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R&D

TechnoServe

A Working Solution to World Hunger

IMPACT EVALUATIONS

*An Impact Evaluation and Economic
Analysis of TechnoServe's
PL-480 Title II Monetization
Program in Ghana*

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September 1994

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LIST OF ACRONYMS USED IN THE EVALUATION

ACRONYM	MEANING/DESCRIPTION
ADB	Agricultural Development Bank, a Ghanaian financial institution.
AID	Agency for International Development, usually used to refer to the Washington headquarters office of the agency.
C/E	Cost-Effectiveness, a term used for TechnoServe's copyrighted cost-effectiveness methodology.
CEDI Trust	Community Enterprise Development and Investment (CEDI) Trust Fund, the term endowment funded by TechnoServe's Title II monetizations.
FASCOM	FARmer Service COMpany, rural supply depots established in Upper West and Upper East regions of Ghana under the auspices of the World Bank's Upper Region Agricultural Development Project (URADEP) in the late 1970s and early 1980s.
FFP	The Food for Peace Office of AID/Washington.
FSC	Farmer Service Cooperatives (cooperatives assisted by TechnoServe in the Brong-Ahafo and Eastern regions of Ghana).
FSCC	Farmer Service Center Cooperatives (cooperatives assisted by TechnoServe in Upper West Region).
FY	Fiscal Year of the US Government (Oct 1st to Sep 31st).
GoG	Government of Ghana
ITSPM	TechnoServe's Intermediate Technology Small-Scale Palm-Oil Mill project.

LIST OF ACRONYMS USED IN THE EVALUATION (continued)

ACRONYM	MEANING/DESCRIPTION
MYOP	Multi-Year Operational Plan, a basic document required for AID Title II food-aid programs.
NTE	Non-Traditional Exports, a component of USAID's Trade and Investment Project implemented by TechnoServe/Ghana.
PL-480	Public Law 480, the section of the US Farm Bill which governs AID food-aid programs.
PSC	Processing Service Center, crop processing facilities (mills, etc) established at the FSCCs in the Upper West region.
TIP	USAID's Trade and Investment Project.
Title II	Title II of Public Law 480, or the section dealing with food commodities provided to US "cooperating sponsor" agencies (ie. Private Voluntary Organizations).
TNS	An acronym commonly used for TechnoServe.
USAID	United States Agency for International Development, usually used to refer to the field "Mission" offices of the agency.

I. EXECUTIVE SUMMARY

General Background

Technoserve, Inc. is a private, non-profit U.S. voluntary organization. Its goal is to improve the economic and social well-being of low-income people in developing countries by fostering the development of small to medium-sized agricultural enterprises. Technoserve has been operating a program of community-based enterprise development in Ghana since 1971. The program currently assists more than fifty agricultural enterprises in seven of the ten regions of Ghana to increase rural productivity, incomes, and employment.

Since 1992, Technoserve/Ghana has received three annual shipments of wheat under the U.S. PL-480 Title II program. This wheat has been monetized, with the proceeds, the local currency equivalent of approximately \$3.0M, invested in the Community Enterprise Development and Investment (CEDI) Trust Fund, a locally-registered charitable trust established by Technoserve. The CEDI Trust has provided over \$1.0M in local currency funding for ongoing Technoserve operations in Ghana over the past three years, keeping the balance invested in local financial instruments in order to maximize its operating life.

Technoserve/Ghana has recently submitted a new Multi-Year Operational Plan (MYOP) to AID's Food for Peace (FFP) Office for the period FY 1995-97 to continue capitalizing the CEDI Trust and to support ongoing operations of Technoserve's Ghana program. As a condition for approval of this new MYOP, the FFP Office has requested this impact evaluation of Technoserve's Title II Monetization program in Ghana.

Food Security Defined

Current policy and legislative guidelines stipulate that PL-480 programs must have an impact on food security in the country where the program operates. USAID determines food security through three factors: access, availability, and utilization of food.

Considering the objectives of the PL-480 program, and mindful of the concerns of the FFP Office in Washington, the objective of this evaluation has been to address three areas of impact of the Technoserve Ghana program:

- the impact on the food security of beneficiaries at the household level;
- broader measures of economic impact at the local, regional and national levels;
- an economic analysis of the individual programs, using Technoserve's cost-effectiveness evaluation methodology where applicable.

The Technoserve Ghana Program

Technoserve's Ghana program currently includes three main components:

- the Intermediate Technology Small-Scale Palm Oil Mills (ITSPM) Project, a five year program, started in 1991, to establish sixty community-based palm oil mills in the oil palm growing regions of Ghana;
- the Farmer Service Cooperatives (FSC's) Program, which includes an inventory credit program designed to reduce post-harvest losses and secure higher market prices for farmers in the Upper West, Brong-Ahafo, Central and Eastern regions via market timing; and
- the Non-Traditional Export Development Program, begun in July 1993, which seeks to include small-scale farmers in Ghana's growing non-traditional export trade.

This evaluation assesses program impact in the first two areas of concern, for each of Technoserve's three program components. An economic analysis, using TechnoServe's Cost Effectiveness methodology, has been performed on the ITSPM project as an indicator of the economic impact of the overall TechnoServe program in Ghana.

Evaluation Methodology

TechnoServe Ghana's field database system has only been expanded to include household level information in the past two years, and has yet to capture data from all of its project locations. Since comprehensive baseline data at the individual household-level was not available, household-level impact was assessed through individual and group interviews of beneficiaries. These interviews were conducted on site at two FSCCs in the Upper West Region, three FSCs in the Brong-Ahafo Region, three oil-palm mills in the Ashanti Region, and two cashew groups in Brong-Ahafo.

Broader measures of economic impact were assessed through discussions with beneficiaries, Government of Ghana counterparts from the Ministries of Agriculture, Finance, Trade, and Social Welfare, and the Agricultural Development Bank.

A cost-effectiveness analysis was completed on the palm oil project. The team felt that this was the only component with enough historical performance and segregated cost data to allow full confidence in the cost-effectiveness analysis at this time.

Major Findings

A recent analysis of food security issues in Africa, published by AID in 1993, states:

*"In the long term, the main road to food security is poverty alleviation. In most of Africa, poverty alleviation requires broad-based rural development, spearheaded by agriculture."*¹

The main conclusion of this evaluation is "in sync" with this statement. Specifically, this conclusion is that:

TechnoServe Ghana's program of rural, community-based, agricultural enterprise development has contributed significantly to enhancing the food security of local beneficiaries -- men and women alike -- at the household level, and has also made a positive economic impact at the community, regional, and national levels.

The contribution to household food security in the FSC component includes both increased availability of food for the farmer and his/her family, and increased access to food (particularly during the lean, or "hungry", season) via the increased income earned through the inventory credit program. The FSCs also contribute to better utilization of Ghana's food resources via assistance to farmers in post-harvest storage and marketing.

The team was particularly impressed with the impact of the inventory credit program on the farmers in the Upper West Region of Ghana. This region, which is located in the southern regions of the Sahel, has only one crop season per year and is among the most food insecure regions of Ghana. It was clearly evident that the farmers assisted by TechnoServe have much greater food security than their counterparts who are not participating. These farmers have also experienced significant increases in their incomes as a result of the program.

The other components of the TechnoServe Ghana program are located in the central and southern sections of Ghana, where food insecurity occurs through the variability in rainfall patterns, and the resultant periodic crop failures. The impact on food security of TechnoServe's assistance comes mainly through increased household incomes, and the resultant ability of farmers and their families to purchase food supplies during the lean season (also known in Ghana as the "hungry" season).

¹ Food Sector Instability and Food Aid in Sub-Saharan Africa: Implications for Food Security. USAID Office of Analysis, Research, and Technical Support, Bureau for Africa; Technical Paper No. 10, Nov. 1993.

The ITSPM project has made a particular contribution in the food utilization area through improved local processing of palm fruit (increased production and reduced post-harvest losses) and the introduction of handy 20 liter containers which greatly facilitate both the storage and transport of palm oil. These contributions have been particularly beneficial to rural women. The anticipated introduction of a palm oil inventory credit program in 1994/95 holds significant potential for further increased farmer/processor incomes, thereby further enhancing food accessibility.

While the Non-Traditional Export program is quite young, it is apparent that participants in this program will experience enhanced food security in the future, as cashews, one of the main crops targeted, are harvested and sold during the lean season, providing cash income to the farmers at the time of greatest need. With its focus on demonstrating the economic value of tree crops, this program also holds the potential for significant environmental impact in Ghana.

The cost-effectiveness analysis carried out on the ITSPM (oil-palm) project-- using very conservative projections for processing volumes and sales revenue -- reveals that the project will provide approximately ten dollars in economic benefits for each dollar of direct technical assistance costs.

Recommendations

Based on its findings, the team recommends that the Food for Peace Office approve the TechnoServe FY 1995-1997 MYOP, and proceed with the call forward and delivery of TechnoServe's FY 1995 wheat shipment.

The team was also particularly impressed with the impact on food security of the Upper West Farmer Service Center Cooperatives (FSCCs), and recommends that Techno-Serve work with USAID, and the Government of Ghana (GoG), to implement an expansion of this valuable program component.

II. BACKGROUND ON TECHNOSERVE GHANA

TechnoServe, Inc.

TechnoServe, Inc. is a private, non-sectarian, non-profit U.S. voluntary organization. Founded in 1968, its goal is to improve the economic and social well-being of low-income people in developing countries, by fostering the development of small to medium-scale enterprises. TechnoServe focuses upon the rural areas of the countries where it works, emphasizing agricultural production, processing and marketing.

TechnoServe accomplishes its Mission by providing management, technical assistance and training to both private enterprises and local development institutions. This assistance is provided through a Network of local "Country Program Offices", which are staffed and

It is TechnoServe's aim to improve the economic and social well-being of low-income people in developing countries through a process of enterprise development which increases jobs, productivity and income. TechnoServe accomplishes this by providing management, technical assistance and training to enterprises, and institutions primarily related to the agricultural sector.

TechnoServe's Corporate Mission Statement

operated, with few exceptions, by local professionals. These offices work with rural, farmer-owned and operated enterprises to increase farm productivity, raise rural employment levels, and increase family incomes. Enterprises and institutions assisted by TechnoServe directly benefit rural communities, promote local self-reliance, build stronger regional and national economies, and contribute to the establishment of economic and social well-being.

Incorporated in the State of New York in 1969, TechnoServe maintains its corporate headquarters in Norwalk, Connecticut, U.S.A. The headquarters houses the Office of the

President, the International Program Divisions (Africa and Latin America), and the Departments of Program Support, Research & Development, and Finance & Administration.

TechnoServe employs nearly 220 people around the world. They are highly qualified professionals, most of whom are nationals of the countries in which they work. With a current total annual budget of nearly \$9 million, TechnoServe assists more than 100 major enterprises and institutions annually, benefitting a population of over one million men, women and children in the developing world.

TechnoServe's operating funds are provided by a wide variety of organizations, including: foundations, corporations, churches, individuals, host country institutions, multilateral organizations, and the United States Agency for International Development (USAID). Presently approximately 50% of TechnoServe's global budget is derived from non-US Government sources.

Technoserve Ghana

TechnoServe's Ghana Program was established in the early 1970's, and has provided continuous services to the private sector in that country to the present. In the late 1970's the Program provided services to a number of rural private enterprises involved in the processing of sugar cane. At that time TechnoServe/Ghana established its first Business Advisory Services Program, whereby TechnoServe Project Advisors were made available on a short term basis to assist local enterprises and NGOs with specific problems. The Program weathered the hard times Ghana went through in the early 1980s, and in mid-decade began to analyze sector opportunities for future expansion of the Program. It was during this period that the Program developed the small-scale palm oil mill concept, and started assistance to a number of farmer service cooperatives.

Intermediate Technology Small-Scale Palm-Oil Mills (ITSPM)

In 1987, TechnoServe assisted an oil palm farmers cooperative to establish a pilot palm oil processing plant in the town of Ntinanko in the Ashanti region, a plant which is still operating profitably today. This pilot project, along with other similar projects, led to TechnoServe's involvement since mid-1991, as implementing agency for the Government of Ghana's World Bank financed Intermediate Technology Small-Scale Palm-Oil Mills Project (ITSPM). This is a five year program to establish 60 farmer-owned and operated small-scale palm oil mills in a moderately food-insecure area of the country. In operating the program, TechnoServe collaborates with the Ministries of Agriculture, Trade, Mobilization and Social Welfare (Department of Cooperatives), and the Agricultural Development Bank.

To date, thirteen ITSPM mills have been established in communities in five of Ghana's ten regions. These sites were selected in communities which are not in easy reach of the large-scale government and privately owned mills. Since ripe palm fruit will rot if not converted into oil within days of harvesting, these mills provide local processing capability for rural farmers.

Farmer Service Cooperatives (FSCCs and FSCs)

TechnoServe has two programs to establish farmer owned and operated cooperatives in rural Ghana: the Upper West Pilot Project (Farmer Service Center Cooperatives, or

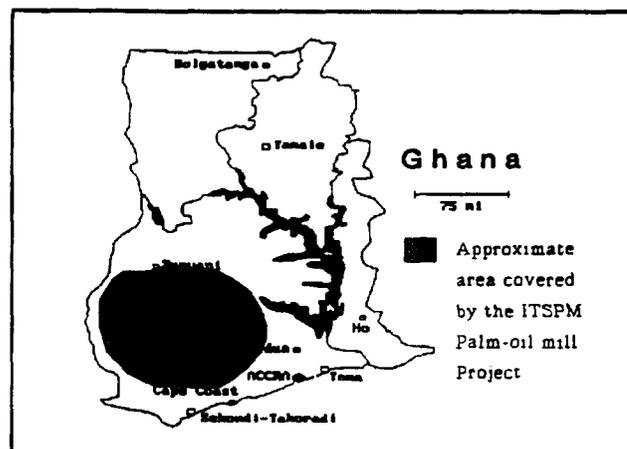


Figure 1 A map of Ghana, indicating the general area of concentration for the ITSPM project.

FSCCs), and the Farmer Service Cooperative (FSC) program in the Brong-Ahafo and Eastern regions. The evaluation findings from both these projects have been grouped together for purposes of this report.

Upper West Project

Since June 1990, TechnoServe/Ghana has been assisting the Department of Cooperatives in setting up three Farmer Service Center Cooperatives in the Upper West Region on a pilot basis. The Upper West is one of the most food-insecure areas of the country, with subsistence farming in only one growing season, rain-fed irrigation, poor roads, and few food storage facilities. Through this program, three state-run FASCOM² depots, located at Nadowli, Fian, and Bulenga, have been "privatized" as farmer cooperatives.

The FSCCs provide a range of services to local farmers including an "inventory credit" program (described in more detail in the following section). Through the program, farmers can store produce for future sale or redemption during the lean season. Farmers receive a loan against the collateral of the produce they place in storage, and then they redeem or sell their produce during the lean season when market prices are higher. To date, these FSCCs have over 700 members, and the inventory credit program is now in its fourth cycle.

Other FSCC services include the sale of farm inputs and household goods through retail stores. TechnoServe has provided training in financial and business management to Department of Cooperatives staff, storekeepers, and Executive Committee members. In addition, TechnoServe has also helped the FSCC at Fian to diversify its revenue base through the start-up of a Processing Service Center (PSC) for cereal milling and production of shea butter. Two additional PSCs, in Nadowli and Bulenga, are scheduled to start-up in October 1994. Finally all three FSCCs are currently engaged, with TechnoServe assistance, in the collection of shea nuts for export.

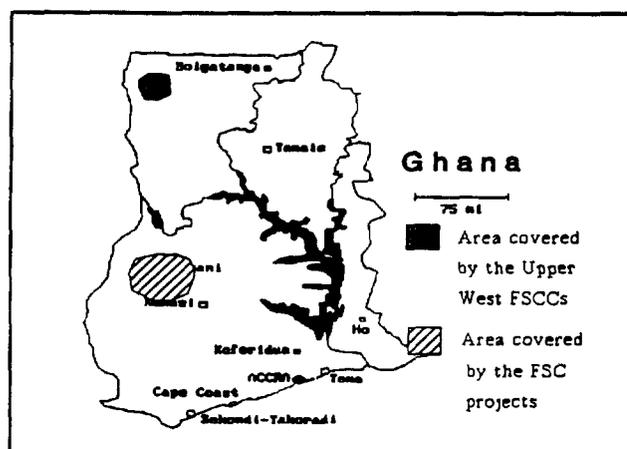


Figure 2 A map of Ghana indicating the areas covered by the farmer service cooperative projects.

² The FASCOMs were established under the auspices of earlier development projects as Ministry of Agriculture operated farmer supply depots. These depots have not been operating for many years, and represent unused resources for the farmers of the regions affected.

Assistance to these FSCCs will continue into 1995, with an emphasis on the processing activities they are developing. Discussions are also underway with the Government regarding expanding the program to other Farmer Service Centers in the Upper West Region later in 1995.

Farmer Service Cooperatives

Since 1991, TechnoServe has helped farmers establish twelve FSC's, ten in Brong-Ahafo (the "maize triangle" of Ghana) and two in the Eastern Region. While the "maize triangle" is the key maize producing area of Ghana, local residents in this region do not traditionally eat maize. Instead, maize is grown primarily as a cash crop.

TechnoServe assistance to these FSC's includes help in becoming legally registered cooperative "societies," technical assistance, accounting training, and the establishment of the inventory credit program (through liaison with the Agricultural Development Bank).

Membership in these Farmer Service Cooperatives has increased to over 600, with individual cooperative membership ranging from 35 to 100. The program is expected to expand to other cooperatives in 1995.

Inventory Credit Program

TechnoServe has helped implement an inventory credit program for farmer-members of the Farmer Service Cooperatives (both the FSCCs and the FSCs) in conjunction with the Agricultural Development Bank. This program enables cash-strapped farmers to receive commercial loans against the collateral value of their own farm produce.

Here's how the program works: at harvest time, farmer-members place their produce into storage after treatment against insects and spoilage. The produce is kept in a locked storage facility managed by the cooperative. Using this stored produce as collateral, farmers are then given cash credit (inventory credit) valued at roughly 70% of the prevailing market value of the produce. The cooperative holds the produce for 6 to 9 months, during which time prices rise due to scarcity of supply. After six months, 75% price increases are not uncommon and increases of as much as 150% have occurred.

Members who want to recover their deposited produce for home consumption can redeem it at any time by paying, to the cooperative, the loan amount plus interest and storage charges. This "buy-back" of produce enables farmers to redeem their produce for home use during the lean season at significantly lower prices than are prevalent on the open market.

Members can also sell their produce, thus receiving the higher lean season value of the produce. From these sales proceeds, farmers repay the loan plus interest, a storage fee,

and a small margin for the FSC. The increased purchasing power of farmers can then be used to buy additional food, to enhance crop production, or for other household needs.

Non-Traditional Exports

In 1993, TechnoServe Ghana secured a role in the implementation of the USAID financed Trade and Investment Project (TIP) which seeks to triple Ghana's non-traditional exports³ over a period of five years from 1993. The project has multiple components, and TechnoServe was awarded the role of assisting small-scale farmers to enter the export trade in non-traditional agricultural crops.

TechnoServe's mandate under TIP is to work with organized groups, with an average of 35 to 75 members each, of rural producers to enhance both the quality and quantity of crops produced for export. The GoG has also requested that TechnoServe: a) assist producers to price their product so they can earn a reasonable margin over their costs of production; and b) link producers with reliable buyers/exporters.

After a series of market studies, TechnoServe and the Trade and Investment Management Unit selected three tree crops to emphasize: cashews, kola nuts, and shea nuts. By mid-1994, TechnoServe had assisted six cashew producing groups in the Brong-Ahafo Region to sell over 150 tons of cashews to local exporters at prices 25% higher than originally offered. TechnoServe had also assisted one of the FSCCs in the Upper West Region to install a shea nut processing facility, and assisted all three FSCCs to collect and broker the sale of 100 tons of shea nuts to local exporters for a sizeable margin.

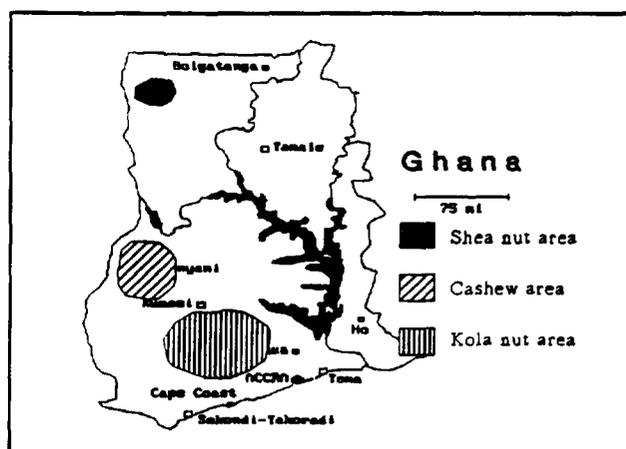


Figure 3 A map of Ghana indicating the production areas for shea, cashew and kola nuts.

In late 1994 assistance will begin to approximately five kola production and marketing groups, two to four pineapple production and marketing groups and at least one cassava chipping venture. This project will continue for another two years; it is projected that more cashew, shea and kola nut groups will be added in early 1995.

³ Ghana's Ministry of Trade, Non-Traditional Export Department, has a goal of increasing the value of Non-Traditional Exports from 71 million Cedis in 1993, to 250 million Cedis by 1997.

III. TECHNOSERVE'S TITLE II PROGRAM

Recognizing the development impact of the TechnoServe Program in Ghana, the USAID Mission and TechnoServe began discussions in late 1990 regarding how AID could provide partial funding for the program. These discussions led to the development, by TechnoServe, of a Multi-Year Operational Plan (MYOP) which proposed the monetization of three annual shipments of wheat, and the creation of a local currency Trust Fund to provide support for the operations of TechnoServe's Ghana Program.

The CEDI (Community Enterprise Development and Investment) Trust has been established using the proceeds of the full monetization of three PL-480 Title II wheat shipments. The Trust is essentially a local currency "term endowment fund" which is used to provide partial funding for the TechnoServe program of enterprise development in Ghana. The CEDI Trust can also be used as a "Venture Capital Fund" (for investments, loans, or loan guarantees) for rural enterprise development to complement the enterprise development activities being undertaken by TechnoServe Ghana.

The overall goals of the PL-480 Title II Project, which was used to establish the CEDI Trust, were as follows:

1. **Capitalization of the CEDI Trust:** Funds generated through the monetization process are deposited in the CEDI Trust, a legally incorporated Ghanaian charitable trust which has the purpose of assisting in the process of rural enterprise development. The CEDI Trust serves as the vehicle for the receipt and disbursement of all PL-480 monetization monies and earnings.
2. **TechnoServe Staff and Beneficiary Training:** Funds available via the CEDI Trust are also used to finance training activities. These training activities include professional staff training for TechnoServe Ghana and basic skills training programs for the "beneficiaries" of TechnoServe's program. These beneficiaries include the owners, members and employees of the enterprises assisted by TechnoServe.
3. **Equipment for the TechnoServe Ghana Program:** Some of the funds available via the CEDI Trust have been used to purchase vehicles and office equipment for TechnoServe Ghana. This new equipment has greatly enhanced the ability of the program to deliver services to rural enterprises.
4. **Funding Support for TechnoServe Ghana:** Some of the local currency expenses of the TechnoServe Ghana Program have been covered by funds from the CEDI Trust. These funds complement the existing traditional funding sources for TechnoServe's program in Ghana. CEDI Trust funds have also been used to "leverage" TechnoServe's access to other donor funding, allowing the program to expand its' scope and impact far beyond that possible without the fund.

5. Venture Capital for Rural Enterprises: Consistent with the stated purposes of the CEDI Trust, an additional use of the monetization funds is the promotion of rural enterprises through the provision of equity investments, loan guarantees and/or direct loans to small rural agricultural businesses.

Since 1992, the CEDI Trust fund has received the local currency equivalent of approximately \$3.0M from the sale of 21,000 tons of PL-480 wheat. These proceeds have been invested in the CEDI Trust, which in turn, has provided over \$1.0M in local currency financial support to the TechnoServe's enterprise development activities in Ghana. To maintain the value of the funds generated, the CEDI Trust has invested funds locally, mainly in Bank of Ghana Treasury Bills, earning significant interest income.

Annex G contains tables which highlight the use of CEDI Trust funds for the support of the ongoing operations of the program in Ghana, for the three program components identified. As can be seen from the table, CEDI Trust funds have been used extensively to support the Farmer Service Cooperative efforts and the ITSPM palm oil mill project. Very little CEDI Trust money has been used to support the operations of the Non-Traditional Export project. It should be noted that this does not represent the full use of CEDI Trust resources, as these uses are only those included in item two on the list of the goals of the PL-480 project.

IV. PURPOSE AND METHODOLOGY OF THE EVALUATION

Purpose of the Evaluation

TechnoServe has recently submitted a new three year MYOP to AID's Food for Peace (FFP) Office for the period FY 1995-97. The primary objectives of this MYOP are:

- to continue to capitalize the CEDI Trust with an additional \$3.3 million in local currency funds generated through the monetization of 24,000 metric tons of PL-480 wheat; and
- to provide support for the ongoing operations of the TechnoServe program in Ghana, which includes long-term technical assistance and training to approximately 110 rural enterprises (projected outputs) in the FY 1995 to 1997 period.

As a condition for approval of this new MYOP, the FFP Office has requested this impact evaluation of TechnoServe's PL-480 Title II Program in Ghana. Plans to perform an evaluation were part of an Institutional Support Grant for TechnoServe, and given the urgency of getting approval for the MYOP, external consultant and TechnoServe staff time were made available to complete this evaluation on a timely basis. The FFP Office was also very instrumental in reviewing and approving the Terms of Reference for the evaluation on short notice, and approving the consultant selected and the travel.

In consultation with the FFP Office, three key areas of impact were identified for the evaluation of TechnoServe's Ghana program. These three areas of impact were considered by the evaluators while conducting their interviews and document reviews of Technoserve's three program components. These key question areas, as contained in the Terms of Reference, are the following:

1. *The evaluators should identify the beneficiaries of TechnoServe's assistance, and attempt to measure the impact the enterprises have had on the households involved.*

Current policy and legislative guidelines stipulate that PL-480 programs must have an impact on the food security of the country where the program is operated. Food security is seen as having three elements: availability, access and utilization. The evaluators should examine how TechnoServe's program has had an impact on food security at the household level, through increased incomes, increased food availability, and better utilization of the food produced.

2. *The evaluators should attempt to measure the economic impact of the enterprises TechnoServe assists, at the local, regional, and national levels.*

TechnoServe's program focusses on the creation and growth of new rural agricultural enterprises in the palm oil, food grains and export crop sectors. Using available baseline data, the evaluators should attempt to quantify the economic impact of these enterprises, both actual and those to be created, on the local, regional and national economies.

3. *The evaluators should conduct an "economic analysis" of the program, utilizing TechnoServe's cost-effectiveness methodology to measure its' economic impact.*

TechnoServe has developed its own internal Cost-Effectiveness (C/E) evaluation methodology, which attempts to measure the economic impact of the enterprises assisted and compare it with the costs of TechnoServe's assistance. USAID/Ghana and the FFP office have received copies of C/E studies done on individual enterprises assisted in Ghana. The evaluators should attempt to apply the TechnoServe C/E methodology to the PL-480 program in an attempt to determine the cost effectiveness, and measure the economic impact, of the program.

Methodology and Procedures

The evaluation team was composed of Ms. Cathy Silverstein and Mr. James Herne. Ms. Silverstein is an independent consultant with experience in US private commercial banking and small enterprise development. Ms. Silverstein also had an internship with TechnoServe in Rwanda, and thus understands the TechnoServe methodology and approach. She has extensive experience in evaluating and designing small enterprise programs in Africa, Latin America and Eastern Europe. Mr. Herne is presently TechnoServe's Director of Government Relations, and has worked with the organization for nearly twenty years in both Africa and the home office. Mr. Herne is also the author of the original Ghana MYOP, and has prepared a number of TechnoServe's Cost Effectiveness studies. The team worked jointly on the evaluation, addressing all the issues raised.

The evaluation included approximately ten days of field work in Ghana, starting with a review of documents, interviews with TechnoServe project management staff, and meetings with USAID and GoG officials. The team conducted an extensive review of project documents, including the original MYOP and the FY '95-97 MYOP, PL-480 program Progress Reports, TechnoServe Ghana internal plans and reports, and project reports provided to other institutions. The team also familiarized themselves with TechnoServe's Field DataBase (TechnoServe's internal project reporting system) information on the Ghana projects. Mr. Herne prepared the Cost Effectiveness analysis of the ITSPM project, using analysis templates developed for earlier C/E analyses of oil palm projects.

The field work included an extensive program of visits to enterprises assisted by the three components of the TechnoServe program in Ghana. Extensive interviews of enterprise management, staff, and participating farmers were conducted at each of the sites visited.

These included numerous individual farmer interviews in order to assess the impact on the household food security of project participants. Interviews were conducted at two FSCC's in Upper West Region, three FSC's in the Brong-Ahafo Region, three oil-palm mills in the Ashanti Region, and two cashew groups in Brong-Ahafo. A complete schedule of travel and interviews is included as Annex B, and an interview questionnaire, developed to guide the individual farmer interviews, is included as Annex E of this report.

The team also interviewed GoG counterpart agencies and institutions that cooperate and collaborate with TechnoServe on the implementation of the various program components. These include representatives from the Ministries of Agriculture, Finance, Trade, and Social Welfare, and the Agricultural Development Bank.

The evaluation process was completed in the USA, with Ms. Silverstein taking on the responsibility of completing the first draft write-up of the report. Mr. Herne also prepared some sections of the report, and provided input to Ms. Silverstein on the preparation of the document. The final draft was reviewed by Ghana Country Director Peter Reiling and other TechnoServe staff in Norwalk, prior to final editing.

V. FOOD SECURITY IMPACT EVALUATION

This section presents the evaluation team's findings on the impact on the food security at the household level for beneficiaries of each of TechnoServe's three main field components: Farmer Service Cooperatives (FSCs), the Intermediate Technology Small-Scale Palm-Oil Mills (ITSPM) Project, and the Non-Traditional Export Development project.

Food security -- as defined by AID -- is *"when all people at all times have both physical and economic access to sufficient food to meet their dietary needs for a productive and healthy life."*⁴ AID further determines food security through three factors: access, availability, and utilization of food.

In TechnoServe's philosophy, farmers will only grow surplus food for sale if they can reasonably make a profit. The way to generate that profit is through the establishment of viable, community-based agri-businesses. This philosophy is supported by research findings of the International Food Policy Research Institute which state:

*"It is the household's ability to obtain food that is critical in ensuring household food security. The ability to obtain food is related to the household's access to food. As the purchasing power of households increase, access to food increases."*⁵

To this end, TechnoServe is providing assistance in the development of rural, farmer-owned and operated enterprises in Ghana. Through these income generating enterprises, TechnoServe aims to increase household purchasing power, as well as provide technical assistance to improve production methods and post-harvest controls. In this way, TechnoServe is working to enhance the food security of program beneficiaries in Ghana while at the same time contributing to longer term economic development.

A. Food Security in Ghana

The Upper West Region, located in the northwestern most corner of Ghana, is one of the most food insecure regions of the country. There is only one farming season a year here, from May to October, and the main food crops are sorghum, millet maize, rice, yams, groundnuts, and beans. Agriculture is exclusively rain-fed, yet rainfall is unreliable and has been erratic in recent years. About 90% of the population (presently more than 707,000) are

⁴ Source: AID Policy Determination: Definition of Food Security, PD-19, April 13, 1992.

⁵ Source: Effects of Credit Programs on Food Security and Nutrition in Ghana, submitted by the International Food Policy Research Institute, September 1991, p. 4.

engaged in both crop and animal farming. The average household size in this region is 13, with all family members participating in on-farm activities. Women-owned farms, which represent 15% of the total, average 3 acres, while male-owned farms average 9 acres.

Under normal circumstances, post-harvest losses in the Upper West Region are high due to lack of storage, inadequate insect and pest control, and poor roads. Local farmers engage in subsistence agriculture, with little surplus produced for sale as cash crops. The local diet usually lacks meat and fish on a regular basis. Between March and July during the lean season, food shortages can become acute, with most families eating one meal a day. During this time, traders can be seen transporting food back from the urban centers to the villages, in reverse of the normal flow of food.

In the geographic center of Ghana are the Brong-Ahafo, Eastern, and Central regions. This area, referred to as the "maize belt," is the key maize growing region of the country. Yet inhabitants of this region traditionally do not eat maize: it is grown as a purely cash crop. Farmers in this area enjoy better roads and easier access to the major markets of Techiman, Kumasi, and Accra than farmers in the more remote Upper West Region. In addition, the local climate can support two growing seasons. For these reasons, food security in this area is relatively less acute than in the north.

However, given the constraints of lack of storage, little pest control, and dependence on sporadic rains, farmers here still experience shortages of food for their families during the lean season.

B. Farmer Service Cooperatives

As detailed earlier, TechnoServe operates two projects in Ghana to encourage the development of farmer-owned and operated cooperatives. For purposes of the report, the



Figure 4 The Fian FSCC Processing Service Center which provides valuable grain milling services for village residents.

evaluation findings from both these projects have been grouped together in this section. These two projects are:

- Upper West Project - TechnoServe has established three Farmer Service Center Cooperatives (FSCCs), private cooperative ventures which are "privatized" state-run FASCOM centers. These FSCCs are located in Nadowli, Bulenga, and Fian villages in the Upper West Region.
- Farmer Service Cooperative Project - Twelve farmer-owned and operated cooperatives, called Farmer Service Cooperatives (FSCs), have been established in selected villages in the Brong-Ahafo, Central, and Eastern Regions.

One of the main interventions for TechnoServe with these farmer service cooperatives is the implementation of "inventory credit", a system which allows farmers to maximize the income they receive from their harvest. This system improves both household access to, and the availability of, food resources.

Family level impact in the FSC project:

In two growing seasons, a woman member of the Offuman FSC increased her acreage from 1 ½ to 8 acres. In 1993 she stored 65 bags of maize in the inventory credit program, and made a profit of 200,000 Cedis. Previously during the lean season, her family ate only one meal a day; now she says they can eat three meals daily. In addition, she now sends her 8 children to school regularly. With the profits from her first season she bought a plot of land in Techiman. In the second season she built a four room concrete house, complete with roofing sheets. Next season she expects to complete the house and her sons will live there while attending secondary school.

The inventory credit system provides the farmer members with access to credit, based on using their harvest as collateral, at harvest time. This is a time when farmers need cash income the most, for such things as school fees and other household necessities. Usually farmers are at the mercy of "middle men" grain traders, and are forced to sell their harvest when prices are at their lowest. With the inventory credit system, the farmers are able to receive some cash income at harvest time, and still retain ownership of their harvest. The grains are stored at a central location, under the control of cooperative management, but the farmer can retrieve his or her grain at any time by paying interest due on the inventory

credit and some storage fees. Usually farmers will store their grain until prices are at or near their peak for the season, and thus they can maximize their income from their farming operations. In many cases farmers are able to increase their income by 75% to 100% over what they would normally have received by using the inventory credit system.

In addition to the inventory credit system the Upper West cooperatives are operating the FASCOMs as cooperatively-owned and managed farm service companies. These service companies began by providing farmers with ready access to common household goods and

farm inputs. This service was a great assistance to these farmers: usually they would have to travel great distances to obtain these supplies, but now they are available locally. Building on these initial supplies, the service centers are now also offering crop processing services, such as grain milling and shea nut processing. Since the service centers also act as the storage depots for the grain stored by the members, the centers are also able to make grain supplies available to the members at affordable prices.

Specifically, the key aspects of the inventory credit program noted by beneficiaries which contributed to increased access and availability of food include:

- Enhanced access to affordable food during the lean season;
- Increased incomes through improved market timing of produce sales;
- Reduced post-harvest losses through processing of produce into storable forms (such as milled flour and processed shea butter);
- Improved cash-flow through access to credit at harvest-time;
- Easier access to credit than they would have as individual farmers.

Many examples of the important impact of the inventory credit program on beneficiaries were provided by the interviewees during the evaluation.

Key Findings

The following findings on household level food security are based on on-site interviews conducted with farmer-members at three FSCs in the Brong-Ahafo Region, and at Nadowli and Fian FSCCs in the Upper West Region. Many group discussions and over twenty private interviews were conducted with farmer-members to determine the impact of their association with the FSCs on the food security of their households.

1. Program beneficiaries interviewed cited the inventory credit program as having made a significant, positive impact on their access to food for their families, especially during the lean season. This is mainly through increased incomes: beneficiaries have gained greater purchasing power to buy food, as well as to meet other household needs. In the Upper West this is a critical factor, given that there is only one growing season and access to food is much more difficult during the lean season.

- According to beneficiaries interviewed, through their participation in the inventory credit program, farmers have received as much as 100% more income for their farm produce. Farm income was chiefly used to supplement household diets during the lean season, and to purchase meat and fish to augment regular diets. In addition, the consensus among beneficiaries was that they now ate a more diversified diet with more meat and fish, and more consistent meals during the lean season than before their participation. This was through improved ability to store produce and better timing of produce sales.

- An elderly widow has a small plot on which she grows groundnuts and soybeans for her own consumption. Last year she stored groundnuts through the inventory credit program and made enough profit to buy additional food and clothing. With her extra income she also hired temporary laborers to help her harvest, something she was never able to do before.
- During the lean season (from April through July), stored food is transferred from the main storage facility to the FSCC sub-stores. In this way maize, sorghum, groundnuts, and shea nuts are readily available for local residents, at prices which are much lower than those prevailing in the open market.
- The sub-stores are open five days a week, in contrast to the local market which is held only once weekly. Thus the sub-stores provide increased access to food, and farm inputs, for members and non-members alike, especially during the lean season. At the Nadowli store for example, patrons come from as far as 22 km. Outside Nadowli, the nearest large market is Wa, a distance of over 50 km. A farmer would have to pay 2,000 Cedis for round trip transport to sell produce in Wa, a prohibitive sum. The stores thus help local farmers eliminate this extra cost.

2. **Improved availability of food for the household was noted also, mainly due to the increases in production levels resulting from the income gains. In some cases farmers indicated they had increased their production two or three-fold, and they plan to continue to produce at these increased levels. Because the FSCs and the FSCCs make food available to the general public, food availability is expanded for all residents and not only the cooperative members.**

- Last year, one farmer produced 15 bags of groundnuts. Of these, he sold 2 bags at harvest time for 8,000 Cedis each to provide new clothing for his five children. Three bags were kept for use in planting the next season's crop, three times what he had planted the previous year. He was able to therefore triple his production. The remaining 10 bags (which were in the inventory credit program) were sold at 12,000 Cedis each; with these proceeds he was able to buy concrete blocks to improve the family home, and his wife purchased needed household items. Now that he tripled his production, he rented a tractor to plow the field for his larger acreage.

3. **Beneficiaries noted many improvements in the quality and utilization of household food through the availability of labor-saving grinding mills provided by the Fian Processing Service Center (PSC). Both the storage and processing activities of the service coops represent much improved utilization of the available food resources of Ghana.**

- These improvements included higher quality and prolonged shelf-life of foods such as cowpea and maize flour, and shea butter. Before, grinding took time, and food spoilt

easily; now it can be stored and spoilage is reduced. Time saved can now be used for other farming and household activities. Also, the FSCC benefits from the additional revenue from milling fees. Since the milling service is available to members and non-members alike, all local residents can benefit from access to the mill.

- A farmer noted that before the PSC was available, "it took a hard-working woman all day" to grind 6 bowls of cow peas into flour by hand. Now, the same quantity can be ground in 5 minutes at the mill for 200 Cedis, and resulting flour is a much higher quality.
- One elderly women noted that since she is too frail to grind the grains herself, she is grateful for the mill, and has now increased her consumption of these milled foods. Members of the Fian FSCC were very enthusiastic about having a local processing facility at affordable prices.



Figure 5 Sales of shea butter from the Tabiase FSCC in the Upper West Region. Shea processing is traditionally a woman's activity.

4. Several beneficiaries interviewed cited examples of how they used their increased farm income to support secondary, off-farm income generating activities. These include activities such as tailoring,

carpentry, petty trading, and the sale of traditional prepared foods. In the same way as the income from inventory credit, these additional sources of income have an impact on both access to, and availability of food for the households involved.

- A woman from Tabiasi, with a family of 18, used the extra proceeds she had gained from the inventory credit program for several activities. As a side venture, she brews and sells pito, a local fermented sorghum beverage. In addition, she now buys salted anchovies (locally known as "Keta Schoolboys") from southern Ghana and sells them locally. Through her trading ventures, she has been able to provide new clothes for her family and was able to pay school fees for 6 children. In addition, she is now able to make better stews for her family and can include more meat and fish.

- One farmer from Nadowli, a part-time tailor by trade, used the extra income gained from the inventory credit program to buy material to make trousers which he sells at a 100% mark-up. He also provided the inputs for a local woman to sell kenkey⁶, thus making more food available for his community and providing the extra income for the seller.

5. Women beneficiaries interviewed noted a number of special benefits at the household level due to their participation in the cooperatives.

- The increased availability of grains, via either storage or purchase from the cooperative, during the lean season helps them to feed their families a better and more consistent diet;
- Food prices are cheaper in the sub-stores than elsewhere locally, and the grain measurements used are more generous than those used by market women;
- Because the sub-store is open throughout the week, women are spared a lengthy trip to market; this extra time saved can be devoted to household chores, tending crops, or engaging in other income generating activities like preparation of food for sale;
- Considerable time and effort saved by using the flour mill at the PSC; and the grinding mill also provides a more efficient use of the grains, and a higher quality flour product.

For a more detailed discussion of the impact of TechnoServe's Ghana program on women, the reader is referred to Section VI.D - Gender Issues.

C. Small-Scale Palm Oil Mills

As was detailed in previous sections, the ITSPM project seeks to establish 60 private cooperatively-owned and managed small-scale palm-oil mills in rural Ghana. The project has been underway since mid-1991, and much of the first two years was spent in preparation for the implementation of the mills on the ground. Extensive work has been done on the technology for the mills, with the new equipment being far more efficient and easier to operate than that at Ntinanko, the site of TechnoServe's first mill. The TechnoServe team has also done a thorough job in identifying and screening the prospective cooperatives. A key criteria for the project has been that the cooperative must put up its own money to build the mill building before assistance will be provided. As of late 1994 a total of 13 new

⁶ Kenkey is a fermented corn meal food product which is a staple food for the local population. It is essentially the "fast food" of Ghana, as it is sold at roadside stands throughout the country.

ITSPM mills had been "commissioned" (see Annex H for an article regarding the commissioning of one of the mills). A further 17 groups are well along in the process and their mills are expected to begin operations in early 1995.

Beneficiaries of the ITSPM project fall into two categories, member/owners who tend to be male oil-palm farmers, and palm oil processors who are all women. Fortunately for the women it is the processors who gain the most from the establishment of the mills. Women processors are typically able to increase their palm oil production by a factor of 10 to 12, while devoting less time and producing a higher quality product. While some of the oil produced is consumed by the processors and their families, the main impact on household food security comes from the increased incomes from the sale of the oil.

Family level impact of Palm-Oil mills:

At the Antoakrom palm-oil mill late one Monday afternoon, Mrs. Akua Duku was dancing with joy. She had just finished processing a ton of palm fruit, producing 200 liters of palm oil. This was done in less than a day, and the oil will net her more than 200,000 Cedis of income. She spends one day per month at the mill, producing four drums of oil. Previously, she only processed palm fruit to make oil for the sixteen people living in her home. When asked if this new income had had an effect on her diet, she said "I'm putting on weight, just ask my husband!" Her husband was there, and he confirmed the fact that she was gaining weight.

Based on the following Key Findings, the evaluators believe the impact of the palm oil mills on household food security is significant, primarily because of the additional income generated from the processing. In addition, most of the processors kept some of the oil they produced for use in the home, providing an important source of nutrition, and vitamin A, in the household.

Key Findings

The following findings regarding the food security impact of the oil palm projects are based on on-site interviews conducted with cooperative management, farmer-owners and women processors at three of the operating oil palm projects in the Kumasi

area. Extensive group discussions and a number of individual interviews were conducted with processors to determine the impact of their participation in the projects on the food security of their households.

1. Clearly the main benefit relative to household food security has been the increased income realized by the members and the processors associated with the ITSPM mills. This income has greatly increased their access to food, particularly food items which have not always been included in their diets.

- As mentioned above, Mrs. Duku has realized an additional 200,000 Cedis per month in cash income for her family. This new income has greatly increased her access to food products not produced by the family, particularly meat and fish.

- Palm oil production can take place nearly year round, providing farmers and processors with a relatively steady source of cash income. As one processor put it: "Palm oil gives me a continuous source of income and creates a much more secure situation. Farming is an annual activity and is less secure."
- One farmer/member at Jojonso/Bedoma had been selling to a large mill on a sporadic basis at a relatively low price. Now he has a steady market in his village, and his income has increased five-fold. He said: "Previously I was borrowing to eat [during the lean season]. Now I can buy meat and fish, and I spend as much as 5,000 Cedis a month on them."
- The comments of the members at Ntinanko also highlighted the impact of the mill on their own household food security. The Vice President stated that he buys more meat now, using income from Ntinanko. He said he has no problem with getting food. A woman processor, who has 15 people living in her house, says she is "not afraid to buy meat now." Another processor stated that if she "has nothing on the farm she at least has the money to buy food."
- The year round nature of the oil palm production was also mentioned as an important factor, as it provides a steady stream of income for the family and insures greater access to food when it is needed most -- during the lean season.



Figure 6 Owner/Members and the women processors gathered on a typical working day at the Antoakrom palm oil mill.

2. Local production of palm oil has increased the availability of palm oil at the village level, and caused an increase in consumption within the households of the members and processors. In Ghana, as in much of Africa, rural residents tend to have a lack of fats and oils in their diets, and palm oil can fill this need, while also being an important source of vitamin A.

- Mrs. Duku, who has 16 members of her family at home, now consumes one gallon a week of palm oil from her own production. This is a significant increase from her previous consumption, when she used the traditional method to produce palm oil and her production was much lower.
- Mrs. Dabo, another processor at Antoakrom, used to buy and sell palm fruit. Her access to oil was only through purchases in the market. Now she processes three tons of palm fruit per month on her own, and she has ready access to palm oil from her own production.
- Virtually all of the members and processors claimed that the increased incomes have allowed them to invest in new and expanded crop production. Many are expanding their oil palm acreage, and in the meantime intercropping the oil palm with yams, cassava and plantain.
- In the past, palm oil was used mainly for production of soap and detergent products by Lever Brothers. Now that the small scale oil palm mills are available, the palm oil produced is more refined and is better for consumption. The Director of Crop Services at the Ministry of Agriculture confirms that there is evidence of a direct correlation between those communities which have a small-scale palm oil mill and higher consumption of palm oil. As a result, local diets are improved by the increased source of vitamin A.

3. The ITSPM design has improved the utilization of palm fruit available at the household and village levels by expanding the processing of the fruit available, and by achieving much greater extraction efficiency. The difference in quality and yield from the traditional means of processing is extraordinary.

- In virtually all of the areas where the ITSPM mills are being installed, there are significant oil palm stands which are going unutilized because they are too far from existing large-scale processing facilities. The ITSPM mills brings efficient, modern processing capabilities to the village level, and greatly expands Ghana's ability to process its own natural resources. When all 60 plants are installed the ITSPM mills will process as much as 25% of Ghana's total palm fruit.
- The traditional method of processing can provide a yield of 10% to 12%, or 100 to 120 Kg. of oil from every ton of fresh fruit processed (fresh fruit is usually referred to as fresh fruit bunches, or FFB for short). The ITSPM mills achieve an extraction rate of 16% to 18%, providing 160 to 180 Kg. of oil for each ton of fruit processed, which translates to a 50% increase in the oil available from each ton of fruit.
- The ITSPM design also provides a much cleaner and hygienic product, as the oil is processed mechanically. In the traditional method the fruit is processed in cement or

earthen pits, where the processors mash it with their feet in the same way grapes are processed. The traditional process, which lacks any filtration element, introduces dirt and impurities to the oil produced.

- Previously, oil-palm farmers had to rely on the large mills to process their fruit. Given poor roads and the burdensome cost of transport, many farmers were unable to reach the mills before their fruit spoiled. The small-scale oil palm mills fill this gap and post harvest losses are greatly reduced.
- Processors enjoy an improved ability to store and transport palm oil due to the introduction of small twenty liter drums by the ITSPM project. This innovation could benefit all palm oil farmers, not only those receiving TechnoServe assistance.

4. The new mills have greatly reduced the time spent processing palm fruit, and much of the time made available is devoted to farming activities. Most of the people interviewed indicated they had expanded their crop production since they started processing at the mills.

- The mill owners at Antoakrom indicated that they had used their oil palm income to expand their food crop production, particularly cocoa yam and cassava.
- The processors have now started planting their own oil palm trees, and they are expanding their cocoa production. The processors seem to be particularly interested in the development of tree crops.

While palm oil is an important food commodity in Ghana, the increased availability at the household level is not the key factor relative to household food security. The main impact here is the increased incomes of the beneficiaries, which gives them greater access to food commodities and allows them to invest in expanded food production of their own.

D. Non-Traditional Exports (NTE)

As was mentioned in the earlier sections, the Non-Traditional Export Development project has selected three tree crops as the focus of its efforts: cashews, shea nuts and kola nuts. Thus far, the main effort has been on the cashew crop, with the process of identifying and selecting the farmer groups nearly completed as the evaluation took place. One shea processing center has been established in the Upper West, and it is expected that expanded processing of shea will be part of the activities in the coming year. The NTE team has also been working to develop kola nuts as a more important export for Ghana, and direct assistance with kola production and marketing coops will start later in 1994.

Perhaps the most important impact of the assistance provided so far has been a 25% increase in the price for cashews received by the farmers. TechnoServe analyzed the cost of production for the farmers and determined that it cost them 200 Cedis per kilo to produce cashews and deliver them to the purchaser. This was exactly the price they were receiving. By introducing the farmers to competing buyers, and armed with the knowledge of their cost of production, they are now receiving 250 Cedis per kilo for their cashews. Future assistance from TechnoServe will be focussed on improved farming practices to increase the quantity and quality of the cashews produced. TechnoServe will also be assisting farmers to increase their acreage in cashews by identifying sources of seedlings and other production tools and materials.



Figure 7 The Management Committee of the Jimini-Zongo Cashew Farmers Association (Sampa).

TechnoServe Ghana has been involved with the Non-Traditional Export project for a little more than one year, and already the assistance to the farmers is beginning to have a measurable impact on their lives. These crops will have only a limited impact on the availability of food at the household level, because they are cash crops and are not consumed in the home. The real impact of these efforts will be to enhance the access of the farmers to food products, and to improve the utilization of an existing agricultural resource in Ghana.

Key Findings

The following findings regarding the food security impact of the Non-Traditional Export project are based on on-site interviews conducted with farmer-members of three of the cooperatives TechnoServe is assisting in the Brong-Ahafo Region. Extensive group discussions were held with these members to assess the actual, and prospective, impact of their participation in the projects on the food security of their households.

1. As a result of TechnoServe's assistance, cashew farmers have received significantly higher prices for their cashews and thus increased incomes. This price increase has

benefitted all cashew farmers, not only those directly associated with TechnoServe's NTE project. With the incomes from cashews the farmers will enjoy much greater access to food commodities, particularly during the lean season.

- The price increase resulting from TechnoServe assistance has provided farmers with a profit of 50 cedis per kilo, which translates into total additional income of 7.5 million cedis for the approximately 980 cashew farmers in the Brong-Ahafo region.
- Cashew production is a nearly year round operation, providing the farmers with a regular source of income during the period they need cash for food the most -- the lean season. This has been a key factor in motivating the farmers to rehabilitate their fields and to increase their acreage.
- TechnoServe is evaluating the possibility of developing some local processing capabilities for the cashew crop, an activity which would increase the incomes of the farmers by adding value to the product sold.

2. The production of cashews will have an important impact on the availability of food crops at the household level due to the intercropping with cashew trees and the increased availability of cash income to invest in food crop production. These impacts will be evident on a longer term basis, as the income from cashews is only starting to flow to the farmers at this time.

- As the farmers plant new cashew trees they intercrop maize, groundnuts and yams with the young trees. In the early years of the expansion this will have an impact on the local availability of food crops.
- Because of their involvement with TechnoServe, and their exposure to other projects assisted, the farmers are now also interested in developing inventory credit for their maize crop. The development of this activity will have an important impact on the overall food security of the cooperative members, and their villages.
- Some of the farmers interviewed intend to expand their food crop production using the income earned from cashews.

The key impact relative to food security of the NTE project will be the steady source of cash income that the farmers will be earning from their cashews. As one farmer stated: "It is very common for food stocks to run out during the lean season, so we need cash to buy food. Without the income from the cashews we eat fewer times a day during the lean season."

E. Schematic Overview of Food Security

Based on the AID definition of food security, the following is a brief description of the constraints which must be addressed to improve food security in any particular country.⁷

Food Access: Individuals have adequate incomes or other resources to buy or trade for appropriate foods to maintain an adequate diet/nutrition level. Constraints include: insufficient economic growth; lack of job opportunities; inadequate training or skills; lack of credit; food losses associated with poor harvesting, storage, processing, and handling techniques.

Food Availability: Sufficient quantities of appropriate, necessary types of food from domestic production, commercial imports, or donors are available to individuals or within reach. Constraints include: lack of agricultural knowledge, technologies, and practices; inappropriate economic policies including pricing and marketing; inadequate agricultural inputs, and non-existent or ineffective private sector.

Food Utilization: Food is properly used and proper food processing and storage techniques are employed. Constraints include: nutrient losses associated with food preparation; and cultural practices that limit consumption of a nutritionally adequate diet by certain groups or family members.

The table shown on the following page is a synthesis of the three field components of TechnoServe's Ghana program with highlights of how each addresses these food security factors in Ghana.

⁷ Based on AID Policy Determination: Definition of Food Security, PD-19, April 13, 1992.

F. Synthesis of Food Security Impact

Impact of Technoserve's projects on the Principal Factors of Food Security

	ACCESS	AVAILABILITY	UTILIZATION
I T S P M	<ul style="list-style-type: none"> ● Increased household incomes from increased palm oil production ● Greater availability within the household due to expanded production ● Expanded household incomes insure access to food year round 	<ul style="list-style-type: none"> ● Increased local production of palm oil through improved technologies ● Increased incomes are used to invest in expanded farming activities ● Food crops are inter-cropped with palm when new trees are planted 	<ul style="list-style-type: none"> ● Reduced post-harvest losses of fruit from local processing capability ● Improved distribution capability using the new 20 liter containers ● New system provides a more hygienic and stable palm oil product
F S C C & F S C	<ul style="list-style-type: none"> ● Increased household incomes through the use of inventory credit ● Access to stored grains during the lean season at reasonable prices ● Storage & sale of grains takes place closer to the farmers via the FSCCs 	<ul style="list-style-type: none"> ● Farmers use increased incomes to invest in expanded production ● Improved storage techniques reduce the post-harvest losses ● Storage of grains in villages insures availability in times of need 	<ul style="list-style-type: none"> ● Training of farmers in proper storage and handling techniques ● Introduction of processing centers improves utilization of stocks ● Farmers maintain control over their grains throughout the season
N T E P r o j e c t	<ul style="list-style-type: none"> ● Increased incomes from sale of cashews improves access to food ● Cashew income is steady, and comes during the lean season ● Introduction of inventory credit for food crops will expand farmer incomes 	<ul style="list-style-type: none"> ● Increased incomes invested in expanded food crop production ● Intercropping of food crops and cashews in new plantations ● Coops will also begin to use inventory credit in the future 	<ul style="list-style-type: none"> ● Coops will introduce fruit (cashews, etc) processing in the future ● Coops may also introduce other food processing technologies

VI. BROADER MEASURES OF IMPACT

This section discusses the broader measures of economic impact at the local, regional, and national levels for TechnoServe's three program components in Ghana. These include impacts on direct participants in TechnoServe-assisted activities, as well as benefits received by other individuals in communities where TechnoServe projects are in place. In addition, the section covers the impact on women, and synthesizes unintended results of TechnoServe's Ghana program.

A. Farmer Service Cooperatives

The following is based on interviews with FSC members, FSC Executive Members, Government of Ghana officials, farmers, business people, and other individuals in the communities of the Upper West and Brong-Ahafo Regions.

- 1. Improvement in overall quality of life for TechnoServe beneficiaries has benefited the communities in which they live.** Government officials, FSC members, and other individuals cited that there had been a positive spill-over effect on the communities in which the FSC cooperatives operate. They cited a notable improvement in the lifestyle of members over non-members. Members have made improvements in housing, using concrete blocks and aluminum roofing sheets. With their increased purchasing power, members are greater local consumers, purchasing clothing, building materials, bicycles, and other household goods.
- 2. The coop sub-shops provide a secondary benefit to the community for members and non-members alike.** The shops are open five days a week and are also open to non-members. Here food is available during the lean season, while farm inputs and household items are available on a regular basis. These shops make household goods such as fuel more readily available for all individuals in the community. Farm implements sold in the shops include hoe blades, pitch forks, fertilizer, shovels, and pesticide. Household items include buckets, floor mats, foam mattresses, and fuel (diesel, kerosene, and petrol). All of these items are commonly used by the farmers in the district in their production of food crops. The easier availability of these items has contributed to the expansion of food production in the area.
- 3. Many beneficiaries interviewed noted that through increased incomes, they are able to send their children to school more regularly, as they can afford the required school fees and uniforms.** This broad impact was noted by many individual FSC members. This impact was confirmed by the Circuit Supervisor for the Ghana Education Service in Wa District, an Executive Member of the FSCC. While he did not have statistical data available,

he noted that school intake figures in his district had risen appreciably since the community began participating in the inventory credit program.

4. Communities where the FSCs are operating have demonstrated increased savings mobilization, which further benefits their communities. For example:

- FSCC members in the Upper West were required to make initial contributions of 5,000 Cedis. From June 1990 to the present, membership in the three FSCCs has grown from 295 to over 700, with total equity raised of over 1.4 million Cedis.
- Despite the financial constraints of local farmers, to date FSC's in Brong-Ahafo have collected an average of one million Cedis each (US\$ 1,000), an extraordinary achievement. This provides some indication of the level of community commitment to the coops. In addition, it demonstrates the potential for leveraging accumulated capital in ways that can meet local needs.

5. The FSCs interviewed stressed the important community development aspect of their cooperative societies. The FSCs have provided excellent platforms for community development. Social benefits have been noted which include improved community organization, strengthening of women's social standing, democracy-building as a result of group decision-making, and an institutional mechanism for making community decisions.

During a discussion on TechnoServe's Ghana program, one official at the Ministry of Finance applauded the program, noting that group formation is "good for civil society." Through group governance, farmers can circumvent unscrupulous middlemen, and can learn how to organize themselves. There are also key social benefits for women, by giving them a voice in their communities, and helping them develop some economic independence.

6. Through its local programs, TechnoServe is enhancing overall entrepreneurship and private enterprise development in Ghana. Farmers are now taking ownership of their enterprises, and are beginning to behave and think like business people. Beneficiaries, government officials, and non-member residents alike cite this change in attitude as a positive benefit of participation in the FSC program. During interviews, farmers spoke of "break even costs," and "cash flow planning" for production of next year's crop. Farmers have also used savings for capital reinvestment in their farms.

7. Through training, TechnoServe is building local institutional capacity by strengthening skills of beneficiaries. TechnoServe has provided training in financial and business management to Department of Cooperatives staff, storekeepers, and Executive Committee members.

The important benefit of training was highlighted by Seidu Abdulai, a farmer from Tabiase in the Upper West Region who was elected Secretary to the Fian FSCC in Septem-

ber 1990. Since his election, he has attended monthly training sessions for the Management Committee in record keeping and business decision making. In his words:

"Not only has this training program helped me to manage the FSCC, it has even assisted me to organize my own farm business better. This has contributed in no small way towards my selection as the 1992 National Best Farmer." In November 1991, he took advantage of the inventory credit scheme by depositing 20 bags of maize, taking a cash loan of 120,000 Cedis. "With this handsome sum in my pocket, I was able to solve my personal problems without giving my harvest away to market women from Wa at very low prices."⁸

8. **Technoserve assistance had led to creating local food diversity.** This added diversity can benefit members in the community at large. For example, the Bodom FSC has started to diversify into beekeeping by sending one of their members to a training course. Now they have two active hives and produce the highest quality honey in the region. They are now building five more hives. In addition, they have started to raise poultry and are currently the only poultry producer in the area.

B. Small-Scale Palm Oil Mills

Based on the experience of the Ntinanko palm oil mill, which has now been in operation for nearly eight years, the communities involved can expect to receive a broad range of benefits from the presence of the mills in their villages. Some examples from Ntinanko:

1. **The general level of economic activity in Ntinanko has increased greatly, with expanded incomes and employment opportunities.** Five years ago there were no hairdressers in Ntinanko, now there are three. Similarly the number of tailors and dressmakers has grown from 2 to 10, with many of these offering apprentice opportunities to local youth. The evaluators suggested that TechnoServe develop a "Hairdresser Index" as a measure of the broader economic development of the villages where mills are to be placed.

2. **The increased incomes from the mill operations has had a positive effect on the educational opportunities for the youth of the village, from pre-school level on up to secondary school.** At Ntinanko the processors have set up their own "kindergarten" to provide appropriate care for their children while they are occupied with the processing. This kindergarten employs two teachers and two attendants, and, in the words of Ntinanko's

⁸ Source: Bofo, the Semi-Annual Newsletter of TechnoServe/Ghana, Issue 2, July 1993, p. 5.

Chairman, "It provides the kids with at least one square meal a day." Income is used very often for school fees, and in Ntinanko school attendance has doubled. One member stated that before she could only pay for primary school, now she can afford to send her children to secondary school. Ntinanko also paid for the roofing sheets for a new Junior Secondary School in the community, and it offers other cash contributions to the local schools.

3. Clear evidence of the economic impact of the Ntinanko plan is evident to the visitor in the form of an improved standard of living. Much of the new housing construction in the village is now using concrete block and roofing sheets. This is in contrast with the predominance of mud bricks and thatched roofs on older buildings. The number of new businesses in the village is another indicator, and a new private health clinic has recently opened up in a nice building in the center of town. The social impact noted by the Department of Cooperatives includes: increased availability of pipe borne water; the installation of a mill creates employment for the whole village; other communities have emulated the idea of the mills.

4. The replication of Ntinanko and the other early palm-oil mills, via the ITSPM Project are having broad national level impact in Ghana. Some important examples of these broad national impacts are as follows:

- Enhanced manufacturing capability through the inclusion of local firms as producers of the palm oil mills. Through their involvement with TechnoServe, these capital equipment manufacturers now have established favorable relationships with the ADB which should allow them easier access to credit and other banking services in the future.
- Increased collaboration among various GoG agencies and institutions. For example the Ministry of Agriculture surveys oil palm farms for ITSPM; the Agricultural



Figure 8 Members of the Ntinanko palm oil mill which has been in continuous operation for nearly eight years.

Development Bank (ADB) provides credit for mill manufacture and credit for the inventory credit program.

- The ITSPM Project has (a) created a model of community development -- one in which the community is assisted to own and to operate the means with which to add value to local produce -- which has been embraced and adopted by the Ministry of Food and Agriculture as a key component of its future development strategies for crops ranging from cassava to rubber, and (b) captured the attention of a variety of donors including ILO and UNDP through its innovative use of local private sector manufacturers to assemble the machinery required to process palm oil.

Because of the number of mills to be established, the broad geographic coverage and the relative importance of palm oil in Ghana's economy, this project should have a significant positive impact on Ghana's economy well into the future.

C. Non-Traditional Exports (NTE)

TechnoServe's assistance within the NTE project is still in its early stages, and indicators of broad impact are only now becoming evident. Based on project impact to date, and extrapolating from the experiences of the other projects in Ghana, the team has developed the following as the likely broad measures of impact for the NTE project in the coming years.

1. **TechnoServe-assisted cashew farmers contributed approximately 33% of the national cashew exports in 1993.** This is based on the Ministry of Trade's figures that Ghana exported 300 tons of cashew last season. Of this amount, TechnoServe reports 101 tons were produced in 1993 by the six cashew groups they assisted, at \$500 a ton. At this price, the 101 tons produced would have contributed over \$50,000 in exports.
2. **Development of the cashew groups, and other groups, will increase the savings mobilization in rural areas of Ghana.** Six of the cashew groups are currently operating bank accounts and two groups are making an effort to activate their dormant accounts. TechnoServe will be providing these groups with continued assistance to further develop these savings efforts. At some point in the future the concept of inventory credit will also be introduced to the groups for both their export crops and their cash crops.
3. **TechnoServe's assistance will result in broad training and technical assistance impacts.** Fifty-six agricultural extension officers in the Brong-Ahafo region have received

training in cashew production including appropriate farming practices, seed selection, and post-harvest handling; 85 cashew farmers were also trained.⁹

4. The NTE projects, because they rely heavily on tree crops, will have positive long their environmental benefits for the regions affected. Tree crops can have a beneficial environmental impact by reforesting the terrain, diminishing erosion and providing soil nutrients through falling leaves. Cashew trees which were abandoned are being reutilized. With its emphasis on tree crops, this program could have a potential positive environmental impact in Ghana, where deforestation is a major environmental concern.

D. Gender Issues

Women are traditionally active in agricultural production in Ghana and are gaining particular benefits from their involvement with TechnoServe. Women are participating in palm oil production as owners and processors: 70% to 80% of the beneficiaries of the ITSPM project are women. TechnoServe consultants have helped redesign the pressing technology to make it more "woman friendly," by greatly reducing the physical effort necessary to process palm fruit. The drudgery of traditional hand processing of palm oil fruits is eliminated through mechanization. This also increases the extraction efficiency of the processing effort and significantly reduces processing time. In turn, this allows women more time for other important household activities.



Figure 9 A woman processor working with the equipment operators at the Antoakrom palm oil mill to process her palm fruit.

⁹ Source: TIP Project Status Report, TechnoServe/Ghana, April 1 - June 30, 1994.

Women are also traditionally shea nut pickers. At the Fian FSCC, 79 women members have an immediate sales outlet for their shea nuts and an additional 191 women non-members in the Fian Zone also have access to the facility. At Nadowli, 9 women coop members have an outlet, plus 278 women non-members. At Bulenga 28 women coop members have an outlet plus 133 women non-members. Average shea nuts picked per woman per year ranges from 94 - 168 kilos.¹⁰

Women beneficiaries cited several positive benefits from their membership in the FSCs. They noted that they can save much time and effort by using the flour mill at the PSC in Tabiase. The grinding mill also means more efficient use of the grains, and higher quality flour products. Their household tasks are made easier by the ready access to and variety of household items now available at the farm store throughout the week. They do not have to wait for the weekly market or make the long, costly journey to Wa. This allows them more time for their families, for farming, and for engaging in other income generating activities.

Another benefit for women has been improved social integration, which is important for the community as a whole. Women are now better able to voice their concerns, as in the cooperative structure, women have an equal vote to men. Many women are now beginning to have their own source of income through their association with the program and are becoming more self-sufficient as a result. One farmer interviewed at Tabiase noted with approval the increased income and independence of women members of the FSCC. He says the men are pleased since this takes some financial pressure off them and they recognize the benefits of additional income for all family members.

E. Unintended Results of the Program

It should be noted that there have been several results of TechnoServe's Ghana program which were unintended. The examples below provide an indication of the impact the program is having in Ghana above and beyond the communities and individuals targeted for assistance.

- In 1993, the Unit Cooperative Society at Bodom sold 166 bags of their maize stored through the inventory credit program to Catholic Relief Services for use in their feeding programs. In 1994 the FSCs sold 300 tons to CRS, 100 tons to World Vision and the palm oil mills also sold 3,000 gallons of palm oil to CRS. Thus, the locally stored produce from TechnoServe assisted projects is helping to improve food security in other areas of Ghana.

¹⁰ Source: Ibid.

- Members mentioned that local secondary schools and hospitals came to the FSCC in Fian last lean season to buy produce available from the sub-store. In this way, the benefits of the store and the activities of the coop are benefitting food availability for the community and district as a whole.
- Due to the success of the inventory credit program, it has become a model for other programs in Ghana. For example, the Agricultural Development Bank, as well as IFAD, have taken the same approach with individual grain traders, enhancing their ability to purchase and store local grain production for the lean season. Concurrently, the World Bank is exploring means to assist TechnoServe to expand and replicate its inventory credit program further in the near future.
- TechnoServe has stimulated constructive interaction between various government ministries and the ADB. This has produced cooperation and synergy that wasn't previously the norm. This was reiterated by officials spoken to at the Ministry of Agriculture, the Department of Cooperatives in the Ministry of Social Welfare, and the ADB. Thus, TechnoServe's program is having a positive impact at the national policy level by coordinating government efforts at agricultural-based enterprise development.
- TechnoServe has received much recognition for the success of its efforts in Ghana. One official at the Ministry of Agriculture stated that "TechnoServe is number one in rural development in Ghana." The government has recently set up a technical team to examine micro, small and medium enterprise initiatives in Ghana. The committee's Chairman invited TechnoServe to participate on the team because they recognize the strength and experience of TechnoServe in Ghanaian development.

F. Use of CEDI Trust Funds as Loan Guarantees

The CEDI (Community Enterprise Development and Investment) Trust has been established in Ghana using the proceeds of the full monetization of three PL-480 Title II wheat shipments. This section discusses the impact of using the funds of the CEDI Trust as loan guarantees to assist TechnoServe efforts in rural enterprise development.

As AID's experience in loan guarantees around the world shows, guarantees are useful in expanding the universe of potential loan applicants who would otherwise qualify for a loan but lack sufficient collateral to satisfy bank credit requirements. The chief advantage of a guarantee scheme in Ghana would be to involve the local banks in providing much needed credit to the rural areas.

As in any guarantee scheme, sound management will be critical to long-term commercial success. The choice of bank or financial institution will need to be carefully made to

ensure the loan officers are properly trained (particularly in the special needs of small-scale entrepreneurs). Even given the guarantee, sound credit analysis and management would be still required and clear lending criteria must be established to set acceptable risk limits. This requires an experienced financial institution with solid management and technical capability. Lacking such a counterpart, a guarantee scheme would need to provide technical assistance and training to the chosen financial institution in order to ensure successful client selection and loan payback.

A guarantee does not preclude the need to conduct sufficient due diligence to ensure a project is viable and the loan likely to be repaid. They should be used to support solid, bankable projects; not used to extend loans to projects which do not make economic sense. Risk will also be reduced over time, as participants develop a favorable repayment history and establish relationships with the bank. Sound analysis would need to be applied in the Ghanaian context to determine a number of key variables: guarantee ratio, fee structure, expected interest rates and inflation, average loan size, and long-term capitalization strategy to ensure sustainability of the fund. In the case of fees, banks or financial sources could be encouraged to compete for the provision of the guarantee facility. Through competition, banks could be discouraged from charging overly high fees, a common problem of guarantee schemes.

Good management is also needed to help avoid potential pitfalls. For example, a guarantee scheme would need to be designed to avoid a situation where TechnoServe is both a lender and an advisor, putting TechnoServe in a difficult situation if they need to collect on the loans. In the case of Ghana, TechnoServe has already established a good working relationship with the ADB, and TechnoServe cooperatives have a 100% repayment rate to date. The ADB has much experience in the area of rural credit, and with the community-based enterprise cooperatives that TechnoServe is supporting. This positive inter-relationship will be important if a guarantee scheme is undertaken in the future.

VII. COST EFFECTIVENESS

As part of the evaluation the team was requested to conduct an "economic analysis" of the TechnoServe PL-480 program using the cost effectiveness (C/E) methodology developed by TechnoServe. A full description of the methodology, and the detailed worksheets for this analysis, are included as Annex F of this report. The original idea was to apply the C/E analysis to each "component" of the program. For practical purposes this has proven to be impossible to complete. The team has chosen to apply the cost effectiveness methodology to the ITSPM project because it has the most long term data available on enterprise history, and a large part of the costs of this pal oil mill development have been covered by CEDI Trust funds.

The cost effectiveness analysis projects that the Net Present Value (NPV) of the benefits the Ghanaian economy will realize equal nearly \$16 million. To achieve these benefits from the ITSPM project, TechnoServe estimates that the NPV total cost of the project will be approximately \$1.6 million. Based on this analysis the ITSPM project should provide approximately \$10.00 of economic benefits to the communities, and to Ghana's national economy, for each \$1.00 of TechnoServe costs. A summary presentation of this data is shown in the box below. This C/E figure is very good relative to usual TechnoServe projects, which range from a C/E ratio of 5 to 7 on average.

<i>NPV of Incremental benefits:</i> \$15,910,000	
<i>NPV of net TechnoServe Cost:</i> \$1,595,000	= 9.98 C/E ratio

The full C/E tables are included as part of Annex G, along with a detailed description of the methodology. A brief explanation will help the reader to understand the basis for these numbers, and how the C/E ratio is derived. The incremental benefits is a calculation of the NPV of the additional economic benefits provided by the ITSPM mills, over a period including past operations and a projection ten years into the future. The NPV of TechnoServe costs includes all direct project costs from the inception of project activities to the termination of TechnoServe assistance. The C/E ratio takes these two numbers and provides a numerical indication of the "cost effectiveness" of the project.

To complete the C/E analysis some simplifying assumptions had to be made regarding the individual ITSPM mills to keep the task manageable. The basic assumptions which have been made are as follows:

- TechnoServe has prepared a fact sheet on the Assin-Dosii palm oil cooperative, which contained relatively detailed financial and production data. This cooperative, and the data available from it, was used as a proxy for all the 60 mills to be established. It would not be practical, or even possible, to prepare individual projections on the activities of each of the 60 mills in this program.
- It has been assumed that the first 13 mills began operations in 1994, and that they operated for a full year. The additional mills are assumed to come on stream as follows: 1995 - 17 mills, 1996 - 20 mills, and 1997 - 10 mills.
- It has also been assumed that the original life of the project will need to be extended by two years, and the additional costs for these years of assistance have been included in the C/E analysis.
- The analysis assumes that the groups assisted will not implement palm oil mills on their own, thus the "Without TechnoServe" enterprise income numbers are zero. Without TechnoServe the farmers and processors would continue their traditional activities, and income projections for these activities are included in the analysis.
- All costs in the future are assumed to be "steady state", in other words there are no assumptions for inflation, exchange rate shifts, price increases, wage increases, etc. Since all benefits and costs are reduced to their net present value in the end, this has no material impact on the overall analysis.
- TechnoServe charges the cooperatives it assists a fee for the services provided, but in most cases this is a very small amount. For the purposes of the analysis the fee income has been assumed to be zero. Usually fee income is used to offset Techno-Serve costs, thus the cost numbers may be overstated.

Many more assumptions regarding processing volumes, yields, prices, wages and salaries, and all the other factors of production have gone into the analysis. Page two of the C/E analysis provides the detailed numbers generated by applying all these assumptions. These assumptions have been thoroughly discussed and reviewed with the ITSPM Project Manager, who believes they are conservative and reasonable.

VIII. CONCLUSIONS AND RECOMMENDATIONS

A. Conclusions

The chief conclusion of this evaluation is that TechnoServe's Ghana program of rural, community-based, agricultural enterprise development, has contributed significantly to enhancing the food security of local beneficiaries -- men and women alike -- at the household level, and has also made a positive economic impact at the community, regional, and national levels. In addition, the inventory credit program has been the most significant element of TechnoServe's program in contributing to food security by addressing two key constraints: high post harvest losses due to lack of storage and low prices due to poor market timing.

The team was particularly impressed with the impact of the inventory credit program on the farmers in the Upper West Region of Ghana. It is evident that the farmers assisted by TechnoServe in this region, the most food insecure region of Ghana, clearly had greater food security than their counterparts who had not participated in the program.

Of beneficiaries interviewed, the consensus is that most have improved their overall quality of life through their participation in the TechnoServe-assisted programs. This is the result of increased incomes which have improved household-level food security, as well as through improvements in the communities in which they live.

The team also concluded that the project will have important broad impact on the families involved in the projects, and on the local, regional and national economies. Given the broad geographic coverage of the ITSPM project, and the percentage of the palm oil sector that will be included in the small-scale palm-oil mills, this project will have important national level impact as well.

The cost effectiveness analysis of ITSPM project has also indicated that the project will provide as much as \$10.00 in economic benefits for the Ghanaian economy for each \$1.00 of TechnoServe project assistance costs.

B. Recommendations

Based on its findings, the team recommends that the FFP Office approve the Techno-Serve FY 1995-97 MYOP, and proceed with the call forward and delivery of the wheat shipment in FY 1995.

The team also recommends that TechnoServe work with USAID and the Ghana government to implement an expansion of the Upper West Project, which has demonstrated a highly favorable impact on the food security of current beneficiaries.

TECHNOSERVE, INC.

**Scope of Work for an Evaluation of
TechnoServe'S Title II Monetization Program in Ghana**

INTRODUCTION:

TechnoServe's Ghana program was established in the early 1970's, and has provided continuous services to the rural agricultural sector in that country since that time. During the years 1987-92, TechnoServe/Ghana reached new heights of activity, credibility, and visibility in Ghana. The growth and evolution of the Program in those years was based largely on pilot or initial replication efforts. These were just beginning to bear fruit by the early 1990s.

The initial oil palm work in the late 1980's at Ntinanko and Prestea led to the ground-breaking Intermediate Technology Small-Scale Palm Oil Mills Project. Through this project TechnoServe is to assist in the establishment of 60 additional small-scale rural palm oil mills throughout the palm growing regions of Ghana over a five year period. This project is being implemented in collaboration with the Ministry of Food and Agriculture, and will assist small enterprises in a large area of the country.

TechnoServe's initial service cooperative work in the south led to a more substantial - and more sophisticated -- effort in the Upper West; the Upper West Pilot Project. In this project TechnoServe Ghana is assisting three Farmer Service Centers to "privatize" through the creation of Farmer Service Center Cooperatives, which are known as FSCCs. These FSCCs are providing a wide range of services to the farmers in the area, such as input supply, commodity sales and inventory credit, and added value-added crop processing services from 1993 onwards.

In 1993 TechnoServe Ghana began work on a Non-Traditional Export program, in collaboration with the Ministry of Trade, Ministry of Finance and the USAID Mission. This project will provide assistance to farmers, and farmers groups, who wish to become involved in exporting non-traditional agricultural products. The TechnoServe project is assisting with the development of three tree crops; cashews, shea and kola nuts.

PROJECT BACKGROUND:

Recognizing the development impact of the TechnoServe Program in Ghana, the USAID Mission and TechnoServe began discussions in late 1990 regarding how USAID could provide partial funding for the program. These discussions led to the development, by

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TechnoServe, of a Multi-Year Operational Plan (MYOP) which proposed the monetization of three annual shipments of wheat and the creation of a local currency Trust Fund for the TechnoServe Ghana Program. The Trust fund, which is known as the CEDI (Community Enterprise Development and Investment) Trust, is now established and operating as a term endowment.

The monetization program which established the CEDI Trust had multiple objectives and purposes. First, the program sought to set up the term endowment, which would capitalize the trust fund and develop mechanisms to preserve the value of the fund. Second, the trust fund was designed to provide ongoing funding for various elements of TechnoServe Ghana. Funding from the Trust could be used in the following categories:

- ▶ Purchases of Capital Equipment
- ▶ Funding for training of staff and beneficiaries
- ▶ Funds for loans and loan guarantees
- ▶ Funding for ongoing program operations
- ▶ Trust Fund management and administration

These uses of funds are also consistent with the legal purpose of the trust, which was to support the development of rural enterprises in Ghana.

As of mid-1994 the TechnoServe PL-480 program has monetized three annual shipments of Title II wheat, and capitalized the CEDI Trust with the local currency equivalent of approximately \$3.0M. The CEDI Trust has also provided more than \$1.0M in local currency funding for the ongoing operations of the TechnoServe Ghana program over the past three years.

PURPOSE OF THE EVALUATION:

At this time TechnoServe has submitted a new three year MYOP to AID's Food for Peace Office for continued funding of the CEDI Trust, and support for the ongoing operations of the TechnoServe program in Ghana. The review process within Food for Peace (FFP) has raised some issues to be examined regarding the program, and it appears appropriate at this time to conduct an evaluation. TechnoServe also has Institutional Support Grant funds available, and prior approval of the FFP Office, for this evaluation. The key questions for the evaluation, set out below, have been developed in consultation with the Food for Peace Office.

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KEY QUESTIONS FOR THE EVALUATION:

There are three key question areas regarding the TechnoServe program which the evaluators should address. They are:

1. The evaluators should identify the beneficiaries of TechnoServe's assistance, and attempt to measure the impact the enterprises have had on the households involved.

Current policy and legislative guidelines stipulate that PL-480 programs must have an impact on the food security of the country where the program is operated. Food security is seen as having three elements: availability, access and utilization. The evaluators should examine how TechnoServe's program has had an impact on food security at the household level, through increased incomes, increased food availability, and better utilization of the food produced.

2. The evaluators should attempt to measure the economic impact of the enterprises TechnoServe assists, at the local, regional, and national levels.

TechnoServe's program focusses on the creation and growth of new rural agricultural enterprises in the palm oil, food grains and export crop sectors. Using available baseline data, the evaluators should attempt to quantify the economic impact of these enterprises, both actual and those to be created, on the local, regional and national economies.

3. The evaluators should conduct an "economic analysis" of the program, utilizing TechnoServe's cost effectiveness methodology to measure its' economic impact.

TechnoServe has developed its own internal Cost Effectiveness (C/E) methodology, which attempts to measure the economic impact of the enterprises assisted and compare it with the costs of TechnoServe's assistance. USAID/Ghana and the FFP office have received copies of C/E studies done on individual enterprises assisted in Ghana. The evaluators should attempt to apply the TechnoServe C/E methodology to the PL-480 program in an attempt to determine the cost effectiveness, and measure the economic impact, of the program.

METHODS AND PROCEDURES:

TechnoServe proposes a two person team for this evaluation, composed of Mr. James Herne and Ms. Cathy Silverstein. Mr. Herne is presently TechnoServe's Director of Government Relations, and has worked with the organization for nearly twenty years in both Africa and the home office. Mr. Herne is also the author of the original Ghana MYOP, and has prepared a number of TechnoServe's Cost Effectiveness studies in the past few years. Ms. Silverstein is an independent consultant with experience in US private commercial banking and small enterprise development. Ms. Silverstein also had an internship with TechnoServe in Rwanda, and thus understands the TechnoServe methodology and approach.

She has extensive experience in evaluating and designing small enterprise programs in Africa, Latin America and Eastern Europe. The team will work together on all the issues to be addressed, with Mr. Herne focussing on issue number 3, Ms. Silverstein focussing on issue number 2, and sharing responsibility for issue number 1.

The evaluation will take place in Ghana, starting with a review of documents, interviews with appropriate TechnoServe staff members, and meetings with USAID and GoG officials. Documents to be reviewed will include, but not be limited to, the original MYOP and the FY '95-97 MYOP, PL-480 program Progress Reports, TechnoServe/Ghana internal plans and reports, and project reports provided to other institutions. The team will familiarize themselves with Field DataBase (TechnoServe's internal project reporting system) information available on the Ghana projects. The team will also review the TechnoServe Cost Effectiveness methodology, and examine the C/E studies already prepared on Ghana projects.

Work will continue in the field in Ghana, with the team spending approximately one week visiting projects. Field visits should be made to selected examples of oil palm enterprises, farmer service cooperatives and farmer export groups. If possible, the team should make individual visits to selected enterprises to make efficient use of the time available.

The evaluation will be completed in the USA, with Ms. Silverstein taking on the responsibility of completing the write-up of the report. Mr. Herne will provide input to Ms. Silverstein on the preparation of the document, and final editing will take place at TechnoServe's office in Norwalk. It is expected that the final report will be available for distribution by mid-October, 1994.

TIME FRAME:

1. Travel to Ghana:
 - ▶ September 6th & 7th, 1994
 - ▶ Herne & Silverstein travel together

2. Document review and interviews in Accra:
 - ▶ September 8th to 10th, 1994
 - ▶ Herne: 2 person days
 - ▶ Silverstein: 3 person days

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3. Continued document review & project site visits:
 - ▶ September 11th to 16th, 1994
 - ▶ Schedule to be developed in consultation with TNS/Ghana
 - ▶ Herne & Silverstein to make individual visits
 - ▶ Herne: 5 person days
 - ▶ Silverstein: 6 person days
4. Departure from Ghana:
 - ▶ September 17th & 18th, 1994
 - ▶ Herne to continue to Poland on TechnoServe business
 - ▶ Silverstein to return to the USA to continue work
5. Final write up of Evaluation report.
 - ▶ September 19th to 30th, 1994
 - ▶ Herne: 2 person days
 - ▶ Silverstein: 5 person days
6. Internal review of report within TechnoServe:
 - ▶ October 3rd to 7th, 1994
7. Final report available for distribution:
 - ▶ October 17th, 1994

Travel and Meeting Schedule

DATE	TIME	SILVERSTEIN	HERNE
Sep. 07	21:50	Arrival in Ghana	Ditto
Sep. 08	08:00	Meeting: TechnoServe's Country Director	Ditto
	09:45	Briefing: Manager of ITSPM Project	Ditto
	12:00	Lunch with all Project Managers	Ditto
	14:00	Briefing: Manager of the Export project	Ditto
Sep. 09	16:00	Briefing: Manager of Upper West project	Ditto
	08:30	Meeting: USAID Ghana Peter Weisel	Ditto
	10:15	Meeting: Registrar of Cooperatives	Ditto
	11:30	Meeting: Trade & Invest. Management Unit (Exports)	Ditto
	12:00	Lunch with TechnoServe Country Director	Ditto
	14:00	Briefing: Manager of Service Coop project	Ditto
	16:30	Meeting: Agricultural Development Bank	Ditto

DATE	TIME	SILVERSTEIN	HERNE
Sep. 10	10:30	Travel: Accra→Kumasi	Ditto
	16:00	Site visit: Sekeyre Palm Oil mill coop.	Ditto
Sep. 11	07:30	Travel: Kumasi→Wa	Document review Preliminary writing
Sep. 12	07:00	Site visits: FSCCs	Site visits: ITSPM
Sep. 13	07:00	Travel: Wa→Techiman	Travel: Kumasi→Techiman
	10:00	" " "	Site visits: Cashews
	14:00	Site visits: Cashews	Ditto
Sep. 14	07:00	Site visits: FSCs	Ditto
	13:00	Travel: Techiman→Accra	Ditto
Sep. 15	10:00	Meeting: Ministry of Finance	Ditto
	11:00	Meeting: Ministry of Agriculture	Ditto
	15:00	Meeting: Ghana Export Promotion Council	Ditto
Sep. 16	08:00	Meeting: USAID/Ghana Mission Director	Ditto
	10:00	Document review Preliminary writing	Staff interviews C/E preparation
Sep. 17	09:00	Meeting: TechnoServe Ghana Director	Ditto
	11:00	Preliminary writing	Other TNS Business
	22:50	Departure from Ghana	Ditto

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List of Persons Interviewed

NAME	TITLE	ORGANIZATION
<u>Contacts in Accra:</u>		
Peter Reiling	Country Director	TechnoServe/Ghana
Kwasi Poku	Manager, ITSPM	TechnoServe/Ghana
John Addaquay	Deputy Manager, Exports	TechnoServe/Ghana
Wusa Manga	Manager, Upper West	TechnoServe/Ghana
Peter Weisel	Manager, TAPS	USAID/Ghana
Mr. Buachie-Aphram	Registrar of Coops	Dept. of Coops, Min. of Social Welfare
J.E.B. Haizel	Director, TIMU	Ministry of Trade & Industry
Joseph Ollenu	Senior Liaison Officer	Trade & Investment Management Unit
Edgar Ariza-Nino	Chief of Party	Sigma One Corp. (TIMU)
John Heloo	Manager, FSCs	TechnoServe/Ghana
Mark Owusu-Ansah	Manager, Credit Evaluation	Agricultural Development Bank
Margaretta Boateng	Director, R&D	TechnoServe/Ghana
Emmanuel Darko	Acting Chief, IERD	Ministry of Finance
Francis Ofori, PhD.	Director	Dept. of Crop Services, Min. of Agric.
M. Kwakwa-Sarpong	Deputy Director	Department of Crop Services
Henry Oko Okai	Director, Prod. Develop.	Ghana Export Promotion Council
Daniel Kwagbenu	Director, Planning	Ghana Export Promotion Council
Mr. Haruna Moamah	Director, Agriculture	Ministry of Finance
Ms. Barbara Sandoval	Mission Director	USAID/Ghana

12-SEP-94, Antoakrom Palm Oil Mill:

Agya K. Doodu	Chairman
Kusi Arhimo	Member
G.K. Busumbru	Treasurer
Kwaku Acheampong	Member
Elizabeth Asyei	Member
Henry Addison	Secretary
Kwame Boateng	Member
Alhaji Mohamed	Member
Joseph Sabor	Mills Manager

12-SEP-94, Jonionso/Bedoma Palm Oil Mill:

Addai Peprah	Secretary
Okure Pamin	Treasurer
Kwasure Oppong	Chairman
Mr. Owusu-Mensah	Executive Committee Member
Sophia Ahoma	" " "
Kwame Amofa	" " "
Samuel Opoku	Manager
Solomon Nyanekeye	Operator

List of Persons Interviewed (continued)

NAME	TITLE	ORGANIZATION
<u>12-SEP-94, Ntinanko Palm Oil Mill:</u>		
George Mason	Mill Manager	
George Mensah	Financial Secretary	
Albert Fofie	Secretary	
Alice Poku	Member/Processor	
Mary Addai	Member/Processor	
Joseph Yarney	President	
Jospeh Owusu	Vice President	
Kweku Mensah	Member & past Vice President	
<u>12-SEP-94, Nadowli Farmer Service Center:</u>		
Michael Kwesi	Sub-Store Manager	
Elizabeth Bayos	Member/Farmer	
Martina Suannuus	Member/Farmer	
Sabina Kpan	Executive Member/Farmer	
Martin Bondiyiri	Member/Farmer	
Sunkyedong Gilbert	Executive Member/Farmer	
Martin Kantubog	Treasurer	
Asoma Sombo	Member/Farmer	
Datuo Gaanye	Member/Farmer	
<u>12-SEP-94, Fian Farmer Service Center (Tabiasi):</u>		
Habiabata Sumaila	Member/Farmer	
Charles Horbina	Member/Farmer	
Kuntabiemah M.	Member/Farmer	
Idirisu Mumuni	Member/Farmer	
I.B. Kanyou	Member/Farmer	
Daama Saavadu	Member/Farmer	
J.K. Abulai	Executive Member & Circuit Supervisor, Ghana Education Service	
Seidu Abdulai	Secretary	
<u>12-13-SEP-94, Contacts in Wa</u>		
Mr. Wolf	Project Officer,	Agricultural Development Bank, Wa Branch
Samuel Akyianu	Project Advisor, Exports	TechnoServe/Ghana
N/A		Department of Cooperative staff
George ?	Manager	Intermediate Technology Transfer Unit
<u>13-SEP-94, Sokomanka Cashew Farmers Association (Nsawkaw):</u>		
Kofi Nsiah	Chairman	
Kwasi Mensah	Treasurer	
Eric Nyamekyo	Secretary	
Kwabena Kusi	Farm Manager	
Ofori David	Financial Secretary	

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List of Persons Interviewed (continued)

NAME	TITLE	ORGANIZATION
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13-SEP-94. Jimini-Zongo Cashew Farmers Association (Sampa):

Salifu Buntaibu	Chairman	
Iddrisa Alhaji	Vice-Chairman	
Salu Issifu	Secretary	
Gado Armstrong	Treasurer	
Karim Suleman	Financial Secretary	
Karim Abdulai	Porter	
Issifu Allassah	Member	
Dao Kamagatey	Member	

14-SEP-94. Bodom Unit Cooperative Society (Nkoranza):

Richard Baffoe	Chairman	
Samuel Appiah-Kubi	Secretary	
Paul Yaw Boahem	Treasurer	
Opokure Kavasi	Member	
Damoa Isaac	Member	
Kwanteng Stephen	Member	
Adjei Baftoe William	Member	
Fastine Effah	Member	
Yida Adu-Bouhiman	Member	
Donkor Rose	Member	

14-SEP-94. Nsuwa Multi Purpose Cooperative Society, Ltd.

List of members unavailable

14-SEP-94. Offuman Cooperative Society

Name unavailable	Executive Member	
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List of Documents Consulted

TechnoServe/Ghana; TechnoServe MYOP, 1991-1994

TechnoServe/Ghana; TechnoServe MYOP, 1994-1997

TechnoServe/Ghana; Ghana TIP Project Status Report, 4/1/94 - 6/30/94

TechnoServe/Ghana; BOAFO - Semi-Annual Newsletters (12/92, 7/93)

TechnoServe/Ghana; Selected Project plans, reports and other documents

TechnoServe; Field Manual on TNS Cost-Effectiveness Methodology

Ghana: Country Report; Economist Intelligence Unit, 1st quarter 1994.

"Effects of Credit Programs on Food Security and Nutrition in Ghana." Submitted by International Food Policy Research Institute, Washington DC., Sept. 1991.

"Working Definitions of Food and Nutrition Security" CARE, Atlanta.

"Definition of Terms," Food Security Policy Forum, July 15, 1994.

"Household Food Insecurity and Resource Use," Africa and the Middle East/WRS-94-3/July 1994.

"Proposed Scope of Work for Food Security Needs Assessment," submitted by Tim Frankenberg, Food Security Advisor, CARE, Atlanta, July 7, 1994.

"Definition of Food Security," USAID Policy Determination, PD-19, April 13, 1992.

"Food Sector Instability and Food Aid in Sub-Saharan Africa: Implications for Food Security," USAID Bureau for Africa, Technical Paper No. 10, November 1993.

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Beneficiary Interview Questionnaire

A. Questions related to household impact:

1. **What crops, and how much of each do you produce in a year? How do you decide which crops to produce? How much of each is used in the home and how much is sold?**
2. **What types and how much of the various food crops does your family consume? How does your food consumption pattern change during the year?**
3. **Do you make provisions for the lean season? What are those provisions? What percent of your food production do you set aside?**
4. **What other sources of food and income do you have?**
5. **Is food available and/or affordable during the lean season?**
6. **How do you get food provisions during the lean season?**

B. Questions related to broader economic impact:

1. **Has your involvement with TechnoServe affected your access to food and/or cash during the lean season? If so, how has this changed?**
2. **Can you cite examples of other ways that TechnoServe assistance has had an impact in your home, community or district?**

The ITSPM Cost/Effectiveness Worksheets

TechnoServe's Cost-Effectiveness Methodology

TechnoServe defines cost-effectiveness as the ability to achieve project objectives at a reasonable cost. A cost-effective project should yield total benefits for the target group which are greater than our cost of delivering assistance. In the case of economic development assistance, these benefits can often be difficult to measure and monitor. They typically involve cultural, social, political, and economic factors. For TechnoServe, this means comparing the cost of our projects to the economic impact we expect the assisted enterprises to have on the surrounding communities and regions.

The focus of TechnoServe's work is to transfer managerial, technical, and administrative skills to enterprise owners and members, and to help other local institutions positioned to assist them. Because our focus is enterprise development, the core of our model includes a measure of enterprise profits (the accepted indicator of business success) and financial returns to project participants. But, because our goals are social as well as economic, we have also developed a means of encompassing other non-quantifiable goals into our process.

The resulting system is a combination of two complementary, but distinct, methods of analysis. The first part of the analysis, the *financial component*, calculates a basic *cost-effectiveness ratio* (using relatively standard practices of benefit-cost and net present value analysis). This is derived through the development of a detailed spreadsheet constructed to compare the expected financial gains for project participants to TechnoServe's cost of providing services. The second part, the *non-quantifiable benefits rating*, is a system of weighted values reflecting other expected development benefits which cannot be easily evaluated in dollar terms. Each of these components can stand independently to determine project effectiveness. When interpreted together, they present a multidimensional view of our impact, and our ability to deliver services to the communities in which we work.

The Financial (Quantifiable) Component

Conceptually, our model captures all easily identifiable direct financial benefits derived from the enterprise under study, and compares them to the amount of money and time TechnoServe must expend to deliver the services necessary to achieve these benefits. This information is compiled over time because, while we incur costs at the beginning of the intervention, the enterprise usually provides increasing benefits to the participants as they learn to become more self-sufficient.

The financial component of the model focuses on three distinct elements which constitute our definition of financial return to beneficiaries: (1) increased community-level (farmers, suppliers, owners) incomes; (2) increased enterprise profits (before dividend payments, mandated reserves, reinvestment, or taxes); and (3) increased aggregate salaries, wages, and benefits to enterprise or farm employees. Each must be calculated as a net incremental return (i.e., the difference between the return attributable to the project and the return that would have occurred in the absence of the project). This calculation results in what economists call net value added. Projections are made for two scenarios: with TechnoServe assistance and without it. These figures are projected out ten years beyond the expected or actual termination of intensive TechnoServe assistance to the project.

Data for each project analyzed is entered into an individually tailored cost-effectiveness financial spread-sheet, which is appropriate to that project. To keep the financial measurement consistent and "in check," only direct benefits to project participants are included. By restricting our financial analysis to direct and measurable returns, we produce lower, more conservative benefit estimates.

In our model, financial benefits are more difficult to calculate than are costs. Standard methods for estimating financial and economic returns are rigid and complex, and they include such concepts as shadow pricing, foreign exchange components, and taxes which will probably not affect the management decisions of small enterprises. We chose to trade off precision for simplicity. Our analysis is limited to estimating only the financial benefits (value added) to the owners of the projects. We do not attempt to estimate the broader benefits that accrue to the economy as a whole. For example, the salary and wage component of financial returns in our model measure funds injected into the local economy from new project employment. In rural areas, we assume that any new local jobs created by the project are drawing *new* people into the wage-earning labor force, and thus represent new production.

The ITSPM Cost Effectiveness Worksheets

The following two pages contain the summary worksheet and the detailed assumption worksheet for the ITSPM C/E analysis. As can be seen from page 1, on the bottom line, the cost effectiveness ratio has been estimated at nearly 10 to 1 for the overall ITSPM project activity. In practical terms TechnoServe thus expects that nearly \$10.00 of economic benefits for the rural poor of Ghana will be generated for each \$1.00 of direct project assistance costs. This is a very good C/E ratio and compares very favorably with the historical average of 5 to 7 for other projects that have been evaluated.

QUANTIFIABLE BENEFITS ANALYSIS SHEET FORMAT

The ITSPM Cost/Effectiveness Analysis

DATE: September 1994

BASE YEAR FOR C/E ANALYSIS:

1994

NOTE: All monetary figures are in thousands of Ghanaian Cedis, unless otherwise noted.

CATEGORIES

Sub-Categories	Years ->	1991	1992	1993	> Base Year < 1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
I. BASIC PARAMETERS:															
Exchange Rate Used (local Currency/dollar).....		340.00	345.00	350.00	300.00										
Annual Inflation Factor.....			37.00%	28.00%	20.00%										
US Treasury Bill Rate.....		8.00%	8.40%	8.40%	8.40%										
Number of Mills established per year.....					13	17	20	10							
II. ECONOMIC BENEFITS:															
A: Benefits Without TechnoServe's Assistance:															
1. Farmer & Processor Income.....		0	0	0	56,073	136,409	238,851	308,942	341,292	366,633	382,808	388,200	388,200	388,200	388,200
2. Enterprise Income.....		0	0	0	0	0	0	0	0	0	0	0	0	0	0
3. Salaries and Wages Paid.....		0	0	0	33,827	81,804	143,237	185,270	204,670	219,807	229,567	232,800	232,800	232,800	232,800
B: Benefits With TechnoServe's Assistance:															
1. Farmer & Processor Income.....		0	0	0	371,986	904,927	1,564,517	2,049,499	2,204,108	2,432,216	2,539,519	2,575,267	2,575,267	2,575,267	2,575,267
2. Enterprise Income.....		0	0	0	(11,453)	(20,712)	(25,135)	(11,852)	14,441	36,115	48,311	52,710	52,710	52,710	52,710
3. Salaries and Wages Paid.....		0	0	0	120,064	290,448	506,030	649,836	711,573	759,835	790,803	801,093	801,093	801,093	801,093
C: Incremental Benefits of TechnoServe Assistance:															
1. Farmer & Processor Income.....		0	0	0	315,913	768,518	1,345,605	1,740,557	1,922,814	2,065,583	2,156,711	2,187,067	2,187,067	2,187,067	2,187,067
2. Enterprise Income.....		0	0	0	(11,453)	(20,712)	(25,135)	(11,852)	14,441	36,115	48,311	52,710	52,710	52,710	52,710
3. Salaries and Wages Paid.....		0	0	0	86,437	208,644	382,793	484,565	508,903	540,067	561,236	568,293	568,293	568,293	568,293
D: Present Value of Incremental Benefits															
1. NPV of LC Past Benefits (1991-1994).....		0	0	0	513,964										
2. NPV of LC Future Benefits (1995-2004).....						13,803,354									
3. NPV of Incremental Benefits (in US\$).....						\$15,910,598									
III. COST OF TECHNOSEERVE ASSISTANCE:															
1. TechnoServe '01-21' Cost (a).....		0	\$145,000	\$235,000	\$320,000	\$300,000	\$280,000	\$230,000	\$180,000	0	0	0	0	0	0
2. TechnoServe Fee Income (b).....		0	0	0	0	0	0	0	0	0	0	0	0	0	0
3. Annual Net TechnoServe Cost (a-b).....		0	\$145,000	\$235,000	\$320,000	\$300,000	\$280,000	\$230,000	\$180,000	0	0	0	0	0	0
4. NPV of TechnoServe's Cost prior to 1995.....		0	\$145,000	\$389,280	\$734,184										
5. NPV of Net TechnoServe Cost after 1994.....						\$660,671									
6. NPV of TechnoServe's Total Direct Cost.....						\$1,394,855									
IV. TECHNOSEERVE'S COST EFFECTIVENESS RATIO ----->															
		\$15,910,598	DIVIDED BY:		\$1,394,855	EQUALS:		0.98							

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The ITSPM Cost/Effectiveness Analysis

DATE: September 1994

BASE YEAR FOR C/E ANALYSIS: 1994

CATEGORIES Sub-Categories	Years ==		> Base Year <												
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	
FARMER INCOME CALCULATION (Member & Non-Member):															
Member fruit available (tons):	0	0	0	1,360	1,360	1,360	1,360	1,360	1,360	1,360	1,360	1,360	1,360	1,360	1,360
Non-member fruit available (tons):	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fruit from outside catchment area (tons):	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total fruit available to mill (tons):	0	0	0	1,360	1,360	1,360	1,360	1,360	1,360	1,360	1,360	1,360	1,360	1,360	1,360
Percent of fruit supplied to mill	0.00%	0.00%	0.00%	40.00%	45.00%	50.00%	55.00%	60.00%	60.00%	60.00%	60.00%	60.00%	60.00%	60.00%	60.00%
Actual Fruit supplied to mill (tons):	0	0	0	552	621	690	759	828	828	828	828	828	828	828	828
Price paid by processors (per ton):	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
Farm labor paid by farmer	0	0	0	0,182	0,956	7,728	0,501	0,274	0,274	0,274	0,274	0,274	0,274	0,274	0,274
Farmer benefits with TechnoServe:	0	0	0	7,616	8,570	0,522	10,474	11,426	11,426	11,426	11,426	11,426	11,426	11,426	11,426
Fruit purchases w/o mill (tons)	0	0	0	162	205	228	250	273	273	273	273	273	273	273	273
Price paid by purchasers (per ton):	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
Farm labor paid by farmer	0	0	0	2,040	2,295	2,550	2,805	3,060	3,060	3,060	3,060	3,060	3,060	3,060	3,060
Farmer benefits without TechnoServe:	0	0	0	1,603	1,905	2,004	2,204	2,405	2,405	2,405	2,405	2,405	2,405	2,405	2,405
PROCESSOR INCOME CALCULATION:															
Volume processed with TechnoServe:	0	0	0	552	621	690	759	828	828	828	828	828	828	828	828
Sales revenue (palm oil & kernel):	0	0	0	40,888	46,909	51,253	56,368	61,479	61,479	61,479	61,479	61,479	61,479	61,479	61,479
Less: palm fruit purchases:	0	0	0	13,809	16,325	17,259	18,875	20,700	20,700	20,700	20,700	20,700	20,700	20,700	20,700
Less: processing expenses:	0	0	0	4,140	4,650	5,175	5,690	6,210	6,210	6,210	6,210	6,210	6,210	6,210	6,210
Less: processing labor:	0	0	0	2,040	2,305	2,550	2,816	3,074	3,074	3,074	3,074	3,074	3,074	3,074	3,074
Processor benefits with TechnoServe:	0	0	0	20,997	23,621	26,244	28,870	31,495	31,495	31,495	31,495	31,495	31,495	31,495	31,495
Volume processed without TechnoServe:	0	0	0	110	124	138	152	166	166	166	166	166	166	166	166
Sales revenue (palm oil & kernel):	0	0	0	5,485	6,148	6,831	7,514	8,197	8,197	8,197	8,197	8,197	8,197	8,197	8,197
Less: palm fruit purchases:	0	0	0	2,208	2,484	2,760	3,036	3,312	3,312	3,312	3,312	3,312	3,312	3,312	3,312
Less: processing expenses:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Less: processing labor:	0	0	0	546	615	683	751	820	820	820	820	820	820	820	820
Processor benefits without TechnoServe:	0	0	0	2,730	3,049	3,368	3,727	4,085	4,085	4,085	4,085	4,085	4,085	4,085	4,085
ENTERPRISE INCOME CALCULATION:															
Total Enterprise revenue:	0	0	0	4,140	4,650	5,175	5,690	6,210	6,210	6,210	6,210	6,210	6,210	6,210	6,210
Less: operating expenses:	0	0	0	5,021	5,989	6,176	6,254	6,332	6,332	6,332	6,332	6,332	6,332	6,332	6,332
Net Enterprise income:	0	0	0	(881)	(444)	(1)	436	878	878	878	878	878	878	878	878
SALARIES AND WAGES PAID CALCULATION:															
Salaries & Wages with TechnoServe:															
Farm labor for labor:	0	0	0	0,182	0,956	7,728	0,501	0,274	0,274	0,274	0,274	0,274	0,274	0,274	0,274
Processor wages for labor:	0	0	0	2,040	2,305	2,562	2,816	3,074	3,074	3,074	3,074	3,074	3,074	3,074	3,074
Enterprise wages & salaries:	0	0	0	1,004	1,004	1,004	1,004	1,004	1,004	1,004	1,004	1,004	1,004	1,004	1,004
Total Salaries & Wages with TechnoServe:	0	0	0	0,236	10,265	11,294	12,323	13,352	13,352	13,352	13,352	13,352	13,352	13,352	13,352
Salaries & Wages without TechnoServe:															
Farm labor for labor:	0	0	0	2,040	2,295	2,550	2,805	3,060	3,060	3,060	3,060	3,060	3,060	3,060	3,060
Processor wages for labor:	0	0	0	546	615	683	751	820	820	820	820	820	820	820	820
Enterprise wages & salaries:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Salaries & Wages without TechnoServe:	0	0	0	2,587	2,910	3,233	3,557	3,880	3,880	3,880	3,880	3,880	3,880	3,880	3,880

Funding Source/Use Tables by Sector¹

Source/Use Table for the Farmer Service Cooperatives:

Sources of Funds	1992	1993	1994 ²	TOTALS
WB/GoG/Upper West grant	127.0	131.2	32.0	\$290.2
<i>CEDI Trust project funds</i>	13.8	185.9	31.1	\$230.8
TNS Unrestricted funds	11.4	3.4	6.7	\$21.5
Depr. Restricted Assets	32.5	25.8	4.7	\$63.0
Funding Totals by Year	\$184.7	\$346.3	\$74.5	\$605.5

Source/Use Table for the Palm-oil Mills (ITSPM) Project³:

Sources of Funds	1992	1993	1994 ²	TOTALS
WB/GoG/ITSPM Grant funds	170.0	235.8	121.0	\$526.8
<i>CEDI Trust project funds</i>	24.6	60.0	21.9	\$106.5
TNS Unrestricted funds	6.4	0.0	0.5	\$6.9
Depr. Restricted Assets	14.9	27.2	20.9	\$63.0
Funding Totals by Year	\$215.8	\$323.0	\$164.3	\$703.1

Source/Use Table for the Non-Traditional Export (NTE) Project:

Sources of Funds	1992	1993	1994 ²	TOTALS
USAID/GoG project funds	0.0	138.4	174.0	312.4
<i>CEDI Trust project funds</i>	0.0	23.4	0.0	23.4
TNS Unrestricted funds	0.0	0.0	0.0	0.0
Depr. Restricted Assets	0.0	14.9	25.4	40.3
Funding Totals by Year	\$0.0	\$176.7	\$199.4	\$376.1

¹ Figures in these tables include costs and sources of funding for projects included in the "sectors" identified. The totals here will not agree with figures provided on financial reports for the CEDI Trust because those figures include the costs of other project activities, and uses of CEDI Trust funds, which are not included in the projects covered by this evaluation.

² Figures for 1994 are for January to June only. Full year figures used in the ITSPM C/E analysis are double the figures shown in these tables.

³ The palm oil numbers include costs related to palm-oil mills assisted outside of the terms of the ITSPM project, but which form part of the overall palm-oil mill effort.

An article from the Ghanaian Times Newspaper of September 9, 1994 regarding the commissioning of a new ITSPM Mill at Barniekrom by Mr. Ibrahim Adam, Ghana's Minister of Food and Agriculture.



Friday, September 9, 1994

Barniekrom Oil Mill c' ssioned

MR Ibrahim Adam, Minister of Food and Agriculture, on Wednesday commissioned an €11.7 million oil palm extraction mill at Barniekrom in the Atwima District for the Barniekrom Co-operative Multi-Purpose Society.

The mill was established under the Agricultural Diversification Project of the Intermediate Technology Small-Scale Palm Oil Mills Project of the Ministry of Food and Agriculture.

It was funded by the World Bank and the government with support from the Agricultural Development Bank (ADB). The loan is expected to be repaid over a five-year period.

Speaking at the ceremony, Mr Adam said the mill was one of 60 oil palm mills being established in the country in collaboration with the Ministry of Trade and Industries and Technoserve.

He said the mobisquad concept would be expanded for the ADB to replicate the project outside the World Bank funding should the whole package prove successful.

Mr Adam said he was aware of the vast potentials of the area not only in oil palm but also in other crops and the ministry would ensure that the other crops were supported.

Mr Adam called on Ghanaians not to allow party politics to divide them.

He said politics should not be perceived from the angle of ethnicity, adding that Ghana did not need a situation where people would spend their time fighting their political opponents.

What the country needed most now, the Minister said, "was good leadership coupled with good governance irrespective of who governs adding that the country needed the contributions of all Ghanaians to build the country."

Mr Kwame Gvawu-Kvem, Member of Parliament for Atwima Mponua, said since independence, the only projects that had been provided for the area were the mill and the dressing of the road from Adiembra to Bibiani with bitumen.

He said the constituency was endowed with natural resources, including the large bauxite deposits at Nyinabin, gold deposit at Donoto and four large forest reserves.

Mr Gvawu-Kvem said these resources had not been exploited so that the constituency could benefit from them — GNA.