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## POLICY BRIEF

# TRADE AND INVESTMENT PROGRAM FOR A COMPETITIVE EXPORT ECONOMY IN GHANA

## A SYNTHESIS OF FINDINGS

Based on studies written by Albert Obeng Mensah and James F. Oehmke

This brief synthesizes the impact assessments of the USAID/Ghana Trade and Investment Program for a Competitive Export Economy (TIPCEE). TIPCEE was a US\$30 million, five-year program initiated in 2004 to “promote economic growth by enhancing productivity and sales of non-traditional agricultural exports and improving the enabling environment for private sector growth” (Chemonics 2009, 2). The program was

intended to enhance value chains for selected commodities with export potential. It included working with smallholders to improve the quality of their produce in order to meet international standards and certifications and developing linkages with international markets. Because of the wide variety of TIPCEE activities, the impact assessments focused on two value chains: mango and pineapple. The selection was based in part on the very limited

amount of TIPCEE baseline data available and in part on USAID/Ghana interest in differences in value-chain organization: pineapple relied more on outgrower schemes and mango relied more on producer groups.

The objectives of the pineapple study were to (1) quantify the impact of the program on poverty reduction, (2) determine the cost-effectiveness of

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the program in reducing poverty, and (3) generate information on the relationship between outgrower schemes and smallholder poverty reduction.

The objective of the mango study was to determine the impact of the program on the livelihoods of smallholder mango producers in the Northern, Brong Ahafo, Eastern, and Greater Accra Regions of Ghana.

The pineapple study (Oehmke 2011) was conducted in-country in 2010 and 2011, and results were presented in Accra in August 2011. It was funded by USAID/AFR with in-kind contributions from USAID/Ghana. The mango study (Mensah 2011) was conducted in 2011 and presented in Accra in August 2011.

## TIPCEE PINEAPPLE AND MANGO ACTIVITIES

TIPCEE's approach was to improve activities at the market, firm, and farm level in each commodity value chain (Box 1) and to work at the national level to improve the enabling environment for trade and export. Pineapple-specific interventions were targeted to increase the Ghanaian share of the European fresh pineapple market. At the start of TIPCEE in 2004, Ghana exported smooth cayenne pineapple to Europe, having a 10 percent market share. Ghanaian commercial producers were internationally competitive in smooth cayenne pineapple production, and proximity to Europe gave them a competitive advantage in shipping and transport. At the same time, TIPCEE recognized a growing international market for fresh mango, particularly in Europe and the Middle East.

Smallholders had little participation in either the pineapple or mango export markets, lacking the agronomic knowledge, inputs, international certifications, and market connections. TIPCEE acted to improve smallholder production practices in order to meet international standards, help smallholders obtain certifications, and link smallholders with commercial growers that have access to international markets. These linkages occurred primarily through pineapple outgrower schemes and through the creation of smallholder mango producer groups. TIPCEE also

**BOX 1—TIPCEE ACTIVITIES BY LEVEL**

**Market-Level Activities**

- Facilitate market linkages with buyers: Fyffes, Chiquita, Coca Cola, etc.
- Develop investor's guide for horticulture
- Disseminate market information
- Support marketing of Ghana produce at trade fairs
- Develop illustrated quality norms and standards for each commodity

**Firm-Level Activities**

- Conduct pilot inspections programs to confirm quality
- Conduct diversification and innovation pilots: new varieties, technologies
- Enhance capacity of trade association
- Introduce and establish traceability capacity: GIS, pallet bar coding
- Establish farm-to-packhouse and packhouse-to-port communication system, and train firms and farmers in its use
- Improve grading, sorting, logistics, packaging capacity
- Improve infrastructure at packhouse level
- Develop and install enhanced financial and management systems

**Farm-Level Activities**

- Develop and disseminate training in improved agricultural practices
- Introduce new nursery management techniques
- Improve access to market information and linkages to exporters
- Certify smallholder farmers in EurepGAP option 2
- Assist with conversion to improved varieties
- Develop and train farmer-based organizations
- Develop commodity-specific training and technical materials for farmers

helped with GIS mapping of mango farms as a means of providing markets with information on mango production. In 2004, it was anticipated that TIPCEE would improve smallholder incomes and reduce poverty, although the primary TIPCEE goal was to increase exports, and activities were targeted primarily toward export enhancement. Following the launch of the Initiative to End Hunger in Africa, TIPCEE placed greater emphasis on poverty reduction—for example, by expanding mango activities in the relatively poor Northern Region.

## METHODS

Baseline data were unavailable for mango. For pineapple, baseline yield and gross margin data for program participants existed, but a comparison group was not available. Given data availability, a gross margins approach was selected for the pineapple analysis. Visits to two mango producer organizations in Greater Accra, which included discussions with smallholders, led to a decision to pursue a

livelihoods approach based on farmer recall for the mango study.

**Pineapple.** A triangulation approach used to determine gross margins led to a review of the four independent data sources. These data showed that margins for smallholders linked to the fresh pineapple market were quite high, ranging from US\$1,369 to US\$5,522 per year, with one source reporting gross margins of US\$1,800 in a “typical” year. Gross margins in the range of US\$1,800 per acre and up are large enough that linking a poor smallholder to the pineapple value chain is likely sufficient for that smallholder to emerge from poverty, even with only one acre of pineapple cultivation. Furthermore, project documents suggested that startup costs of pineapple farming include planting of one to two acres—which, again, is sufficient to emerge from poverty.

The quantification exercise involved determining how many households benefited from the pineapple activities and how many of these pineapple beneficiaries

were likely to be poor at the start of the project. The study sought multiple data sources for triangulation to validate the number of smallholder pineapple farmers benefiting from the increased gross margins. Seven alternative estimates of the number of beneficiaries were available, with the three most reliable independent estimates ranging from 500 to 540. The midpoint of 520 was selected. Based on project data on the percentage of beneficiary households that were vulnerable, it was assumed that one-third of these pineapple beneficiaries were poor at the outset. Based on the gross margin data and key informant data indicating that smallholder pineapple holdings were about two acres, it was assumed that the originally poor beneficiaries emerged from poverty.

Cost-effectiveness was calculated by dividing the number of beneficiaries by program costs. Program costs were not directly accessible because the accounting procedures did not separate TIPCEE expenditures by commodity. USAID/Ghana was able to provide one year of disaggregated costs for pineapple, which in conjunction with key informant interviews was used as the basis for one estimate of pineapple program costs. A second estimate was obtained simply by dividing total TIPCEE expenditures by 11, the number of commodity value chains on which TIPCEE worked. Sensitivity analysis was applied to account for variation in the reported number of beneficiaries and differences in cost estimates.

**Mango.** A livelihoods questionnaire was developed based on a successful USAID application in Rwanda. This questionnaire was implemented in case study fashion in the four regions where TIPCEE most heavily promoted mango, including the Northern Region. The number of respondents in the Northern Region was small because even though TIPCEE had begun work on sensitizing smallholders to mango's potential, the study team found only a single pilot group that had actually planted the crop.

## RESULTS

**Pineapple.** The TIPCEE pineapple activity impact is quantified in terms of the number of people emerging from poverty. The

**TABLE I—IMPACT AND COST-EFFECTIVENESS OF THE TIPCEE PINEAPPLE ACTIVITY**

Indicator	Likelihood of result		
	Low	Likely	High
Impact (number of people emerging from poverty)	353	866	2,403
Cost-effectiveness (US\$/year per person emerging from poverty)			
Low program cost (US\$1.5 million)	\$851	\$347	\$125
Likely program cost (US\$2.7 million)	\$1,532	\$624	\$225
High program cost (US\$3.0 million)	\$1,702	\$693	\$250

Source: Adapted from Oehmke 2011.

most likely estimate is 866, with sensitivity analysis giving a range of 353 to 2,403 (Table I). The most likely estimate for TIPCEE pineapple activity cost-effectiveness is US\$624 per year for each person emerging from poverty. Sensitivity analysis gives a range from US\$125 to US\$1,702 per year for each person emerging from poverty.

Pineapple results are colored by the development and introduction of the MD2 “golden” pineapple variety, which completely altered the fresh market dynamics. European (and American) consumers prefer the color and shape of the MD2 pineapple, and this variety now dominates the fresh markets. Costa Rica is more competitive than Ghana in MD2 production and is organized to capture economies of scale, outweighing Ghana’s transport cost advantage; Costa Rica now controls over two-thirds of the European fresh market. Ghana produces some MD2 for export but has a European fresh market share of less than 5 percent. Even for smallholders who wish to compete in the MD2 market, the waiting period of 12 to 18 months between planting and harvest is a deterrent to those with limited capital or access to other income sources.

**Mango.** The TIPCEE mango activity is quantified in terms of reported changes in livelihood improvements—that is, the strategies smallholders use to augment and combine their assets to achieve better lifestyles. The mango activity is associated with an improvement in food security among interviewed smallholders.

Thirty out of 56 respondents went to bed hungry before TIPCEE; one went to bed hungry after TIPCEE. An additional 50 respondents provided information on land or farm expansion, education of children or wards, and home improvements or furnishings. Forty-three of the 50 respondents reported at least one improvement. Seven of the 50 respondents reported no improvement because of the immaturity of their mango trees. Half of the respondents reported expanding their mango area, 40 percent reported increased ability to educate their children, and 68 percent reported home improvements, new home furnishings, or both (Table 2).

## CONCLUSIONS AND LESSONS LEARNED

Promotion of export crops through the value-chain approach has the potential to reduce poverty. The mango study provides qualitative evidence of improved smallholder livelihoods due to increased mango production, with the largest expected impacts still to come. The pineapple study did show evidence of impact, albeit not cost-effectively. The problem seemed to be twofold: an initial emphasis on export volume and value increases rather than on vulnerable smallholders, and an unlucky choice of an export crop with potential that suddenly diminished greatly. With better luck, it is possible that smallholder-based export promotion would generate impact cost-effectively. While these two examples do not show complete fruition, they demonstrate

**TABLE 2—IMPROVEMENTS RESULTING FROM TIPCEE MANGO ACTIVITIES**

Region	Sample size	Average trees per household		Share of households making livelihood improvements since TIPCEE (%)		
		Pre-TIPCEE	Post-TIPCEE	Bought land/ expanded farm	Educated children	Improved house/ furnishings
Brong Ahafo	31	62	490	68	58	81
Eastern Region	7	101	354	29	14	57
Greater Accra	6	77	750	33	17	83
Northern Region	6	0	150	n.a.	n.a.	n.a.
Total/Average	50	62	461	50	40	68

Source: Compiled from data in Mensah 2011.

Notes: n.a. = not applicable because trees were too young to generate income. Respondents with 500 or more trees pre-TIPCEE were excluded.

impact and the possibility of quantifiable poverty reduction. Several lessons were learned in conducting these studies.

**Program longevity is critical.** Particularly for tree crops such as mango, the impact of increased crop area cannot be seen by the end of a five-year program. Moreover, the sustainability of the productive activity is threatened by the early exit of the supporting program.

**Quality data are critical.** Quality household-level baseline data on impact measures are needed, as are delineation of project activities and expenditures by impact area—in this case, by commodity.

**Impact targets must be emphasized from the outset.** Working with poor

smallholders needs to be emphasized from the beginning of the project, in order to generate the greatest impact on poverty. In TIPCEE, the emphasis was initially on export promotion; poverty reduction was a bonus. Consequently, the pineapple activities resulted in greater export promotion success and less poverty reduction success.

**Capital is critical.** In mango cultivation, the five years from planting to first harvest and profitability—or, up to eight years in the Northern Province—means that the smallholder must have other land or other means of support until the mango trees start to produce bountifully.

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