

Table 11: Reduction of HIV/AIDS Indicator

Indicator	Type	Achieved Through FY 2014	FY 2015 Achieved	FY 2015 Target	Achieved to Date	LOP Target	Units	
HIV/AIDS Threat Reduced								
22	Number of targeted population reached with individual and/or small group level HIV prevention interventions based on evidence and/or meet the minimum standards required	PEPFAR P8.1.D	52,380	16,044	947	68,424	40,000	Training participants
				7,989				Male
				8,055				Female
23	Number of targeted population reached with individual and/or small group level HIV prevention interventions focused on abstinence and/or being faithful, and are based on evidence and/or meet the minimum standards required	PEPFAR P8.2.D	11,380	6,541	153	17,921	6,000	People
24	Number of eligible OVCs provided with a minimum of one CORE care service	PEPFAR CI.1.D	2,863	520	210	3,383	2,700	OVCs
				285				Male
				235				Female
25	Number of households with at least one OVC/MVC provided with a minimum of one economic opportunity/strengthening support	PEPFAR	1,678	192	58	1,870	1,700	Households
26	Number of vulnerable households benefiting directly from USG assistance	FTF 4.5.2-14	3,664	406	336	4,070	4,000	Households



4. PARTNERSHIPS AND GRANTS

4.1 INTRODUCTION

Partnerships were established with different stakeholders along the horticulture value chain. These were specifically targeted interventions to address the main challenges that exist in the sector. Over the life of the project, USAID-TAPP worked with 52 local companies and organizations and through these partnerships, was able to impact all areas of numerous horticulture value chains. The partners were categorized accordingly:

Buyers

Buyers constituted of a range of companies, from large exporters with formal outgrower programs and farmer contracts such as Africado, Rungwe Avocado Company, and Arusha Blooms, to smaller companies supplying local markets using informal purchasing agreements with farmers. These latter companies included Mcharo Organic Agriculture Ltd and GreenRain Ltd. In addition, USAID-TAPP worked with processors, such as, MedFoods, Natural Extracts Industries, and Mariet. Generally, these companies supplied the local market. All but one company had technical support services working with farmers in the field to help with productivity and market quality.

In total, USAID-TAPP worked with 22 'buyer' companies.

Input, Technology, and Services Suppliers

The first service provision partner was TAHA Fresh Ltd, a company co-owned by TAHA, the Tanzania Horticultural Association. This company was set up during a previous USAID-funded project and was still establishing itself at the beginning of the USAID-TAPP partnership. By the end of USAID-TAPP, TAHA

Fresh Ltd was fully sustainable for three years and had added numerous logistics services including trucking, clearing and forwarding, and a strengthened presence at the borders. They are now looking at adding sea freight to their range of services.

When USAID-TAPP was given the mandate to work in the Southern Highlands, it became apparent that there was a severe shortage of quality inputs in those regions. To address this gap, the project partnered with agro-input companies looking to expand their operations into the south. With USAID-TAPP's help, partner companies expanded in a variety of ways. Balton Tanzania set up a southern distribution and training center. Positive International established a network of franchisee shops. Kibo Trading established two retail shops in Iringa and Mbeya and greatly increased their number of field staff working with farmers. ZAIDI, a new company in Zanzibar, defined its product line and developed its retail activities based around quality products and strong technical support.



Photo by Fintrac Inc.

A Kibo Trading sales representative displays new products available at the Morogoro outlet.

USAID-TAPP assistance was critical in helping these partners define the optimum package of seeds, fertilizers, agrochemicals, and associated technologies that were to be made available to farmers. This tied in with ongoing USAID-TAPP field activities, where the project showed farmers the possibility of significant increases in yields with the right productivity package. With farmers ready to buy improved inputs and technologies and, with the demand apparent, the agro-input companies ensured these products were available. Prior to USAID-TAPP support, Positive International only carried agrochemicals and limited technologies such as knapsack sprayers. After working with USAID-TAPP farmers, the company began developing their own line of hybrid seeds and bringing in drip kits to compete with the other companies who were already offering drip irrigation.

USAID-TAPP also worked in planting material inputs, partnering with local organization EcoAgriConsult to produce and distribute tissue cultured banana and orange-flesh sweet potato (OFSP) planting materials. In Zanzibar, USAID-TAPP also worked with the International Institute for Tropical Agriculture (IITA) on sanitation methods for infected banana planting material using hot water. When A to Z, a large Tanzanian plastics company, decided to enter into the agriculture sector, USAID-TAPP was able to guide them and provide on-farm research to understand the utility and adoption of their first products.

In total, USAID-TAPP partnered with 11 input, technology, and service providers.

Associations and NGOs

USAID-TAPP's prime partner through project implementation was TAHA, with the two entities working closely throughout. In particular, USAID-TAPP helped develop TAHA's technical services department and with general institutional capacity building. TAHA, in turn, amplified the efforts of USAID-TAPP, allowing key stakeholders to recognize advances of the horticulture sub-sector which led to strong mainland and Zanzibar government support, from central government through to local government authorities.

USAID-TAPP also partnered with associations and NGOs working locally, who focused on providing services at the grassroots level to smallholder farmers. These organizations can be divided into organizations primarily giving health and nutrition support, such as Iringa Mercy Organization (IMO) and Global Service Corps (GSC), and those giving agricultural support, such as Floresta and VSO.

In total, USAID-TAPP worked with 19 NGOs.

4.2 PARTNERING AND INTERVENTION STRATEGIES

Overall, USAID-TAPP helped its partners expand and improve their engagement with smallholder farmers by, in most cases, having properly trained field staff work with farmers to produce more effectively and profitably. Coordination and logistic activities were equally important. The specific areas of support included the following:

Agronomic training and field activities

USAID-TAPP worked with its partners to address low smallholder productivity primarily through increasing knowledge levels and understanding of commercial agriculture requirements. Additionally, USAID-TAPP helped provide farmers access to available inputs, technologies, and services. More than 50 properly trained agronomists were embedded into partner companies and organizations and given the means to visit farmers. When specific technical support was needed, consultants were brought in to help with activities such as mango tree pruning, avocado production, or vanilla production. In terms of inputs, some of the more formal outgrower programs used revolving credit programs, allowing farmers access to the necessary inputs prior to production. Farmers were linked with the new or improved retail outlets set up through the project's work with agro-input suppliers.

Field activities for field officers also included coordination of planting programs, implementation of standards programs, harvesting, record keeping, and logistics. USAID-TAPP supported these activities through bringing in consultants for assistance with Global GAP certification, training on postharvest handling, and funding harvesting equipment such as plastic crates, weighing scales, and software.

Marketing and Branding

With a focus on the processing companies, USAID-TAPP facilitated the engagement of marketing and branding companies and consultants. This was a critical piece of the project's support to the processing companies – sales needed to keep up with the increased volumes of processed products. Without these increased sales, the company would have a backlog of unsold products and a cash flow and storage problem.

The companies developed market plans and conducted research into new markets and retail opportunities. One partner, MedFoods, rebranded their products so that did not look as similar to the competitors' products. MedFoods recently started selling into the large Kenyan supermarket chain, Nakumatt, thanks to USAID-TAPP marketing support. Combined incremental sales achieved by the companies receiving marketing assistance was \$480,282.



Processing

All of the project's processing partners increased processing capacity while working with USAID-TAPP through having well-designed, well-run facilities with the right processing equipment. Increasing processing capacity involved careful management of the equipment, supplies, materials, and human resources. USAID-TAPP hired an on-call processing consultant that helped with selection of processing equipment, the commissioning of the new equipment, and setting up of operating and maintenance systems. However, the consultant's main contribution was creating improved management systems for the facilities. Most companies were running inefficiently, and the improved systems allowed for increased productivity, profitability, and sustainability.

Information, Communication, and Technology (ICT)

As a part of USAID-TAPP support, a consulting firm was brought in to help understand the mobile landscape and evaluate the opportunities for the different partners working with the project. With mobile phones and mobile banking being commonplace in Tanzania, including frequent use of agriculture/business-related applications, consultants conducted individual needs assessments for each company to understand how they could better incorporate ICT into their operations. Partners attended a workshop on the state of the industry with regards to ICT, including short- and medium-term opportunities, and the consultants followed up with the individual companies involved. In general, there was limited use of ICT by the companies in terms of smallholder farmer engagement.

Financial Systems

All USAID-TAPP partners were assessed on their financial systems before partner agreements were signed. Partnerships were run as cost-reimbursable or fixed price contracts, and strong financial systems were required. As a general result of USAID-TAPP partnership, project partners' systems improved. A number of partners migrated to computer-based systems using software such as Quickbooks. Some of the smaller companies were assisted with simple Excel systems. In one case, assistance included the commissioning of a consultant to develop an integrated system that would help on both an operational and a financial level. This included tracking inventory and forecasting procurement activities as well as development of reports for reporting requirements to the project.

Monitoring and Evaluation (M&E)

While partners were expected to have existing competencies in monitoring and evaluation, it also improved with support from USAID-TAPP. In many cases, companies did not have a high capacity in keeping records of their activities, and they often did not use the business data collected in a meaningful way. Poor reporting from partner field officers caused difficulties in collecting field data and had implications on their management. USAID-TAPP M&E specialists worked closely with project partners to improve their data collection, analysis, and reporting systems, which immediately impacted their reporting to USAID-TAPP, but had more significant and long-term impacts on the running of their organizations.

USAID-TAPP PARTNERS: BY THE NUMBERS

The first sub-awardee (“partner”) agreement was signed in January 2010. Since then:

52 Local companies and organizations have worked with USAID-TAPP

33 Private companies

- 17 With outgrower schemes (for domestic and export markets)
- 11 Suppliers of inputs, technologies, and services
- 3 Processors with outgrower schemes
- 2 Processors

19 NGOs or associations

- 9 Focused on community health and nutrition initiatives
- 10 Focused on agriculture income generation

USAID-TAPP has spent \$8,573,233 on its partner program.

RESULTS



23,000 direct beneficiaries registered under partners.



More than 40,000 people trained on horticulture, health, and nutrition.



\$7,000,000 in private sector capital investments



More than \$33,000,000 in incremental sales (ROI of 1:4.5)

4.3 KEY ACHIEVEMENTS

There were sustainable impacts and achievements in many areas of the partner organizations’ operations, and systemic improvements in efficiencies and productivity which led to greater engagement with smallholder farmers. For private sector partners, these improvements also led to increased profits. USAID-TAPP’s partners directly benefited 23,602 households and trained more than 40,000 individuals.

The private sector companies invested \$6,898,000 in capital expenditures to expand operations. Farmers invested \$450,949 in equipment, technologies, and long term inputs, such as tree seedlings from the program’s agro-input and technologies partners, not including the purchases of improved agro-inputs such as hybrid seeds, fertilizers, and short term crop planting materials. These purchases are reflected in the \$5,086,530 in incremental sales earned by the agro-input and technology companies working with USAID-TAPP. USAID-TAPP partner organizations earned a total of \$33,659,680 in incremental sales.

In addition to the big-picture results, individual partner organizations had significant achievements:

Africado Exporter of Hass avocados; outgrower program	Sales increased 18-fold from 2011 to 2014. The preliminary data for the 2015 season shows that 2,400 MT were exported. 180 MT came from outgrowers. The total value of these avocados is expected to reach \$4,125,000.
	The company works with 2,219 outgrowers and with their trees only now starting to produce commercial quantities of fruit, the proportion of outgrower fruit being exported is going to increase rapidly.

Rungwe Avocado Company Exporter of Hass avocados; outgrower program	Exported 600 MT with 139 MT coming from their 1,146 outgrowers. This was a 30 percent increase from last year. 2015 was the first year with significant local/regional sales totaling 200 MT.
Natural Extracts Industries (NEI) Smallholder vanilla buyer and processor with local and international markets	37,000 vanilla vines were distributed to 1,260 farmers. Developed and disseminated a processing manual and production manual on vanilla.
Balton TZ National agro-inputs and technology company	Established a zonal training and distribution center near Iringa to service the Southern Highlands in June 2014. In the last six months, this center has generated more than \$500,000 in sales. Based on strong farmer demand, the company has hired high level seed and drip irrigation specialists to their team and has greatly increased their stocks of inputs and technologies in the country.
EcoAgriConsult Tissue culture company producing banana and OFSP material	Expanded tissue culture facility from four technical staff to 15 technical staff. The facility also started producing tissue cultures of cassava, coffee, pineapple, and Irish potato. Established multiplication sites for further dissemination of OFSP vines in select regions.
Medfoods Processing company producing spices, teas, and flours	Seventy-seven new locations in northern Tanzania are carrying MedFoods' products including the large Kenyan supermarket chain, Nakumatt. Company rebrand to bolster marketing efforts. Average monthly purchases of smallholder products increased from \$2-3,000 to \$5-6,000.
Mariet Processing company producing tomato and chili sauces	Company moved into modern facilities that were TFDA and TBS compliant. Production has increased 16-fold since 2012. Owner selected to represent TZ women processors in Middle East.
Njombe Agricultural Development Organization (NADO) Farmer association	11,500 individuals trained in vegetable production, health, and nutrition. 144 community gardens established.
Global Service Corps (GSC) Rural development NGO - northern TZ	12,000 individuals trained in vegetable production, health, and nutrition. 6,355 individuals with access to home or community gardens. Nutritional assessment tools developed for continued nutrition community work.

4.4 SUSTAINABILITY AND EXIT PLAN

Over the life of the project, USAID-TAPP focused on sustainability when approaching activities. USAID-TAPP designed private sector initiatives that were profitable for both smallholder farmers and the companies that supplied inputs or purchased harvested products. This gave both parties the incentive to continue their business relationship after the project ceased. Strengthening the contact and communication between farmers and companies was critical to allowing for proper market development. Generally, this approach relied on early, strategic project interventions during the partnership, followed by a period of consolidation and maturation with reduced project input. This helped private sector companies acclimate to the new growth with oversight from the project. At project close, these companies were largely functioning independently of project support.



5. CROSS-CUTTING THEMES

In order to reach USAID-TAPP's overall goals, the project incorporated cross-cutting themes to ensure sustainability and inclusivity. Cross-cutting themes, business development services, access to finance, institutional support, and technology funds were all essential components in ensuring USAID-TAPP reached all agricultural stakeholders within Tanzania, and capitalized on its potential and future players.

5.1 IMPROVED HOUSEHOLD NUTRITION

To achieve the project's main goal of increased productivity and incomes, USAID-TAPP and its nutrition partners ensured participants were adequately trained in nutrition and technical expertise on producing nutritious commodities in their own homes or communities, at low cost. Regardless of how limited beneficiary families' resources were, USAID-TAPP promoted a variety of technologies to grow nutritious foods, allowing participants to adapt using what worked best for their situation. Technologies such as sack gardens and keyhole gardens were particularly useful for homes with limited space for farming and limited water availability. In certain villages where strong groups formed, USAID-TAPP assisted in the development of community gardens. USAID-TAPP worked with schools by establishing plots with nutritious foods to reach households with school-aged children. Many of these programs included plots for multiplication of OFSP vines, which were then given to the children for planting at home. With project support, a total of 10,703 individuals received access to home or community gardens.

USAID-TAPP and its nutrition partners also worked to promote behavior change in the communities, ensuring families learned how to incorporate key nutritious foods into their diets. Participants attended cooking demonstrations focused on sharing various nutritious recipes, and other trainings focused on nutrition. In total, 2,071 trainings were carried out in nutrition-related subjects, with more than 42,000 participants receiving training. Of these trainings, 489 were through USAID-TAPP nutrition partners which included GSC, Huruma AIDS Concern and Care (HACOCA), Zanzibar Association of People Living with

HIV/AIDS (ZAPHA+), NADO, IMO, and Rungwe Small Tea Growers Association (RSTGA). HACOCA conducted the most trainings (122) while GSC reached the most participants (8,507).



Photo by Fintrac Inc.

At the HORTI-Tengeru field day, a child enjoys cooked OFSP.

USAID-TAPP nutrition activities occurred throughout the entire zone of influence, and partnerships were established with NGOs for regional coverage. The project partnered with GSC in the northern regions of Kilimanjaro, Manyara, and Tanga; ZAPHA+ in Zanzibar; HACOCA in Morogoro; IMO in Iringa region; NADO in Njombe region; and RSTGA in Mbeya region. Additionally, USAID-TAPP established close coordination and collaboration with local government nutrition workers, and developed a ‘train the trainer’ program to build the capacity of government nutrition workers in the zones of influence.

Under USAID-TAPP’s nutrition component, increasing availability of OFSP planting materials was another key activity. During the life of project, hundreds of thousands of OFSP vines were distributed across all regions in the mainland. OFSP vine multiplication plots were set up in each region to enable farmers and other NGOs and associations to source planting materials closer to their area of operation. Vines obtained from these multiplication plots were then distributed in vulnerable communities and households for planting. During vine distribution, the nutrition team conducted basic training on agronomy and the use and benefits of OFSP. When OFSP tubers were ready for harvest (a few months after distribution), the team incorporated

specific recipes using OFSP into their cooking demonstrations. As a result, OFSP is being included in the regular diets of participants.

5.2 GENDER AND YOUTH EQUITY PROMOTED

USAID-TAPP’s activities were designed to be gender- and age-inclusive. To ensure inclusiveness, two gender mainstreaming assessments were conducted: one at the onset of activities, and another at the mid-point of implementation. These assessments provided valuable ideas on how to increase the involvement of women in project activities.

The initial assessment determined that, given the multiple responsibilities women have during the day, they have less time to dedicate to agricultural activities than men do. USAID-TAPP addressed this issue by ensuring closer locations for trainings and promoting labor- and time-saving technologies. For example, the adoption of low-cost nurseries for



Photo by Fintrac Inc.

USAID-TAPP farmers from the Upendo Farmers Group in Lushoto, Tanga install drip irrigation in their greenhouse.

seedling production was well-received by women as a convenient way to participate in agriculture. With this technology, women could set up a basic structure close to their homes, easily caring for their seedlings for the first three to four weeks before transplanting them to the farm. With drip irrigation, the time and effort needed for fertilizing was cut down by more than 80 percent. Instead of having to apply fertilizer on each plant, farmers could simply prepare the fertilizer mix in a barrel with water and inject it through the drip system.

In many cases, women and youth did not engage in production activities simply because they did not know that these opportunities existed, nor did they see farming as a viable business opportunity. Hence, women and youth benefited particularly from USAID-TAPP's marketing and business development skills trainings. These trainings created awareness of agriculture sector business opportunities and provided basic skills for keeping track of costs and profits. Throughout the project, 40 percent of participants were women, and 26 percent were youth.

In terms of employment, promoting value-added and processing activities in the agriculture sector provided the greatest opportunity for women and youth, as they are predominately employed in processing and packing plants. Through USAID-TAPP's partnership with Arusha Blooms, the organization now employs over 70 percent women in their plant, and women have excelled in activities such as grading and packing.



Photo by Fintrac Inc.

USAID-TAPP links smallholder farmers to international markets by partnering with companies like Arusha Blooms in Tanzania, where green beans are processed and prepared for export to European markets.



Photo by Fintrac Inc.

Sixth graders at Gilala Primary School show off their vegetable gardens that were supported by USAID-TAPP

One method USAID-TAPP used to target youth was working with schools. This helped youth become more involved in agriculture while simultaneously helping to provide more nutritious meals and generate profit for the school. At the Gilala Primary school in Karatu, USAID-TAPP trained sixth graders in drip irrigation. The training resulted in youth becoming more involved in agriculture and allowed the school to purchase classroom supplies and cover the salary for a needed additional teacher.

5.3 BUILDING FARMER CAPACITY ON BUSINESS AND TECHNICAL SKILLS

In addition to production-related training, farmers and farmer groups received support throughout the project to build their capacity in market management skills, including product quality, crop calendarization, crop product sorting, market information systems, and negotiation skills. Training helped farmers produce higher-quality products and make better decisions on what to produce and for which market windows. Farmers were also trained on business skills such as farm planning, crop production costing, farm record keeping and the use of records kept, loan acquisitions, and financial



Photo by Fintrac Inc.

Participants gather at the Farming as a Business final event on Mvanda farm in Iringa.

management. The business package helped farmers understand the concept of farming as a business and how to treat farming as an independent enterprise. The combination of agronomy skills training with market and business skills training helped beneficiary farmers build a sustainable operation that will continue beyond the life of project. A total of 13,930 unique individuals (8,624 male and 5,306 female) were trained during 2,439 marketing and business training events.

As part of USAID-TAPP's exit strategy, four Farming as a Business Learning Events were held. These events helped farmers reflect on areas needing attention for a sustainable operation. During these events, USAID-TAPP also provided a flash drive containing all of the technical materials produced during the duration of the project for distribution to the participants.

5.4 ACCESS TO FINANCE

The business of farming does not attract most credit service providers for several reasons, including: high farming risks which cannot easily be controlled; specific disbursement systems and repayment patterns which normally differ from one crop to another; and difficulty reaching smallholder farmers as they are scattered and their homes and farms can be far apart. As a result, farmers experience difficulties in farm production operations and sometimes do not engage in commercial scale horticulture activities due to lack of funding.

With farmers needing loans to boost production, USAID-TAPP entered into agreements with nine selected viable financing institutions to finance farmers engaged in horticultural farming. Financial institutions that participated in this pilot finance program included: Arusha Soko Kuu and Meru Community Bank in Arusha; Nshara SACCOS in Kilimanjaro; Greenlight SACCOS and Opportunity International in Morogoro; Mafinga SACCOS and Mufindi Community Bank in Iringa; Njombe Community Bank in Njombe; and Kiwira SACCOS in Mbeya. USAID-TAPP provided training and assistance in developing financial products to fit the needs and disbursement and repayment schedules for specific horticulture crops. The project recommended farmers who had adopted good agricultural practices.

During this pilot program, participating financial institutions provided loans worth over 200 million TZS (\$94,000) to 232 farmers. By the time of project closeout, farmers had repaid 64 percent totaling over 143 million TZS (\$67,452) including interest. Linking farmers to financial institutions promoted farmer savings, and participants in the pilot program saved over 42 million TZS (\$19,811). Financial institutions

were able to break into a new sector and increase their lending portfolios. All USAID-TAPP partner financial institutions stated that they would continue providing financial services to the sector, despite USAID-TAPP's close.

5.5 INSTITUTIONAL SUPPORT

With the main objective of transferring knowledge and technology, USAID-TAPP worked with farmers through farmers' producer groups. This work was challenged by numerous conflicts within the groups that impeded their overall performance. To address this, USAID-TAPP provided training and technical guidance to improve group sustainability and responsiveness to members on issues related to group dynamics, leadership skills, and constitutional and group organizational rules development. USAID-TAPP staff also supported and guided groups through the process of registry acquisition and opening group accounts.

5.6 TECHNOLOGY FUNDS

USAID-TAPP used technology funds to stimulate the adoption of improved inputs and technologies by demonstrating their benefits and increasing their availability to the various stakeholders. With greater adoption, the technology funds can be used to sustain development in the growing horticultural subsector in Tanzania. USAID-TAPP focused its technology funds on the following areas:

- Access to inputs and technologies
- Access to water, drip irrigation, and accessories
- Greenhouses

Access to Inputs and Technologies

USAID-TAPP's initial strategy was to demonstrate the benefits of improved agro-inputs and technologies to every farmer in the project, and to work with the agro-distribution companies to grow their retail networks with the demand that demonstrations generated. From the supply side, the project formed partnerships with selected companies to concentrate on having the inputs available in rural areas where they traditionally were not found. These partnerships also allowed for after-sale technical support and additional demonstration plots.

By early 2014, the project had well-established partnerships with a number of agro-input companies. The market and demand for the inputs had increased; however, farmers relied on USAID-TAPP staff to pick up the inputs and technologies from suppliers and take them to the respective farmer plots. To ensure sustainability, a joint decision was taken to develop a discount voucher program to allow the project to play a smaller role in the distribution of the inputs and technologies. The focus shifted on generating sufficient demand to allow suppliers to make the required inventory procurements and to have the stocks available, even in remote villages. This also put pressure on farmers to better understand their retail options and create relationships with the people selling the products.

Table 10: USAID-TAPP Voucher Discount Program

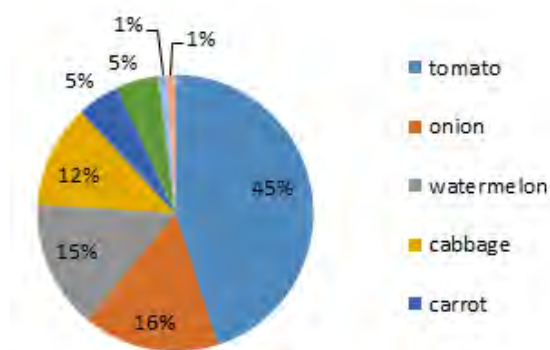
Agro-Input Dealer	Fertilizers	Hybrid Seeds	Drip Irrigation and Other Equipment
Balton Tanzania	✓	✓	✓
BIZIRE Veterinary Pharmacy (Zanzibar)			✓
Kibo Trading	✓	✓	
Positive International	✓	✓	
ZAIID (Zanzibar)	✓	✓	

USAID-TAPP's discount vouchers played a key role in:

- Reducing the initial costs associated with entry into commercial horticulture production for smallholder farmers;

- Ensuring that farmers' money was spent on high-quality, strong performance inputs and that the required technologies (e.g. seedling trays with hybrid seedlings) were bundled into the purchase; all while
- Nurturing personal, sustainable relationships between farmers and established input dealers.

Figure 1: Sales percentages of different seeds bought from Kibo Trading under discount voucher program



The voucher program ran for just over one year and smallholder farmers responded strongly to the program, purchasing over \$380,000 in improved inputs and technologies. Analysis showed that purchases were evenly split among the regions where USAID-TAPP worked.

Analyzing the data from Kibo Trading's sales under the voucher program, the majority of the purchases were hybrid seeds (70 percent), followed by fertilizers (19 percent), and then equipment and technologies (11 percent). Figure 1 shows the breakdown of seed purchases and unsurprisingly, tomato seeds constituted the biggest purchase (45 percent of sales). Sales of onion, watermelon, and cabbage seeds were also significant.

Access and Improved Utilization of Water

USAID-TAPP's technology fund activities in water focused on two areas – improved access to water and improved utilization. With the improved access and management of water in horticulture being critical to success, the project hired a full-time water engineer to ensure compliance with Tanzanian water rights regulation. They also utilized the services of another consultant engineer when required.

Access

With regards to access to water, USAID-TAPP looked at small-scale shallow wells. As USAID-TAPP was not an infrastructure project, it concentrated on interventions farmers could replicate. Drilling companies were contracted to work with local village well-diggers to dig wells in selected areas. The companies trained and built the capacity of the well-diggers to enhance their professionalism and enable them to set up their own drilling companies. The companies selected were the Southern Highlands Participatory Organization (SHIPO) and Seba Construction and Drilling Ltd.

In total, 82 wells and boreholes were constructed in USAID-TAPP's focus areas, giving improved water access to hundreds of farmers. In addition, 61 local drillers received technical and business skills training and support, including on site/aquifer



*Photo by Fintrac Inc.
SHIPO technicians drill to complete the construction of shallow wells under the USAID-TAPP partnership.*

identification, construction methodology, adherence to environmental and safety standards, pump testing, analysis of recharge rate, and aquifer management practices. Additionally, SHIPO validated and documented that the local drilling team's knowledge, skills, and performance met their minimum quality and safety standards.

Utilization

To mitigate the negative impact of flood irrigation stemming from farmers being able to access government irrigation only once or twice per week, USAID-TAPP co-invested with farmers on lined mini-reservoirs. Forty reservoirs were constructed, with each one holding enough water to irrigate at least one acre. Reservoirs were filled on the days in which farmers were allowed access to the irrigation water and then drawn down on during the days with no access to water to facilitate regular, controlled irrigation of the crops.

Promotion of drip irrigation technology was also a central focus of USAID-TAPP's technology fund activities to improve the use of water resources. Farmer response was strong to a pilot project using vouchers to stimulate co-investments in drip irrigation kits. USAID-TAPP partner Balton ran the initiative for one month from their Kisolanza training and distribution center and sold 109 one-acre kits, where farmers paid 50 percent of the kit cost (a \$347 contribution). On the promotion's final day, queues of farmers waited to buy their kits, and Balton drafted in some temporary workers to help.

USAID-TAPP looked at ways of reducing the high cost of sand filters used when the water contains significant sediment. For a cost-saving solution, USAID-TAPP trained local metalworkers to construct homemade sand filters using metal drums. Once perfected, the fully functional redesign cost \$443—less than half the cost of imported sand filters. Metalworkers in the south were also trained and produced the sand filters for the Southern Highlands.

Greenhouses

Balton and Irrico, two agro-supply companies investing in smallholder greenhouse technology, had started launching products into the market when USAID-TAPP began in 2009. The project played a key role in the early development of the greenhouse industry in Tanzania. A pilot project was launched in 2010 in northern Tanzania, building 11 greenhouses in Arusha, Kilimanjaro, and Tanga with a wooden design and a double roof for ventilation. A greenhouse consultant worked with USAID-TAPP for almost a year, during which time he trained a local builder to build greenhouses to the required specifications. The builder later became the project's greenhouse specialist after further training.



Photo by Fintrac Inc.

The construction of reservoirs and wells boosted production and encouraged farmers to engage in the cultivation of horticulture crops to improve their incomes.

Due to the high cost of shipping wood from the south, USAID-TAPP determined that wooden greenhouses were not cost-effective in northern Tanzania; therefore the project started building greenhouses in the Southern Highlands. Regions such as Iringa, Njombe, and Mbeya have the most suitable conditions for greenhouse production – i.e. above 1,000 meters altitude for cooler conditions. USAID-TAPP, in conjunction with TAHA, held the country's first national greenhouse conference to bring awareness to the fact that most investments procured from greenhouse vendors happen around Dar es Salaam, despite it not being suitable to build greenhouses on the coast or lower areas of the country. The conference served as the starting point to develop greenhouse industry 'best practice' guidelines.



Photo by Fintrac Inc.

Frank (left, in red) and Victor Mvanda standing before their tomato greenhouse near Iringa, Tanzania. USAID-TAPP assisted in making it possible for Victor to construct the greenhouse, which utilizes drip irrigation technology.

For the greenhouses constructed under USAID-TAPP, the farmers co-invested by providing all the wood, typically around 30-40 percent of the total costs. The project built a total of 28 greenhouses, the majority 572 square meters in size. A well-managed greenhouse this size can produce \$400 worth of tomatoes or sweet peppers every week during harvest.

Two local greenhouse companies received contracts for the construction of the final round of greenhouses. This was a chance to interact with the companies during planning and implementation to help capacity build on improved business practices as well as on perfecting the construction of the wooden greenhouse introduced to Tanzania by USAID-TAPP.

In 2010 the first handful of smallholder greenhouses were built in Tanzania. By the end of USAID-TAPP in 2015, more than 700 smallholder greenhouses were completed in Tanzania, covering 9.1 hectares. With the greenhouse industry showing strong growth, USAID-TAPP was instrumental in ensuring that key stakeholders were prepared in guiding the industry to success.



6. ZANZIBAR ACTIVITIES

From the onset, USAID-TAPP has kept a permanent presence and support in Zanzibar, working with farmers, private companies, and government extension workers. When the project started its activities in Zanzibar in early 2010, smallholder farmers were supplying a very small portion of the total fruit and vegetable demands of the island. Zanzibar buyers were not getting consistent supply of produce, nor the desired quality from farmers in the Unguja and Pemba Islands. As a result, Zanzibar was importing most of its horticulture commodities from the mainland.

In late 2012, due to the positive results shown in Zanzibar and a request from USAID to scale up, USAID-TAPP added a second full time agronomist in Pemba Island. Zanzibar farmers are now supplying around seventy percent of the island's horticulture product demands, replacing a significant portion of imported commodities with locally produced ones. The Principal Secretary of the Ministry of Agriculture and Natural Resources in Zanzibar and other high-level government representatives have recognized USAID-TAPP's presence and impact in Zanzibar.

6.1 TECHNOLOGY ADOPTION AND INCREASED PRODUCTIVITY

During the life of project, USAID-TAPP supported a total of 3,089 households in Zanzibar. Most joined the project before 2014, with 1,125 new households joining in 2015. From the activities' startup in Zanzibar, USAID-TAPP delivered regular, consistent training and technical assistance on both Unguja and Pemba Islands and delivered 1,793 training events to farmer groups. These trainings included subjects such as seedling tray production, drip irrigation use and maintenance, correct use of chemicals, fertilization, land preparation, and harvest. A total of 3,121 individuals participated and over half of the participants (55 percent) were women. While the larger field days generated awareness and stimulated interest from farmers, trainings in smaller groups were able to stimulate adoption by focusing on the technical details of how and why the technologies work. In addition to trainings, a total of 2,009 technical assistance visits were carried out for 8,262 participants. During these visits, USAID-TAPP agronomists conducted careful inspection of the plantings to highlight problems or practices to put in place to achieve improved results. These visits were done throughout the stages of the cropping cycle, allowing farmers to learn the different required practices, ranging from land preparation, sowing, transplanting, fertilization, irrigation, crop protection, and harvesting, to marketing.



Photo by Fintrac Inc.

USAID-TAPP agronomist Abdon Hamaro explains proper eggplant production practices to attendees at the farmer field day in Unguja Ukuu.

In Zanzibar, technology adoption is high, with 99 percent of participants adopting at least one new technology on their farm, and with most adopting multiple technologies. These changes in production practices had positive results in terms of yields and gross margin increases. For example, the performance and profitability of watermelon in Zanzibar, with gross margins averaging \$3,183 per hectare per cropping cycle, led many farmers to make investments in their farms or commercial operations. Investments from project participants totaled \$914,000, with each farmer investing \$550 on average on their farms. This per capita investment is considerably higher than average investments in the mainland. The total area under improved production practices assisted by USAID-TAPP was 1,482 hectares.

Prior to USAID-TAPP intervention, very few farmers from Zanzibar were benefiting from this market opportunity of high demand for fruits and vegetables from tourism in the area because they did not have the right production systems to provide a regular supply of high-quality products. With support from USAID-TAPP, project-assisted farmers registered incremental sales of \$5.71 million by project end, significantly growing their operations.

In June 2015, a final presentation of project results including select examples was delivered at the Ministry of Agriculture and Natural Resources in Zanzibar. The Ministry's principal and deputy principal secretaries, as well as department directors, were present and highly complimented USAID-TAPP for its contribution to the growth of the horticulture sector in Zanzibar. In early August 2015, USAID-TAPP presented its final Farming as a Business Learning Event, where more than 70 farmers, government representatives, and private sector representatives participated. During the event, numerous ideas were shared on how to continue improving the sector and how to address the challenges that remain. USAID-TAPP also distributed a flash drive containing all of the technical documents developed for Tanzanian farmers and agriculture stakeholders so that this information can be utilized and shared.

6.2 COLLABORATION WITH OTHER INSTITUTIONS

As part of sustainability efforts, USAID-TAPP focused on strengthening the links between farmers and input providers, brokers, and the Practical Training Center (PTC) at Kizimbani (KATI) to ensure farmers can access inputs, markets, and technical knowledge, respectively.

In regards to input availability, USAID-TAPP identified a second agrodealer on the island, BIZIRED, and implemented the voucher program to promote high quality inputs and technologies. The project also linked both BIZIRED and ZAIDI with reliable importers of agricultural commodities to help them expand their array of products. For markets, USAID-TAPP made available the buyer database, where farmers have access to contact information as well as the specific demands from each buyer, to enable them to contact the buyer of their preference.

USAID-TAPP continued strengthening the KATI PTC by assisting them with utility improvements to better run the PTC. In addition, USAID-TAPP's business skills specialist assisted KATI in improving their controls for a better record-keeping of the crop costs and incomes, securing the continuity and self-sustainability of KATI beyond project support.

6.3 PEPFAR AND NUTRITION ACTIVITIES

During its initial phase, USAID-TAPP partnered with ZAPHA+ to work with vulnerable households and people living with HIV/AIDS on how to establish home gardens with nutritious foods, as well as small commercial plots to provide income generating opportunities. During fiscal year 2012, the project changed its focus to support nutrition activities in the Islands. USAID-TAPP established close coordination with the ward's nutrition committees (shehias), and developed a formal training of trainers. As a result of this activity, USAID-TAPP provided practical and theoretic training to 829 members of the 24 shehias. In addition, the project trained 24 government extension workers on nutrition and development of home gardens.



Photo by Fintrac Inc.

Home gardens have been an important component of USAID-TAPP's nutritional strategy as they promote the production of healthy vegetables rich in micronutrients just outside the door of rural families.



7. CHALLENGES AND LESSONS LEARNED

There are vast opportunities that exist for developing the horticulture sector in Tanzania, however, they are not without numerous challenges and impediments. In order for USAID-TAPP to achieve its goals and design sustainable, successful interventions, it was essential to understand and address these challenges.

7.1 CHALLENGES

The horticulture value chain in Tanzania lacks cohesion and efficiency. Hundreds of thousands of smallholder farmers in different villages are producing low volumes of produce, with harvests occurring at different times with no coordination between them. This creates expensive and inefficient logistics, where farmers spend significant resources to bring harvested crops to collection centers or sales points. Adding to this already challenging system are extremely high postharvest losses, which for many horticultural products can be as high as 40 to 50 percent of the harvested fruits and vegetables. These high postharvest losses, often times stirred by low production technologies, lead to traders and buyers offering low prices to farmers to cover these losses further down the market channel. Because of this situation, increased focus needs to be given to the clustering of farmers to produce enough supply to benefit from economies of scale, and the upgrading of farming practices.

Another challenge is dependence on rainfall. Despite Tanzania's fortunate availability of water, especially in the project's zone of influence, the vast majority of farmers rely on rainfall for the production of vegetables. This greatly affects productivity and profitability. To some extent smallholder farmers lack the capital to make investments in water harvesting, storage, or conduction, however a large factor that affects the limited availability of water for farming is knowledge. In most areas where the project worked, there are a number of low cost, and cost effective solutions to water availability that farmers are not aware of, or lack the required tools or service providers needed. Farmers who have not been educated on the

potential benefits that can be reaped by farming on irrigated land also need to be convinced that these are sound investments.

Some stakeholders initially had expectations of receiving donations or compensations for their time. This happens at all levels, whether they are “sitting fees” to meet with government officials, a per diem or fee to attend trainings, or some sort of donation expectation for collaborating with the project. This is stimulated by a long tradition of paternalism which has been present in the country from the donor community. However, once stakeholders were clear about USAID-TAPP’s approach, this generally disappeared.

There is limited private sector presence in horticulture, which is essential to drive the economy. This is especially true in the Southern Highlands where, aside from a few companies working on the avocado, tea, tomato, and potato value chains at a medium scale, there is very little investment. There is also an insufficient presence of companies providing essential services to the sector, such as input providers, seedling providers, land preparation services, and transport services.

Access to inputs remains one of the most important challenges that needs to be addressed. Most local agrodealers sell a limited range of inputs—all focused on price. This results in products for sale that are old chemistries, contain low concentration of active ingredients, or are fake. Because of the low volumes of inputs currently being sold in the Southern Highlands, generally, quality inputs and technologies are still over-priced, limiting smallholder farmers capacity to compete. Limited formal credit options available to farmers is also an issue, and none are linked to technical support.

7.2 LESSONS LEARNED

An essential lesson learned during USAID-TAPP project implementation is the importance of establishing communication and coordination mechanisms with the government authorities upon project startup. In Tanzania, local governments at the district and ward levels are responsible for coordinating activities. They are also a valuable source of information in terms of providing a general overview of the locations’ characteristics and potential, as well as in identifying potential locations for project intervention. In addition, not introducing the project to the local authorities at its initial stage is generally viewed as disrespectful, and may complicate implementation of activities.

USAID-TAPP learned the skepticism that comes with working with farmers in areas where technologies or systems are unknown or unavailable and consequently, the time it takes before their agreed engagement of project activities. To combat this, USAID-TAPP set up demonstration sites to introduce promoted technologies and show their potential benefits in the early stages of the project. Tanzania has numerous projects on the ground and not all are effective or produce substantial, tangible benefits to villagers. This leaves many people skeptical, and it may take a long time before they are willing to engage in project activities. Demonstration sites stimulate early adoption and allowed for quicker scale up of activities.

Smallholder farmers’ greatest disadvantage is their size. Individually, these farmers lack the capacity to effectively serve attractive markets or negotiate better prices for inputs. For smallholder farmers to improve their situation and access better and more affordable inputs or attractive markets, they need to understand the benefits of working in coordination to reach economies of scale. USAID-TAPP addressed this by identifying actors within the horticulture sector to scale up activities. These stakeholders are essential for the growth of the sector and include organizations with export operations who require large numbers of outgrowers; processors; companies which disseminate improved inputs or technologies, such as those providing drip irrigation, hybrid seeds, or tissue culture plantings; the finance sector, local markets; and government agencies. By effectively engaging these stakeholders, USAID-TAPP leveraged its interventions and expanded its reach.

The sector needs capacity building at all levels. For businesses to operate efficiently and profitably, they need to strengthen all of their operations, including accounting, food safety, postharvest, marketing, ICT, quality control, among other areas. USAID-TAPP consistency adjusted its strategies to provide tailored solutions to each of the different stakeholders.

Stakeholder coordination must continue to improve to address policy constraints. The “ease of doing business” index shows that there are a number of challenges in Tanzania. It will be essential to build on project successes to scale up. Going forward, farmers’ and businesses’ knowledge of good practices must be leveraged to ensure initiatives grow and thrive. Successful businesses can become powerful, local ambassadors who can create a multiplier effect on communities, and help projects reduce their interventions, while critical services and demonstrations are taken over by local businesses. For example, lead farmers can be used as trainers for neighboring farmers, or their farms can be used as training sites.

To increase access to finance for the horticulture sector, financial institutions need to be educated. Standard financial products will not effectively address financial needs for farmers, and may increase the risk of defaulting on loans by farmers. Financial institutions must understand cash needs for specific crops, and repayment periods. In addition, they need to be presented with schemes that involve other players in the value chain, such as buyers and input providers, who can reduce the risks of lending to the horticulture sector. USAID-TAPP’s financial loan pilot program was a success but it was only implemented towards the end of the project. For substantial impact, similar programs need to be expanded on a greater scale.

ANNEX I: PERFORMANCE AGAINST PMP INDICATORS

Name of the Implementing Agency: Fintrac Inc.	Reporting Period: 2009 – 2015
Local Address: USAID-TAPP c/o Plot No. 85(2) Mwandamo Road Arusha, Tanzania	Home Office Address: Fintrac Inc. 3077 Kronprindsens Gade 72 St Thomas, USVI 00802
Project Title: Tanzania Agriculture Productivity Program	Target regions: Arusha, Moshi, Lushoto, Morogoro, Coast, Zanzibar, and SAGCOT
Cooperative Agreement/Contract #: EDH-I-07-05-00007-00	Related Program Area and Elements of the Operational Plan: 1. Agricultural Sector Productivity 2. Trade and Investment
Period of Project: (Start and End Dates) October 19, 2009 – August 26, 2015	Major Counterpart Organizations: Ministry of Agriculture
Principal Target Beneficiaries: Tanzanian Smallholder Farmers	

Indicator	Type	Achieved Through FY 2014	FY 2015				FY 2015 Achieved	FY 2015 Target	Achieved to Date	LOP Target	Units	
			Q1	Q2	Q3	Q4						
GOAL: Increase Incomes of Small Farmers in Selected Agricultural Commodity Subsectors												
1	Number of rural households benefiting directly from USG interventions	FTF 4.5.2-13	37,740	144	1,159	1,804	20,737	23,844	2,260	61,584	40,000	Rural Households
2	Gross margin per hectare of selected product*	FTF 4.5-16	3,750					3,906	3,500	3,906	3,500	US\$/Ha/Crop Cycle
Intermediate Result 1: Enhanced Productivity												
3	Percent change in yields of targeted products*	TAPP	148					203	45	203	45	Percent
Sub-IR 1.1: Improved Production Practices												
4	Number of individuals who have received USG supported short-term agricultural sector productivity or food security training	FTF 4.5.2-7	54,693	12,941	6,172	4,494	4,330	27,937	15,000	70,301	38,545	Individuals
			33,702	7,667	3,650	2,755	2,888	16,960		42,753	22,800	Individuals (Male)
			20,991	5,274	2,522	1,739	1,442	10,977		27,548	15,745	Individuals (Female)
Sub-IR 1.2: Increased Technology Adoption												
5	Number of hectares of land under improved technologies or management practices as a result of USG Assistance*	FTF 4.5.2-2	12,189					23,159	9,500	23,159	21,000	Hectares
6	Number of farmers and others who have applied improved technologies or management practices as a result of USG assistance*	FTF 4.5.2-5	28,539					52,968	30,000	52,968	21,000	Farmers
			16,716					34,122		34,122	12,500	Farmers (Male)
			11,823					18,846		18,846	8,500	Farmers (Female)
7	Number of private enterprises, producer organizations, water user associations, women's groups, trade and business associations and community-based organizations (CBOs) that applied new technologies or management practices as a result of USG assistance	FTF 4.5.2-28	1,085	2	0	71	0	73	40	1,158	1,125	Orgs/Assns
Intermediate Result 2: Increased Investment												
8	Value of new client and counterpart investments	TAPP	12.448	0.280	0.378	0.119	9.206	9.982	2.613	22.430	13.000	US\$ Million
9	Value of new private sector investment in the agriculture sector or food chain leveraged by FTF implementation	FTF 4.5.2-38	6.365	0.120	0.231	0.086	0.095	0.533	2.000	6.898		US\$ Million

Indicator	Type	Achieved Through FY 2014	FY 2015				FY 2015 Achieved	FY 2015 Target	Achieved to Date	LOP Target	Units	
			Q1	Q2	Q3	Q4						
Intermediate Result 3: Improved Market Systems												
10	Value of incremental sales (collected at farm-level) attributed to FTF implementation*	FTF 4.5.2-23	39.04					17.78	15.00	56.82	35.00	US\$ Million
11	Value of incremental sales (collected at partner/firm level) attributed to FTF implementation ²	TAPP	1.15		3.92		28.59	32.50	1.35	33.65	5.00	US\$ Million
Sub-IR 3.1: Increased Value-Added Processing												
12	Number of new value-added products introduced	TAPP	39	5	0	5	0	10	0	49	28	Value-Added Products
Sub-IR 3.3: Improved Value Chain Integration												
14	Number of firms receiving capacity building assistance to export	USAID 4.2.2-3	73	0	0	0	0	0	0	73	75	Firms
15	Number of food security private enterprises (for profit), producers organizations, water users associations, women's groups, trade and business associations, and community-based organizations (CBOs) receiving USG assistance	FTF 4.5.2-11	1,085	2	0	71	0	73	40	1,158	1,100	Orgs/ Assns
Cross-cutting Indicators to Foster a Sustainable Enabling Environment & Improved Domestic Capacity												
Improved Access to BDS Services												
16	Number of public-private partnerships formed as a result of FTF assistance	FTF 4.5.2-12	64	2	0	0	0	2	5	66	50	PPPs
17	Number of organizations undergoing capacity assessments as a result of USG assistance	TAPP	1,149	4	0	71	0	75	45	1,224	1,150	Organizations
Improved Household Nutrition												
19	Number of beneficiaries with access to home or community gardens	USAID 3.1.9-3	8,457	1,267	681	298	-	2,246	215	10,703	5,500	Beneficiaries
				754	358	159	-	1,271				Male
				513	323	139	-	975				Female

Indicator	Type	Achieved Through FY 2014	FY 2015				FY 2015 Achieved	FY 2015 Target	Achieved to Date	LOP Target	Units	
			Q1	Q2	Q3	Q4						
Gender/Youth Equity Promoted												
20	Percentage of women/youth membership in producer organizations ¹	TAPP	40	17	39	31	46	34	40	40	40	Percent (Women)
			26	4	37	16	29	25	30	26	30	Percent (Youth)
Standards												
21	Number of certified farmers	TAPP	1,491	0	0	164	26	190	209	1,681	1,700	Farmers
HIV/AIDS Threat Reduced												
22	Number of targeted population reached with individual and/or small group level HIV prevention interventions based on evidence and/or meet the minimum standards required	PEPFAR P8.1.D	52,380	11,897	2,108	1,785	254	16,044	947	68,424	40,000	Training participants
				5,705	1,016	1,065	203	7,989				Male
				6,192	1,092	720	51	8,055				Female
23	Number of targeted population reached with individual and/or small group level HIV prevention interventions focused on abstinence and/or being faithful, and are based on evidence and/or meet the minimum standards required	PEPFAR P8.2.D	11,380	4,958	1,029	266	288	6,541	153	17,921	6,000	People
24	Number of eligible OVCs provided with a minimum of one CORE care service	PEPFAR CI.1.D	2,863	260	0	260	0	520	210	3,383	2,700	OVCs
				143	0	142	0	285				Male
				117	0	118	0	235				Female
25	Number of households with at least one OVC/MVC provided with a minimum of one economic opportunity/strengthening support	PEPFAR	1,678	114	0	78	0	192	58	1,870	1,700	Households
26	Number of vulnerable households benefiting directly from USG assistance	FTF 4.5.2-14	3,664	120	101	185	0	406	336	4,070	4,000	Households

Indicators 13 and 18 were removed on contract Modification #7.

* Annual indicator

¹ Values reported by quarter represent the percentages for producer organizations that began working with the project in the quarter.

ANNEX II: PARTNERS

Partners during project implementation were:

Organization	Type	Area	USAID-TAPP Contribution
TAHA	Private Sector Trade Association	National	\$943,730.87
TAHA Fresh Handling Ltd.	Private Company	National	\$494,886.90
Floresta	Non-Profit NGO	Kilimanjaro	\$29,824.67
Kilimo Impact Tanzania (KIT)	Private Company	Arusha	\$9,100.05
Volunteer Services Overseas (VSO)	Non-Profit NGO	Zanzibar	\$27,971.87
Golden Food Products	Private Company	Arusha, Tanga, Pemba Island	\$153,643.37
HomeVeg	Private Company	Northern Tanzania	\$83,159.19
Multiflower Ltd.	Private Company	Morogoro	\$78,364.72
Real Impact Ltd.	Private Company	Northern Tanzania	\$73,928.57
NatureRipe Kilimanjaro Ltd.	Private Company	Coastal Tanzania	\$207,161.55
AVRDC World Vegetable Centre	International NGO	Northern Tanzania	\$81,866.99
Arusha Blooms Ltd.	Private Company	Northern Tanzania	\$182,098.83
The Association of Mango Growers (AMAGRO)	Private Sector Growers Association	National	\$51,797.39
Kickstart International	International NGO	National	\$34,796.30
Africado Ltd.	Private Company	Northern Tanzania	\$614,069.47
4-H	International NGO	National	\$30,657.87
AIDS Business Coalition Tanzania (ABCT)	Non-profit NGO	National	\$29,230.01
Huruma AIDS Concern and Care (HACOCA)	Non-profit NGO	SAGCOT	\$122,939.71
Chama cha Uzazi na Malezi Bora Tanzania (UMATI)	Non-profit NGO	Southern Tanzania	\$23,551.47
Zanzibar Association of People Living with HIV/AIDS (ZAPHA+)	Non-profit NGO	Zanzibar	\$38,516.85
Tanzania Roses Ltd.	Private Company	Northern Tanzania	\$80,892.42
Blue Rhino Consult Ltd.	Private Company	National	\$38,026.59
Biovision Africa Trust	Non-Profit NGO	National	\$19,870.31
Rungwe Avocado Company	Private Company	SAGCOT	\$225,074.81
NEI	Private Company	Northern Tanzania	\$194,291.57
Business Planet	Private Company	Northern Tanzania	\$18,225.19
Evergreen Commodities and Inputs Distribution Chain Company	Private Company	National	\$22,888.79

Organization	Type	Area	USAID-TAPP Contribution
Tanhort	Private Company	Arusha	\$18,977.57
Nsombo Agro Development Group	Private Company	Pwani (Coastal) Region	\$29,054.53
Buturi	Private Company	Coastal Tanzania	\$44,360.51
Mcharo	Private Company	Northern Tanzania	\$16,794.73
CARITAS Iringa	Non-Profit NGO	Southern Tanzania	\$7,987.57
PACT	Private Company	Northern Tanzania	\$29,239.12
Kibo Trading	Private Company	Northern & Coastal Tanzania, SAGCOT	\$227,577.82
Global Service Corps (GSC)	Non-Profit NGO	Northern Tanzania	\$301,676.91
GreenRain	Private Company	Northern & Coastal Tanzania	\$69,282.62
EcoAgriConsult	Private Company	National	191,200.68
ZAIDI	Private Company	Zanzibar	\$112,300.85
IITA	Non-Profit NGO	Zanzibar	\$26,522.52
RSTGA	Non-Profit NGO	SAGCOT	\$55,414.77
Bellaview	Private Company	Northern & Coastal Tanzania	\$155,465.03
VASSO	Private Company	Northern Tanzania	\$22,997.31
Med Foods	Private Company	Northern Tanzania	\$115,076.79
A to Z	Private Company	Arusha	\$54,226.30
Serengeti Fresh	Private Company	Arusha	\$6,975.07
Mariet	Private Company	Njombe	\$58,929.67
Nshara SACCOS Ltd.	Financial Institution	Kilimanjaro	\$1,661.06
Soko Kuu SACCOS Ltd.	Financial Institution	Arusha	\$6,356.67
Meru Community Bank	Financial Institution	Arusha	\$5,120.46
Green Light SACCOS Ltd.	Financial Institution	Morogoro	\$1,211.70
Mafinga SACCOS Ltd.	Financial Institution	Iringa	\$6,000.78
Njombe Community Bank	Financial Institution	Njombe	\$1,340.71
Mufindi Community Bank	Financial Institution	Iringa	\$878.62
KIWIRA SACCOS Ltd.	Financial Institution	Mbeya	\$2,686.53
Balton TZ	Private Company	SAGCOT	\$166,799.37
Positive International	Private Company	National	\$89,908.32
Match Maker Associates Limited*	Private Company	National	\$47,931.60
NADO*	Non-Profit NGO	SAGCOT	\$88,106.83
IMO*	Non-Profit NGO	SAGCOT	\$82,508.63

Organization	Type	Area	USAID-TAPP Contribution
Cheetah Development*	Private Company	SAGCOT	\$46,285.37
SHIPO*	Non-Profit NGO	National	\$155,864.32
Seba International*	Private Company	National	\$36,847.15
Mellon Consults*	Private Company	Northern Tanzania	\$9,840.00
Affordable Greenhouse*	Private Company	National	\$37,972.22
Kalsi and Jutly*	Private Company	Northern Tanzania	\$10,453.72
Alpha and Omega*	Private Company	National	\$30,750.00
Cropbase Ltd*	Private Company	Northern Tanzania	\$21,017.36

*Partners who are working with USAID-TAPP through Fixed Price Contracts vs. Partner Funds



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