

FINAL REPORT

Post-Compact Assessment of MiDA's Post-Harvest and Irrigation Investments

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ACRONYMS	
Acronym	Meaning
ABCs	Agribusiness Centers
ACDI/VOCA	Agricultural Cooperative Development International/Volunteers in Overseas Cooperative Assistance
ADVANCE	Agricultural Development and Value Chain Enhancement
AGPCC	Air Ghana Perishable Cargo Centre
EDAIF	Export Development and Agricultural Investment Fund
FBOs	Farmer-based organizations
GACL	Ghana Airports Company Limited
GIDA	Ghana Irrigation Development Authority
GHC	Ghana Cedis (currency)
GOG	Government of Ghana
IPSL	Investment Protocol Services Ltd.
KIA	Kotoka International Airport
MiDA	Millennium Development Authority
MCA	Millennium Challenge Account
MCC	Millennium Challenge Corporation
NORC	National Opinion Research Center
PCC	Perishable cargo center
PPH	Public pack houses
SME	Scheme management entity
SOW	Statement of work
SPEG	Sea Freight Pineapple Exporters Association of Ghana
US	United States
USAID	United States Agency for International Development

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EXECUTIVE SUMMARY

This is an assessment of progress in the operation of key investments made by the Millennium Development Authority (MiDA) under the Agricultural Production and Value Added Development Project of the Millennium Challenge Compact in Ghana, which ended on February 15, 2012. Specifically, this report covers MiDA's investments in public pack houses (PHHs) for pineapple and mango; the perishable cargo center (PCC) at the Kyoto International Airport (KIA); MiDA's funding for post-harvest equipment purchases by pineapple exporters; the construction and equipping of ten agribusiness centers (ABCs) for grain processing, warehousing, and marketing; and the irrigation systems at Torgorme, Botanga, and Golinga.

The goal of the Ghana Compact was to support poverty reduction through economic growth. It had two major objectives: a) increased production and productivity of high-value food and cash crops in the intervention zones, and b) increased competitiveness of high-value food and cash crops in local and international markets. MiDA implemented three major projects under the Compact: i) Agricultural Production and Value Added Development Project; ii) Transportation Infrastructure Development Project; and iii) Rural Development Project.

The general strategy for MiDA's agricultural investment program was for all investments made under the Compact to be completed and turned over to program beneficiaries for commercial operation as private-sector, for-profit, commercial enterprises before the Compact's end date.

This report was prepared by the agriculture / agribusiness specialist on the NORC evaluation team. NORC was contracted by the Millennium Challenge Corporation (MCC) to conduct the evaluation of several component of the Ghana Compact.

This report responds to nine specific evaluation questions with a summary of the responses to them, shown as follows:

1. Was the MCC investment implemented according to plan? Were there delays, bottlenecks, and/or deviations from plan? What positive and negative factors affected implementation?

The rigid, five-year time frame of the Ghana Compact, combined with its long startup period, resulted in nearly all of the construction work required under the contract being accomplished during the Compact's final two years. Although MiDA was able to complete all the required construction before the end of the Compact with the exception of the Torgorme Irrigation System, there was insufficient time remaining after completion of the construction phase to ensure the effective use of the assets and their continuing operations.

Ghana's pineapple exporters have been caught in a financial squeeze caused by decreasing prices in European markets and increasing production costs resulting from the market requirement to convert their farms to the MD-2 pineapple variety. This required conversion worsened their financial strength and reduced their financial resiliency.

The rapid cancellation of the credit component of the Agricultural Project, after experiencing heavy financial losses due to the non-payment of agricultural loans by beneficiaries, has had a continuing negative effect on the agricultural sector in general and on the export pineapple sub-sector in particular. Before the MiDA loan program was initiated, there was considerable optimism regarding the role that national and regional banks would eventually play in

providing both smallholders and nucleus farmers with credit lines that would enable them to maintain their new plantings for 18 months (in the case of pineapple) to 60 months (in the case of mango) from the time of planting to harvest. While the MiDA program could have served as an excellent platform for such expansion, the fact that early recipients did not comply with their scheduled payments of interest and principal meant that the "revolving" element of this funding program was never able to enter into force. The present lack of affordable credit for investments needed to convert the pineapple farms to the MD-2 pineapple variety required for international markets, as well as for working capital for crop production, has dramatically slowed the recovery of Ghana's pineapple industry.

Since the end of the Ghana Compact, MiDA has withdrawn from its involvement in post-compact operation of the agricultural assets that were provided to private operators. Presently, MiDA's only involvement is its continuing construction supervision of the Torgorme irrigation scheme, which is now being funded by Ghana's Export Development and Agricultural Investment Fund (EDAIF). MiDA's disengagement has caused a leadership vacuum that has delayed the resolution of problems carried over from Compact implementation.

2. Has the program, as designed and implemented, been able to provide substantial improvements in irrigated agriculture, the export of horticultural products, and the marketing of grain crops in Ghana?

The PPHs have not had a substantial impact on the export of horticultural products as a result of the low capacity utilization of the pineapple PPHs and the non-functioning of the mango PPH.

The MiDA-funded loans for post-harvest investments by pineapple exporters who are affiliated with the Sea-freight Pineapple Exporters of Ghana (SPEG) have helped to improve export fruit quality. These investments have also made it possible for the exporters to increase their marketing strength and to open new markets. However, most SPEG exporters are unable to capitalize on these advantages due to their limited production volumes. Underlying problems include lack of affordable finance for on-farm investments and working capital requirements for crop production, and the limited financial resilience of exporters.

The PPC at KIA has improved the product quality and convenience of exporting perishable horticultural products as air cargo from Ghana. However, its export volumes remain low in the face of strong competition from general cargo handlers at the airport that is strengthened by the long-term contractual relationships between competing cargo handlers and the airline companies that transport perishable products. The general cargo handlers provide export, as well as import, cargo handling services for all categories of cargo, including perishable horticultural products; however, they have neither the specialized handling equipment nor the cold storage facilities that are needed for perishable products. The impact of the PPC on horticultural exports has thus far been limited, although its future appears bright.

The ABCs are operating as planned, although their uptake of smallholder grains for processing, storage and marketing has been less than expected.

Construction of the Torgorme Irrigation System is still underway, with completion expected before the end of 2013. Consequently, it has yet to provide any improvement in smallholder irrigated crop production. Based on our observations, the Botanga and Golinga schemes are operating fully, and seem to be having a positive impact on smallholder production.

3. *Was the program soundly managed and did the stakeholders receive value for money (efficiency) during the construction phase of the project when MCC and MiDA were in charge?*

With three important exceptions, the project was well managed during the construction phase. The exceptions are summarized as follows:

- (a) Completion of the Torgorme Irrigation System has been delayed by approximately 20 months, largely due to the late start of construction, weather delays, and contractor inefficiencies.
- (b) A number of changes had to be made to the PCC at the operator's expense after construction of the facility was initially completed by MiDA. The changes were necessary to satisfy the operating requirements of the user. The modifications delayed the start of commercial operations by the PCC by approximately six months.
- (c) None of the operators of the PCCs that were interviewed by the consultant were satisfied with the equipment provided by MiDA, or with the layout of the grain-processing center. In general, they believed that much of the equipment was of poor quality, low capacity, and not appropriate for their needs. They further believed that their requirements were not considered when the equipment was selected.

4. *Was the transition to program management by private stakeholders achieved according to plan? Was the transition efficient?*

Two problems were identified that have affected the transition to program management by private stakeholders:

The mango PPH has not yet started operating as a commercial business due to a miscommunication between MiDA and the new pack house owner, the Dangme Mango Farmers' Cooperative Union (Dangme Union), as to whether or not the Union was authorized to operate the pack house; and to long delays in correcting a defective pack line that damaged the mangos being processed for export. The Union is preparing to operate the PPH during the next mango season in early 2014.

MiDA was unable to contract a private operator to manage the Botanga and Golinga irrigation schemes before the Compact ended. As a result, management responsibility for the two schemes has passed to a government agency, the Ghana Irrigation Development Authority (GIDA). Unfortunately, GIDA has neither the technical staff nor the administrative budget to effectively manage the irrigation schemes. Furthermore, start-up funding for scheme management costs, including working capital, initial personnel and administrative expenses, and transportation for technical staff that had been planned by MiDA before the Compact ended, has not yet materialized.

Since the schemes were recently renovated they are now fully operational, and the combined benefits of increased availability of irrigation water and improved drainage has increased small farmer crop production. However, deficient water management of the two irrigation systems means that the schemes are not being operated as efficiently as they should be.

5. *Are program beneficiaries presently managing program assets and continuing activities efficiently?*

During the field interviews conducted by the consultant, the most common response by program beneficiaries to this question was “we are managing as best we can under the circumstances” – meaning that in general, the management and operation of the investments are being carried out diligently, but in most cases, under difficult circumstances. The main negative factors affecting the management of the assets and facilities provided by MiDA include the following:

The fresh fruit throughput at the pineapple PPHs is low primarily because their outgrower schemes have collapsed and small-scale farmers are not supplying fruit to the pack houses.

The main factor affecting the operations of the PCC is its limited product throughput, which has made it impossible for the PCC to achieve financial breakeven.

Since MiDA was unable to select a private scheme manager for Botanga and Golinga irrigation schemes before the Compact ended, the management of these systems has fallen on GIDA. Maintenance is overdue at both schemes, as is the collection of irrigation fees from the smallholders whose farm plots are located within the schemes. In the opinion of the consultant, these two schemes are poorly managed.

Responsibility for irrigation management at Torgorme has not yet been turned over to the SME. However, without the planned startup capital that was an integral part of MiDA’s plan for scheme management, the SME will not be able to manage it. In this event, scheme management will likely pass to MiDA.

In the opinion of the consultant, the complacency, passiveness, and lack of follow-up by the Dangme Union on the use of the mango PPH calls into question the commitment and the qualifications of this producer organization to operate the mango pack house.

6. What has been the overall impact of the program?

The overall impact on the agricultural sector resulting from post-harvest support under the Agricultural Project has not yet been substantial. This conclusion was reached in light of the limited product throughput thus far at the PPHs, the ABCs and the perishable products center at KIA; the slow production start by the two anchor farms operating at the irrigation schemes at Botanga and Torgorme, along with the delayed start of their outgrower schemes; as well as with the delayed completion of the Torgorme smallholder irrigation. In effect, the greatest impact of the Agricultural Project is that it provides an opportunity for future growth for Ghana’s horticultural exports and its production of food grains.

7. Are the results achieved sustainable? Are the facilities constructed still in use and being maintained according to schedule? Is a system in place to ensure that financial resources are available to maintain the facilities over the long-term?

The two pineapple PPHs are being operated as going concerns by their anchor firms, even without the benefit of pineapple production by contact farmers. The sustainability of the two pineapple PPHs will likely be assured as long as a severe financial shock does not occur to the anchor firms. However, the sustainability of the mango PPH will depend entirely on the management capabilities of the pack house owner, the Dangme Union. In light of the performance of this organization’s performance since the Compact ended, it is our opinion that it will not be able to effectively manage the facility, and that the sustainability of the mango PPH operation beyond a 3-5 year period is unlikely.

The PCC appears to be well managed with the backing of two solid companies: Air Ghana and Vegpro. Furthermore, the PCC is the property of the private Ghana Airports Company Limited (GACL), a company which would likely step in should there be severe operating problems at the center. The PCC's product throughput should increase with increased market share and as more exporters become attracted to its export services for perishable products. The outlook for the PCC seems positive and sustainable over the long-term.

At the Botanga and Golinga irrigation schemes, the toxic combination of deficient scheme management and maintenance and insufficient payments for water usage by scheme farmers will affect the long-term sustainability of these two irrigation schemes. If nothing changes with regard to scheme management and the inadequate collection of water use charges, within a period of five years or less the operations of the two schemes will likely deteriorate to conditions found before the MiDA renovations to them occurred.

At the Torgorme irrigation scheme, the likelihood of private scheme management appears low unless start-up capital becomes available for the SME. In the event that the responsibility of scheme management reverts to GIDA, the Torgorme scheme will likely deteriorate within five years.

These assessments suggest that the ABCs are sustainable over the long run.

8. *What are the main positive and negative lessons learned, the main reasons for particular components not achieving the desired results, and the specific remedial actions recommended to achieve these results now, to the extent possible? If the results were not as planned or envisioned, then explain why the results were not achieved. What went wrong?*

LESSONS LEARNED

- Imposing a rigid, fixed timetable for a complex, pioneering development effort such as the Ghana Compact even in an advanced developing country such as Ghana involves a high risk of failure.
- Continuing leadership and involvement by the development organization must be provided beyond the Compact's end to ensure the effective use of the assets provided.
- The operators of assets provided for commercial use must be actively involved in the design and operational planning of the assets that are provided.
- For greatest impact, trials should be conducted and operating systems put into place to ensure that the asset functions fully as planned before it is transferred to the user.
- Training is a key element of project success, not only for the operators and users of the assets provided, but also for the small-scale farmers that supply the facilities with their products.
- Merely providing assets does not ensure development success.
- The greatest impact on the reduction of rural poverty comes from supporting the business activities in which most small-scale farmers are involved¹.

¹ In other words, the potential poverty reduction from MiDA's support to the production and marketing of food grains, which involves large numbers of smallholders, is considerably greater than the potential

9. For ABCs, pack houses, PCC and SPEG facilities, what are the volumes of produce passing through each facility per agricultural season? These data are provided in Annex I of the report.

poverty reduction that can be generated from MiDA's support to pineapple outgrowers, which involves only a limited number of smallholders.

1.0 INTRODUCTION

This report presents the results of an assessment of key aspects of the Millennium Challenge Compact in Ghana that was implemented from 2007-2012 by the Millennium Development Authority (MiDA), an agency of the Government of Ghana (GOG). The assessment was conducted by the independent research organization, the NORC at the University of Chicago. NORC has a contract with the Millennium Challenge Corporation (MCC), to provide evaluation services for its Ghana program.

The foregoing assessment analyzes two elements of the Agriculture Project carried out under the Ghana Compact: irrigation development, and improved post-harvest handling. MiDA's work to implement the Ghana Compact ended in February, 2012. Within the context of its role as evaluator, NORC took stock of the events that have unfolded and the results achieved in Ghana related to irrigation and post-harvest handling since the Compact ended; and if the accomplishments have not met earlier expectations, to analyze the current situation and determine the underlying causes. Specifically, NORC reviewed the use of the facilities and infrastructure related to irrigation and post-harvest activities that were funded by the Compact and assessed the extent that private, commercial agriculture has increased as a result of MCC investments during the period since the Compact ended. In this regard, the MCC-funded, irrigation and post-harvest activities were assessed in terms of their impact, effectiveness, sustainability, and implementation efficiency. The following sections of the report provide an analysis of MCC's investment results, the assessment findings and conclusions related to MiDA's irrigation and post-harvest activities, recommendations for future programs, and lessons learned that can be applied to future investments.

As required by the Scope of Work (SOW) for the assessment (presented in Annex VII), the report responds to nine questions:

1. Was the MCC investment implemented according to plan? Were there delays, bottlenecks, and/or deviations from plan? What positive and negative factors affected implementation?
2. Has the program, as designed and implemented, been able to provide substantial improvements in irrigated agriculture, the export of horticultural products, and the marketing of grain crops in Ghana?
3. Was the program soundly managed and did the stakeholders receive value for money (efficiency) during the construction phase of the project when MCC and MiDA were in charge?
4. Was the transition to program management by private stakeholders achieved according to plan? Was the transition efficient?
5. Are program beneficiaries presently managing program assets and continuing activities efficiently?
6. What has been the overall impact of the program?²
7. Are the results achieved sustainable? Are the facilities constructed still in use and being maintained according to schedule? Is a system in place to ensure that financial resources are available to maintain the facilities over the long-term?

² Note that this question will be explored qualitatively for those interventions that are currently not undergoing a rigorous impact evaluation. However, quantitative information was used where available and accessible.

8. What are the main positive and negative lessons learned, the main reasons for particular components not achieving the desired results, and the specific remedial actions recommended to achieve these results now, to the extent possible? If the results were not as planned or envisioned, then explain why the results were not achieved. What went wrong?
9. For agribusiness centers (ABCs), pack houses, perishable cargo centers (PCCs) and SPEG loan facilities, what are the volumes of produce passing through each facility per agricultural season?

The assessment was conducted over a four-week period during November-December 2013 by an agribusiness development specialist with Experience In Agriculture Project Impact Evaluations.

1.1 Background

The Millennium Challenge Compact with GOG was signed on August 1, 2006 with an obligation amount of US \$547,009,000 covering an implementation period of five years. The Compact became effective on February 16, 2007 after Ghana's Parliament ratified the Compact thereby enabling Ghana to fulfill all its domestic legal requirements for the agreement to enter into force. The Compact ending date was February 15, 2012.

The aim of the Compact was to reduce poverty through economic development by raising farmer incomes through the growth of private sector-led agribusiness. To this end, the program focused on increasing the production and productivity of high-value cash and food staple crops in targeted intervention zones of Ghana, and on enhancing the competitiveness of Ghana's horticultural and other traditional crops in international and local markets.

The program carried out by MiDA under the Compact consisted of three distinct projects: 1) Agriculture Production and Value Added Development Project; 2) Transportation Infrastructure Development Project; and 3) Rural Development Project. The three projects included the following activities:

Figure 1: Ghana Millennium Challenge Compact Project Activities

Agriculture Project	Transportation Project	Rural Services Project
Irrigation development	N1 highway upgrade	Support community services
Improved post-harvest handling	Lake Volta ferry improvements	Strengthening public sector procurement capacity
Improved credit services	Trunk road improvements	
Commercial farmer training		
Land tenure facilitation		
Feeder road rehabilitation		
Source: MiDA project design documents		

The project activities listed in Figure 1 were carried out within three main intervention zones that included: 1) Northern Agricultural Zone; 2) Afram Basin Zone; and 3) Southern Horticultural Zone. These intervention zones initially encompassed 23 districts that were later expanded to 30 as a result of government re-districting and the incorporation of three adjacent districts within the project area due to the expansion of the irrigated area, road construction, and post-harvest activity. The accompanying map (available from MiDA's website at www.MIDA.com.gc) shows the intervention zones for the Ghana compact.

The activities carried out under the Agriculture Project, which is the main focus of this assessment, are discussed in the following report sections.

A summary of the budgeted costs for the main project activities is shown in Figure 2 below.

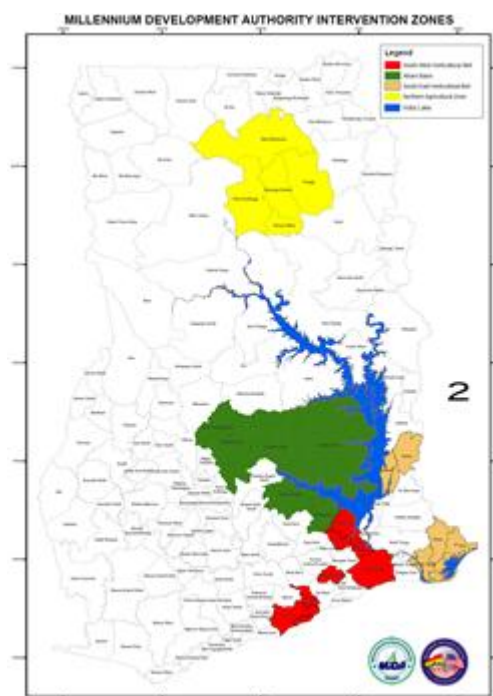


Figure 2: Final Budget Breakdown by Main Project Activity (US\$)

Program Activity	Budgeted Amount	Percent of Total
Agriculture Project	\$197,726,609	36.1%
Transportation Project	\$224,170,279	41.0%
Rural Development Project	\$78,312,596	14.3%
Program Administration	\$36,422,677	6.7%
Monitoring and Evaluation	\$10,376,840	1.9%
Total Amount	\$547,009,000	100.0%

Source: Derived from the *Millennium Challenge Account (MCA) Ghana, Compact Completion Report*, draft report submitted by The Millennium Development Authority (MiDA), September 2012

1.1.1 Irrigation Development

MiDA's work to increase the amount of irrigated land for agricultural use included the renovation of two existing irrigation schemes in the Tolon Kumbungu district in Ghana's Northern Agricultural Zone, and the construction of a new scheme in the North Tongu district in the Southeastern Horticultural Belt. The northern schemes are the Botanga Irrigation Project and the Golinga Irrigation Project, both located near Tamale, the regional capital. The new southeastern scheme, known as the Kpong Left Bank Irrigation Scheme (that was later re-named as the Torgorme Irrigation Scheme), is located in the Volta Region near the village of Torgorme.

The three irrigation systems serve MiDA-trained small-scale farmers that were grouped into farmer-based organizations (FBOs), with each composed of roughly 50 members. For

administrative efficiency, the FBOs at each irrigation site were further organized into a FBO Union as an apex organization serving all the small farmers operating within the scheme. MiDA delivered trainings to all the scheme farmers on management of farmer organizations, farming-as-a-business, and effective farming practices.

All three systems were designed to provide gravity-flow irrigation water to small, individual plots within their respective irrigation perimeter. This means that water is diverted from a reservoir upstream into the irrigation system where it flows naturally by gravity force throughout the entire irrigated area so that pumping is not required. Excess water from either irrigation or rainfall is drained from the irrigated plots through a comparable network of drainage canals, and is eventually discharged into rivers downstream.

Small-scale farmers operating within each of the three irrigation schemes will have the opportunity to participate in contract farming arrangements with a large, commercial farm, known as an “anchor farm,” located near the small farmer irrigation scheme. The anchor farmer has access to irrigation water from the main canal that carries water from the reservoir to the irrigated area for small farmers. The anchor farmers are required to pump irrigation water onto their farms, since the layout of the terrain does not permit water flow by gravity to these farms.

The Golinga scheme covers an irrigated area of 40 hectares and involves 156 farmers from four communities, each with its FBO. An additional potential irrigated area of 20 hectares was not developed due to budget constraints. Scheme farmers produce mainly rice and vegetable crops. With MCC’s investments in scheme rehabilitation and an improved water intake, it was planned that scheme farmers would produce three crops per year. The Golinga irrigation scheme is owned and managed by the Ghana Irrigation Development Authority (GIDA). Previously, scheme maintenance and repair suffered due to poor management and inadequate income generation from the sale of irrigation water to small-scale farmers. As described by the following paragraph, the anchor farmer at the Botanga irrigation scheme was expected to negotiate contract farming arrangements with Golinga smallholders as well.

The irrigated area of the Botanga scheme covers 495 hectares and benefits 528 small-scale farmers who are associated with 10 FBOs. These farmers produce mostly rice and vegetables. The maximum potential area for the Botanga scheme is 800 hectares. Similar to Golinga, the old scheme at Botanga broke down due to poor maintenance and unsustainable financial, economic and organizational management practices. User charges were excessively low, and GIDA’s collection of user fees from small-scale water users was poor. In addition to providing irrigation water to smallholder farm plots within the scheme, the Botanga irrigation system also provides water to an intake sump to supply the anchor investor, Solar Harvest, for crop production on an irrigated area of 305 hectares located outside the Botanga scheme. Solar Harvest has arranged with local authorities for an operating concession on a total farming area of 2,500 hectares that can be irrigated from a number of water sources.

The Kpong West Bank (Torgorme) irrigation system was designed to provide surface water to 746 small-scale farmers, associated with 15 FBOs on an irrigated area of 450 hectares, who are drawn primarily from seven nearby communities. An additional area of 50 hectares has been earmarked for medium-scale farmers. However, a total irrigated area of 2,000 hectares is feasible for surface irrigation by gravity flow with water from the existing outlet at the Kpong Hydropower Dam. In addition to providing irrigation water to small plots, MiDA constructed a

pipeline supplied by a pumping station to provide irrigation water to support crop production on 1,070 acres by Vegco, an anchor farm located near the smallholder irrigated area. It would be feasible to expand the anchor farm to a maximum irrigated area of 3,000 acres by pumping additional water from the main irrigation canal that serves the smallholder irrigation scheme and which forms the boundary of Vegco's farm. There is no restriction on the availability of water from the Kpong reservoir. The agricultural production planned for the Kpong West Bank irrigation scheme is export horticulture.

1.1.2 Improved Post-Harvest Handling

The activities funded by MCC to improve the post-harvest handling of agricultural crops include: 1) the construction of 10 ABCs in grain producing locations throughout the Compact area to serve as facilities where grain crops produced by FBO members could be consolidated, conditioned, stored and marketed; 2) the construction of three public pack houses (PPHs) for export pineapple and mango in the southern horticultural belt; 3) the construction and equipping of a PCC at Accra's Kotoka International Airport (KIA) to enable increased exports of fresh fruit and vegetables from Ghana; and 4) providing grant financing to the Sea Freight Pineapple Exporters' Association of Ghana (SPEG) to make loan funds available to SPEG members as a means to upgrade their fruit processing facilities to better compete in export markets for fresh pineapples and other tropical fruit.

1.1.3 Agribusiness Centers

The 10 ABCs provide services for the initial processing, storage, and marketing of grain crops produced by FBOs within their respective intervention areas. Each ABC has been outfitted with specialized equipment for processing rice and/or maize, although the complement of installed equipment can later be expanded for processing other grain crops, such as soybeans, as operations expand. Each ABC was designed to store approximately 1,000 tons of grain and to serve as a grain processing and marketing center for FBO members located in the vicinity of the center, within a radius of approximately 20 kilometers. Initially, MiDA planned to fund the construction of 16 ABCs but budget constraints limited the number of facilities to only 10.

So far, ABCs specialize in handling maize and rice grain crops. They provide for-fee grain processing services including maize shelling or paddy rice de-husking, de-stoning, and parboiling; along with drying, cleaning, sorting, selecting, bagging, palletizing, and storing the processed grain. If desired, ABCs will market the grain inventory stored on behalf of their FBO clients. Otherwise, they will store the grain securely until it is sold directly by the client. In addition to grain processing, storage, and marketing services, the ABCs provide inputs to their FBO members, including improved seed, fertilizer, and farm chemicals. The ABCs also provide tractor services to small farmers, who are members of their affiliated FBOs, to help them prepare their land for planting grain crops.

ABCs are privately owned and operated, profit-making service organizations. Each facility is jointly owned by a private entrepreneur, known as a "lead investor," along with the members of around 20 FBOs, each of which has a membership of approximately 50 individual small-scale farmers. Consequently, the numbers of smallholders who are joint owners of each facility normally totals approximately 1,000 individuals. For administrative efficiency, at each ABC the participating FBOs have formed an apex organization known as a FBO Union. In addition to

providing post-harvest services to the members of the FBO Union who are joint owners in the facility, the ABC also provides for-fee services to other non-affiliated FBOs, as well as to larger, individual farmers within the community. Each ABC is managed by the respective lead investor who was selected by MiDA through a competitive bidding process.

Each lead investor owns 70% of the respective ABC, while the small farmers who form the associated FBO Union collectively own the remaining 30%. An individual small-scale farmer's share of the 30% ownership block can be adjusted depending on the relative amount of grain provided annually by the individual for processing at the ABC.

Individual owners were required to contribute to the initial equity of the ABC: each small-scale farmer was required to contribute a sack of maize or paddy (depending on the crop served by the ABC), while the lead investor had to provide the land where the ABC is located, along with a vehicle and a cash investment of Ghana Cedis (GHC) 50,000 to cover the ABC's labor and administrative costs for an initial operating period of six months. MiDA provided grant funding for the construction of the ABC buildings, along with their requisite processing and drying equipment and required connections for electric power and water. MiDA also provided the ABCs with tractors and farm implements required for land preparation.

ABCs are located throughout the predominantly grain producing locations of the Compact area. The lead investors were instrumental in determining the specific location of the respective ABC within the producing areas, and most are located along main roads where electric power and water are readily available.

The following figure provides a profile of the 10 ABCs that were funded by MCC:

Figure 3: MCC-Funded Agribusiness Centers

ABC Name	District	Location	No. FBOs	No. Members
Seed Shop	Gomoa East	Gomoa Abaasa	52	2593
Quality Ag Services	Upper Manya Krobo	Asesewa	20	984
CPDF	Kwahu North	Kwamepong Nkwanta	20	978
Yawah Shalom	Ejura-Sekyedumase	Dome-Aframso	20	975
Victory Feed	Ejura-Sekyedumase	Bonyon	20	1035
Savannah Farmers	Tamale Metro	Chanzehiini	20	826
AMSIG Resources	Tolon-Kumbungu	Woriboggu-Kukuo	20	998
IPSL	Savelugu-Nanton	Savelugu	20	1003
Presbyterian Ag. Services	West Mamprusi	Kperiga	72	3508
GAABIC	Karaga	Karaga	20	754

Source: MiDA

1.1.4 Public Pack Houses

MCC strengthened Ghana's export horticulture sub-sector by constructing and equipping three large, state-of-the-art PPHs in the country's southern horticultural belt. Two of the pack houses serve the export pineapple agro-industry, and the third is used for export mango processing. The two pineapple facilities are located in the districts of Gomoa and Akwapin South, respectively, and the mango facility is in the Yilo Krobo district. The three pack houses have automated packing lines with the capability for moving freshly harvested fruit by conveyor to work stations where it is automatically separated and sorted into batches of fruit of similar size that is manually packed into carton boxes containing a standard weight. The packed fruit boxes are stacked onto pallets for efficient handling and, once the palletized unit has been quick-cooled, it is stored in refrigerated rooms at the pack house until it is loaded into refrigerated containers and transported by truck to the Tema Port for exporting overseas. At Tema, the fresh fruit remains in the sealed shipping container until the scheduled arrival of a container ship that transports the container with its refrigerated cargo to European ports for discharge and distribution to fruit wholesalers, brokers, and supermarket chains. The European market has extremely demanding quality standards for fresh fruit and imposes rigorous procedures for post-harvest handling and temperature control as essential elements of an export program that serves this market. Consequently, MiDA's state-of-the-art pack houses and its capability to support the first link of the "cold chain" for export horticultural products from farm to final customer are an important part of Ghana's strategy to increase its horticulture exports to markets overseas.

MCC provided grants to fund the construction of the three PPHs and to install the required packing lines, cooling equipment, product handling equipment, and the extension of electrical power from the national grid. The pack houses are designated as "public" facilities: they provide for-fee services to any group of farmers or individual exporters that requires export packing services for mango or pineapple, and will eventually provide export services for other products as well. The services they provide include fresh fruit selection, sorting, packaging, cooling, handling, storage, quality control, and export shipping. A "pack charge" amounting to roughly US \$25.00 per pallet-load (equivalent to approximately 0.8 metric tons of fruit) is assessed for these services and is considered by the industry to be a reasonable charge.

The PPHs are privately owned and operated. The co-owners of the pineapple pack houses are the anchor farmer (60% ownership) and the affiliated FBOs (40%). Under the Compact, MiDA linked the FBO members to the pineapple anchor farmer as contract farmers, otherwise known as "outgrowers." In the case of the PPH for mangos, since no anchor farmer was available, its owners are the FBO members of the Dangme Mango Farmers' Cooperative Union (Dangme Union) of mango producers.

Fruit processed at the public houses that do not meet export quality standards is sold into local markets, normally at lower prices. For example, fresh pineapples that are rejected at the pack houses for not meeting export quality standards are sold to Blue Skies Company for processing and export as pre-cut, packaged fruit chunks; to local juice processors for making fruit juice, or on local markets as fresh fruit. Rejected mangos are sold to juice processors, or as fresh fruit on local markets.

The following figure summarizes the characteristics of the three PPHs:

Figure 4: Public Pack Houses

Name of PPH	Location (District)	Anchor Farmer	No. FBOs	No. Members
Ajanao (Pineapple)	Akwapim South	Greenspan Farms.	11	492
Gomoa Otwekrom (Pineapple)	Gomoa	Chartered Impex	8	394
Akorley (Mango)	Yilo Krobo	None	9	587
Source: MiDA				

1.1.5 SPEG Loans for Cold Rooms and Packing Lines

In 2008, MiDA provided a conditional grant program in the amount of US \$5.3 million that was administered by SPEG to enable its members to construct cold rooms, install automated packing lines, and provide stand-by generators for their pack houses. The purpose of the loan was to enhance the competitiveness of Ghana's pineapple exporters in European markets. Separately, through its Rural Development Project, MiDA provided electricity to these SPEG members' pack houses (and to nearby communities) by constructing electric power lines that connected the pack house and the adjacent communities to the national power grid.

SPEG, created in 1994 as a specialized organization derived from the Horticultural Association of Ghana, is an association of exporters whose members primarily export fresh pineapple, although some export other fruit such as mango and papaya. From an initial membership of five exporting companies, SPEG now has 30 members, although only around half are active. As the voice of Ghana's fruit exporters, SPEG is instrumental in shaping national policy that affects fruit production and export, representing its members at international gatherings, and crafting the industry's public image. SPEG also coordinates shipping arrangements on behalf of its members, negotiates common tariffs for sea freight, and provides information and support to its members in the marketing of their products overseas and in local markets. SPEG also assists its members in complying with international product marketing standards, such as certification for the GlobalGap and Fair Trade requirements.

The underlying concept of the SPEG loan program was that a first drawdown of funds would be used to finance the construction and installation of cold rooms, automated packing lines, and stand-by generators for an initial group of exporters, and that the cash flow generated from the repayment of these early loans would be rolled-over as subsequent loans to finance similar investments made by succeeding exporters. The loans were not provided in cash to the SPEG members – instead, the construction of cold rooms and installation of equipment were completed under MiDA's procurement regulations and the completed facility was then turned over to the respective exporter.

In September 2008, MiDA announced the approval of the first loan tranche in the amount of US \$2.17 million for seven SPEG exporters who made up the first phase of the loan program. The loans were provided for a five-year term at a flat interest rate of 5% per year, with annual loan repayments amounting to 20% of the original loan amount, plus interest. The procurement

process for construction and equipment for these seven exporters began in the last calendar quarter of 2008, and the seven installations were completed by the end of 2009.

The initial loan amounts planned for each exporter are shown by the following figure:

Figure 5: SPEG Equipment Loans (US\$) – First Phase Borrowers

Exporter	Cold Rooms & Equipment	Packing Line	Generator	Other	Total
Jei River Farms	97,167	32,293	0	10,800	140,260
Bomart Farms	151,844	326,426	52,650	44,701	575,620
Koranco Farms	229,710	96,847	48,517	31,800	406,875
Prudent Farms	120,239	350,807	52,650	43,999	567,695
Georgefields Farms	37,004	0	52,650	7,600	97,254
2K Farms	107,900	0	50,200	13,300	171,400
Gold Coast Fruits	49,520	110,130	34,825	16,401	210,875
Total	793,384	916,503	291,492	168,601	2,169,979
<i>Source: SPEG</i>					

The exporters within the first loan phase were to be followed by a second group of borrowers as soon as exporters in the second phase were prepared to incorporate the facilities and equipment within their export operations.

Unfortunately, the first group of loan recipients was unable to repay their loans as scheduled to begin in 2008, before the installation of equipment. As a result of the default, and in light of the extremely high default rate by small farmers for the agricultural credit activity, MiDA quickly froze the SPEG loan program. Consequently, SPEG has been unable to make additional loan disbursements from the US \$3.13 million that remains of the original grant of US \$5.3 million. Furthermore, the funds received by SPEG for loan and interest payments from the first phase borrowers have been blocked and cannot be rolled over into new loans. Presently, the entire program has stalled.

SPEG stated that it made a good-faith proposal to MiDA after the loan program was suspended to extend the repayment period from five to six years. Instead of a fixed 20% loan repayment amount each year, it proposed to back-end-load the repayment schedule corresponding to the following cumulative repayment amounts: year 1 – 6%; year 2 – 16%; year 3 – 28%; year 4 – 48%; year 5 – 72%; and year 6 – 100%. Even though MiDA was unwilling to accept the proposed restructuring plan, SPEG implemented it unilaterally since it believed that the proposed amounts were the maximum loan repayment that its members could make under the circumstances at the time. SPEG claims that its members had simply not achieved the export volumes upon which the original repayment schedule was based.

SPEG began collecting the outstanding amounts of loan principal and interest in October 2009 based on its (unilateral) modified repayment schedule. SPEG has planned for its members to repay the entire loan amount by 2015.

It appears that the SPEG equipment loans provide the greatest benefit to exporters, whereas the impact on small farmers has been quite limited. Only three exporters that received equipment loans – Bomart, Prudent, and Georgefields – had contract farmer (outgrower) programs. Although each of these exporters was associated with a single FBO that had about a dozen members as contract farmers, the programs are no longer active. The remaining four exporters –

Jej River Farms, Koranco Farms, Gold Coast Fruits and 2K Farms – have never had an outgrower program.

Unfortunately, the failure of MiDA’s credit program for small farmers is taking its toll on the recovery of Ghana’s pineapple exports, and on the expansion of its mango agro-industry. MiDA had initially planned that national, regional, and rural banks would provide smallholders and nucleus farmers alike with credit lines that would enable them to maintain their new plantings during the 18 (for pineapple) to 60 month (for mango) period from the time of planting through harvest. Although MiDA’s loan guarantee program was designed in part to finance the expansion of these two agro-industries, the failure by the early loan recipients to make their scheduled repayments served to undermine the “revolving” capability of the loan fund. Instead of providing initial capital that would enable several generations of new plantings to take place, the truncated repayment performance by the front-end loan beneficiaries dried-up the availability of funds from the revolving fund, and greatly limited the expansion of new plantings that might otherwise have been possible. This has severely slowed the recovery of the pineapple and expansion of the mango agro-industries.

The limited availability of rural credit, especially for small farmers, in the aftermath of the unsuccessful MiDA credit program has spilled over into other agro-industries. Lack of rural credit has limited the availability of working capital and slowed the rate of expansion of grain available for processing by ABCs.

1.1.6 Perishable Cargo Center

Under its Agricultural Project, MiDA provided grant funds for the construction and equipping of a US \$2.7 million PCC at KIA in Accra to facilitate increasing amounts of fresh fruit and vegetable exports from Ghana. KIA, which saw 1.64 million passengers and 46,000 tons of air cargo in 2010, serves as the aviation hub for the West African sub-region. Presently, KIA serves four cargo airlines and 24 commercial carriers. Furthermore, KIA is the only airport in Ghana capable of handling large aircrafts, such as the Airbus A380.

Before the PCC was constructed, exports of fresh agricultural products from KIA amounted to around 20,000 tons annually. At that time, there was no packing shed at KIA available to exporters where fresh produce could be consolidated, nor was there a cold storage facility to maintain the quality of exported fresh products.³ Even before the PCC was put in service, nearly all vegetable and cassava exports were shipped by air to overseas markets. Around 80% of fresh papaya exports and around 10% of pineapple exports, mostly pre-cut packaged pineapple chunks exported by Blue Skies, Ltd., were shipped from KIA as air cargo.

The PCC is the final link in an integrated cold chain for the horticultural sub-sector that begins at the pack houses where products are initially cooled. The PCC is a key element in the achievement of better quality exported fresh produce shipped by air to markets overseas. The PCC was expected to lead to higher market prices and increased volumes for its normal fruit and vegetable exports, as well as stimulate export growth in emerging export products such as cut flowers.

³ Blue Skies Company, an exporter of pre-cut fresh fruit has its own cargo handling area and cold room at KIA, but does not offer handling services to third parties.

The new PCC is a considerable improvement over the old system, whereby boxes of fruit and vegetables for export arrived by truck at the airport cargo area and were stacked onto air cargo pallets or loaded into air containers in the open air, exposed to the heat, sun, and rain. Even when cargo arrived by refrigerated truck, such as, for example, exports of pre-cut packaged fruit by Peelco Company, the shipment had to be discharged, palletized, and held for export at ambient temperature. The break in the “cold chain” was detrimental to the shelf life and overall quality of perishable products, and any flight delays that resulted in cargo being held longer further affected the quality of the exported product. Furthermore, due to traffic congestion by cargo vehicles at or around KIA and airlines’ strict cut-off time for receiving air cargo, exporters previously had to send their perishable shipments to the airport ahead of time where it sustained long waits in the open air before loading. These adverse factors caused weight loss from evaporation and reduced the shelf life of perishable export products.

The total area of the PCC, which became fully operational on December 5, 2011, is 1,150 square meters and includes a shaded receiving platform for incoming cargo, open floor space to be used for product inspection and packaging, rooms for cold storage, a storage area for pallets and equipment, and an administrative area. Perishable cargo is shipped on air cargo pallets or inside aircraft containers, and must pass through a scanner before being loaded on an aircraft.

The PCC is owned by the Ghana Airports Company Limited (GACL), a private company that was divested from the Ghana Civil Aviation Authority in 2006 to manage KIA and Ghana’s smaller, regional airports. GACL began operating in January 2007. The PCC is managed and operated by a consortium, selected through a public bidding process, headed by Ghana Air under a concession from GACL.

The PCC is a public facility, providing for-fee export services to all horticultural exporters in Ghana who wish to use its services, and occasionally, exporters from neighboring countries. Its clients belong to the community of active exporters.

MiDA’s financial analyses of its investment in the PCC concluded that, at the current level of fresh horticulture shipments of approximately 20,000 tons annually, a handling charge of US \$.07 per kilogram would adequately cover operating costs and could also provide a sinking fund for asset replacement.

2.0 ANALYSIS

2.1 Responses to Evaluation Questions

The main focus of this assessment is MiDA’s irrigation and post-harvest agricultural investments, specifically: a) irrigation investments at Torgorme, Botanga, and Golinga irrigation schemes; b) PPHs for pineapple and mango; c) investments by seven SPEG exporters in post-harvest equipment including cold storage rooms and packing lines for export pineapples that were funded by MiDA loans; d) investments in structures and equipment for ten ABCs enabling them to provide land preparation services and consolidation and joint marketing of food grains produced by smallholders; and e) the PCC that provides export services for receiving perishable products, maintaining products under refrigeration, and shipping them in aircraft containers to markets overseas.

The following discussion analyzes the progress that has been made in terms of the management and operation of these investments since the Ghana Compact ended on February 15, 2012. The analysis is presented in response to the following nine evaluation questions and other issues covered by the assessment.

2.1.1 Question 1

Was the MCC investment implemented according to plan? Were there delays, bottlenecks, and/or deviations from plan? What positive and negative factors affected implementation?

The general plan for MiDA's agricultural investment program was that all investments would be completed before the Compact ended and turned over to program beneficiaries for commercial use as private-sector, for-profit, commercial enterprises. However, a number of adverse events occurred and difficulties arose that have had a negative effect on the continuing operations of MiDA's agricultural investments. The most important of these include the following.

Based on our observations and the compendium of information gained through open-ended interviews during the recent field visit to Ghana, as well as the earlier work related to the formulation of the evaluation plan for the Ghana Compact, NORC's agricultural expert prepared the following concluding statement that describes the fundamental weakness in the Compact's implementation strategy that gave root to the present difficulties that are now limiting the effective use of MiDA's agricultural investments. He discussed the following statement with MiDA's senior executives (the Evaluation Director and the Chief Operating Officer), and they agreed that the statement is generally correct, and is a reasonable reflection of the situation that existed at MiDA during Compact execution:

"The MCC Ghana Compact was an extremely rigid instrument that had a fixed ending date of five years it began. All Compact activity ceased on the ending date, without regard to the situation that existed. To implement the Ghana Compact, the GOG had to create an implementing agency starting from nothing and develop that agency into an efficient implementing organization. After the organization was created and organized, it was necessary to establish effective channels of communication between the respective US- and Ghana Compact-implementing organizations, as well as develop and harmonize the relevant information and management systems between the two entities. Once the organizational structure was created and the communications channels became functional, the Ghana organization had to undertake the required planning for implementing the compact, and to establish operating procedures for internal operations, financial controls, procurement, auditing, monitoring and evaluation, and communications systems. It was only after the organizational structure and systems were in place that MiDA was able to begin work implementing the Compact. Unfortunately, the startup phase was extremely long and decision-making for Compact implementation was slow since approvals had to be sought from two separate government bureaucracies.

The result was that the Compact required nearly three years of implementation work to get fully underway. This meant that during the final two years, there was a furious scramble at MiDA to commit funds and to complete the required construction work within the remaining time available. There simply was not enough time before the Compact ended to complete the physical

work required and to provide appropriate support to the beneficiaries to ensure that the assets that were provided to them were fully operational and appropriately used. Unfortunately, time ran out before this final step was completed.”

Interviewed MiDA executives further clarified that, in addition to the requirement to create and strengthen the organization in order to implement the program and the slow decision-making by two separate government bureaucracies, the MCC requirement to complete the Conditions Precedent (CPs) for the Compact further delayed initiation of post-harvest investments under the agricultural component. Although MiDA was permitted to initiate preparatory work prior to construction such as feasibility studies and bidding documents, the actual construction work could not begin before the CPs were met. One requirement, that the country should modify its National Plant Protection Legislation to be in compliance with the International Plant Protection Convention before the agricultural component could be initiated, took approximately two years to complete the legislative process, further delaying the start of Compact implementation⁴.

Soon after the Compact began, MiDA launched a credit scheme for small-scale farmers as a stand-alone program that, with benefit of hindsight, seems to have been poorly conceived. MiDA-guaranteed credit facilities were provided directly to small-scale farmers by financial institutions without the benefit of a supporting commercial structure, such as that of an anchor firm or outgrower production scheme by smallholders that was led by a commercial agribusiness company. A loan structure of this nature would have increased the likelihood of loan repayment by smallholders, since repayment amounts could have been withheld from the purchase of agricultural products from smallholders and paid directly to financial institutions. In the absence of a supporting commercial structure, many farmers treated the loans as “free” government money, and repayment rates were low. After heavy losses (whose value was later reimbursed to MCC by GOG), the loan program was cancelled from the Compact. Unfortunately, the effects of the cancellation of the credit facility spilled over to larger commercial farmers – in particular, pineapple exporters. At that time, pineapple exporters had high investment requirements (reportedly, in the amount of up to US \$5,000 per acre) for the conversion of their pineapple farms to the new MD-2 pineapple variety as required by changing international market preferences. The limited availability of affordable investment credit and working capital financing for crop production by pineapple farmers has had a substantial negative impact on pineapple production in Ghana.

As late as 2009, before any loans had been made under the MiDA loan program, there was considerable optimism in terms of the role that national and regional banks would eventually play in providing both smallholders and nucleus farmers with credit lines which would enable them to maintain their new plantings during the 18 months (in the case of pineapple) to 60 months (in the case of mango) between the time of planting and harvest. While the MiDA program could have served as an excellent platform for such expansion, the fact that early recipients did not comply with their scheduled payments of interest and principal meant that the “revolving” element of this funding program was never able to enter into force. Rather than providing initial capital to allow several generations of new plantings to take place, this truncated repayment performance on the part of front-end beneficiaries dried up the availability of funds

⁴ The CP language was the following: “Prior to any MCC Disbursement of Post-Harvest Activity on or after the Commencement of Quarter 4 of year 1: MiDA has submitted evidence demonstrating that the Government has adopted an Amendment to cause the National Plant Protection legislation to be in compliance with IPPC 199.”

from this source, and greatly limited the expansion of new plantings which might otherwise have been possible⁵.

Based on observations during the assessment, none of the MiDA-provided facilities and equipment is being operated at full capacity as a result of limited crop production and throughput at the various facilities. The limited availability of affordable credit is the recurring theme cited by facility operators as the main contributing factor to facilities being less-than-fully-utilized.

MiDA's primary focus under its agricultural component was to provide "hardware" (i.e., facilities and equipment) to private operators so that they could operate assets on a commercial basis. However, with the benefit of hindsight, had MiDA support been provided through a value chain approach⁶ focused on the different agricultural products instead of simply providing "hardware," the problems related to production limitations might well have been resolved during project implementation⁷.

⁵ In reviewing a draft version of this report, MCC made the following comment/clarification about the credit scheme for small-scale farmers was the following: "...it should be noted that credit was facilitated through rural banks that did not have the capacity to adequately assess and manage risk as [these] banks did not even have any type of MIS in place (it was all paper documentation). Loans were not reported to any credit bureau, or information on borrowers was not shared among rural banks, resulting in some cases in farmers taking several loans from different banks—(because they could). Thus, although I agree that having an outgrower production has a great potential for increasing re-payment capacity by farmers, there were other major problems with the banks themselves and a culture (and history) of non-payment among farmers—because most credit programs have been guaranteed by donor programs and repayment from rural banks to the donors has never been enforced- or from farmers to banks. Also it should be noted that several borrowers that defaulted were FBO pineapple growers connected to one of the exporters (Greespan, Chartered Impex) but they still managed to default."

⁶ A value chain approach seeks to create viable agro-industries based on the production, transformation, and marketing of the targeted commodities. Under this approach, a development agency such as MiDA would work along the entire commodity chain from smallholder farm production to the end market to solve problems and remove constraints that limit the development of the respective agro-industry.

⁷ MCC's response to the report's recommended value chain approach to support the development of the targeted agricultural products was the following: "The statement that MiDA's primary focus under the agricultural component was to provide "hardware" (facilities and equipment) and that the program did not have a value chain approach is not correct. MiDA spent significant amount of resources working across the value chain including:

- ♦ Training of farmers and their organizations both on production (agronomic training and in some cases Global GAP training and certification) and in institutional/capacity building for FBOs
- ♦ Identifying, vetting and negotiating and developing agreements with anchor farmers (for irrigation), private investors/managers (for ABCs), well established exporters (for the pineapple PPHs and SPEG)—which suggests that markets were essential for the success of the project.
- ♦ Launching (although late) RFPs for private management entities for the irrigation schemes (and worked with GIDA, farmers, traditional authorities, etc. go get a buy in for sustainable management structure). It secured one private manager for Togorme and negotiated start up operating expenses through EDAIF which may or not materialized.
- ♦ Developing the PCC at KIA to strengthen the cold chain.
- ♦ MiDA hired contractors (the RICs) to facilitate market research and market linkages and all support all the "soft" investments needed including identification of exporters and anchor farmers, development of the organizational management frameworks for centers, establishment of board of directors for each of the investments, development of shareholder agreements/structures, etc.
- ♦ MiDA worked with the GoG to pass the National Plant Protection Legislation to comply with IPPC in an effort to address major challenges in inputs market (seeds and fertilizers) allowing the GoG to register seed growers, register seed importers, monitor planning materials, etc. It provided major support for training and lab equipment to the MOFA to take on the new responsibilities under IPPC.

As a result of the “back-end loading” of MiDA-funded agricultural construction projects over the life of the Compact, none of the MiDA agricultural projects were completed very much before the Compact’s end date.⁸ Consequently, in MiDA’s rush to complete the “hardware” that includes the construction of physical structures and the installation of the required equipment, there was no time remaining before the end of the Compact to complete the necessary “software,” including equipment testing, trial operations, correction of construction deficiencies, and training/orientation of beneficiaries, including small farmers in the use of the assets to ensure their successful operation. The limited opportunity for MiDA to support the beneficiaries/operators of the assets before the Compact ended has had a detrimental effect on the operation of these assets after they were turned over to the beneficiaries.

After the Compact ended in mid-February 2013, MiDA scaled back its project supervision activities. Presently, its only project supervisory responsibility is the Torgorme Irrigation Scheme, which is being funded by the Export Development and Agricultural Investment Fund (EDAIF). As expressed by a senior MiDA official, the current MiDA policy is that “the Compact has ended” and there is nothing that the organization can do to resolve problems or to provide follow-up action to correct the innumerable loose ends that are still pending after the end of the Compact. Presently, the users/beneficiaries have nowhere to turn to resolve the problems and issues that were not completed before the Compact ended.

Based on our assessment, we conclude that many of these outstanding problems could have been resolved, or even avoided, had MiDA remained fully active and engaged for a considerable period of time (for two years) after the Compact ended. Presently, there is a leadership vacuum and the operators of the facilities and equipment have nowhere to turn to resolve problems that have carried over from Compact implementation.

2.1.2 Question 2

Has the program, as designed and implemented, been able to provide substantial improvements in irrigated agriculture, the export of horticultural products, and the marketing of grain crops in Ghana?

There has been considerable variability in the impact of MiDA’s investments made under the agricultural component of the Ghana Compact. Overall the impact of the investments has been generally less than anticipated due to the low utilization rate of the different facilities that were constructed under the Compact for various reasons as described below:

Public Pack Houses: The PPHs are state-of-the-art facilities that make it possible for their respective pineapple and mango exporting companies to compete in international markets with similar fresh fruit from other countries. Operators who were interviewed at the two pineapple PPHs are enthusiastic about the opportunity for opening new markets with pineapples that meet

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- ♦ It understood that financing was a constraint which is why it had a credit component and the SPEG grant-loan fund.
 - ♦ It provided additional infrastructure (irrigation/roads)

⁸ The Torgorme Irrigation Scheme was 71% complete when the Compact ended, and the remaining work has been carried out since that time with funding from EDAIF. It is anticipated that the construction work on the Torgorme irrigation project will be completed before the end of 2013.

international quality standards. Unfortunately, the PPHs cannot adequately supply their markets due to their limited pineapple production.

The industry standard for measuring output is the number of shipping containers exported (containers with an overall length of 40 feet, containing approximately 18 tons of fruit). The normal production capacity of these facilities is approximately three containers per day, or around 1,000 containers per year. Based on interviews with the two pineapple PPH operators, the current level of exports for Chartered Impex is around 50 containers per year, and only 20 for Greenspan Farms. These numbers correspond to a capacity utilization of no more than 5% for these investments.

Such a low utilization rate is due to limited pineapple throughput caused by low pineapple production. The smallholder outgrower program has collapsed at both pack houses as a result of the difficulty that small-scale farmers encounter to produce the MD-2 pineapple variety now required for international markets. MD-2 requires considerably greater production discipline and a more consistent application of agricultural inputs than the previous variety, Smooth Cayenne. Production by small-scale farmers is further constrained by the higher production cost of MD-2 and the lack of affordable credit for crop production.

Pineapple production by the anchor firms that manage the PPHs – Chartered Impex and Greenspan Farms – is also low, reflecting their weak financial structure and low financial resilience. Both anchor firms complain about the lack of affordable finance for investment and working capital needs. Essentially, anchor firms at the pineapple PPHs, as well as other pineapple exporters in Ghana, are caught in a financial squeeze caused by increasing production costs for MD-2 while the selling price for pineapples in European markets (the primary export market) is slowly deteriorating due to increasing shipments from exporters in Costa Rica.

Although the pineapple PPHs have had a positive impact on export quality, their impact on export volume has been negligible. Tables 1 and Table 2 in Annex I show the amount of sea freight exports by the two anchor firms by month over the past five years. Exports from March 2012 until the present correspond to shipments made from their PPH.

The impact on mango exports from the mango PPH at Akorley has been nil. The mango PPH has not been operational since its construction was completed and it was turned over to the Dangme Union in February 2012. Details on why the pack house is not being used are described in a later section of this report under Question 4.

SPEG Exporters: Six exporters of fresh pineapples, and one exporter of papayas and other fresh fruit, were provided loans to purchase post-harvest handling equipment, including packing lines, pre-cooling and cold storage rooms, and standby generators for their pack houses. MiDA provided US \$2.1 million to the pineapple exports organization, SPEG, for on-lending to the seven exporters.

Interviews with six (of seven) exporters who obtained SPEG loans revealed that the purchase of the post-harvest equipment has enabled exporters to meet export quality standards and to strengthen their position in international markets. In the words of one exporter, the equipment helped the exporters become “respectable” as reliable suppliers of quality fruit for European buyers and has also helped to open new markets. Unfortunately, however, the exporters have not

been able to capitalize on their market strength since they are unable to produce additional volumes of export pineapples to supply new markets. The reasons for their limited production are similar to those described in the previous section for the anchor firms that operate pineapple PPHs and include the high investment cost of converting to MD-2, along with the high production cost and large working capital requirements to bring-to-bearing the new pineapple variety; gradually declining European market prices for fresh pineapples that is tending to reduce the amount of income and profitability of Ghana's pineapple exporters; limited availability of affordable credit for investment and working capital needs for pineapple production; and limited financial resilience of the pineapple exporters to withstand economic shocks.

Tables 4-10 in Annex I show the monthly sea-freight export volumes in tons for the seven recipients of the SPEG loans. The time period when the seven exporters received the loans is highlighted on the export data tables for the individual exporters. As shown by the table, there is no clear-cut relationship between the period when the loans were provided and the subsequent amount of exports. The relationship between equipment loans and increased export shipments is inconclusive.

In conclusion, SPEG loans increased the pineapple exporters' marketing strength and may have enabled some of the exporters to continue operating as exporters, instead of retrenching into local markets. However, there is no indication that the SPEG loans have stimulated pineapple exports from Ghana.

Perishable Cargo Center: The PCC at KIA is owned by GACL, which was established in 2006 as a result of the decoupling of the existing Ghana Civil Aviation Authority. The management company that operates the PCC is the Air Ghana Perishable Cargo Centre (AGPCC), a private company whose majority owner is Air Ghana, with Vegpro, the anchor farm at the Torgorme Irrigation System, as minority owner. The management company has a seven-year contract with GACL to manage the PCC.

MiDA turned the PCC over to the management company at the end of the Compact on February 15, 2012. However, since substantial changes had to be made before the management company could operate the facility; it did not open for commercial business until December 5, 2012. Since the PCC began commercial operations, its throughput has been disappointingly low. As shown in Table 3 in Annex I, the recent PCC export volume has ranged from 600-800 metric tons per month, or around 25% of its operating capacity. During the consultant's interview with the PCC General Manager it was clarified that the PCC requires a throughput of around 1,500 tons per month – approximately double the current volume – for the center to achieve financial breakeven.

The reasons for the low throughput at the PCC are summarized as follows:

- Blue Skies Limited, the largest exporter of pre-cut fresh fruit from Ghana, operates its wholly owned PCC at KIA and has no need for PCC services. This facility has been operating for several years, starting before the MCC Compact was initiated.
- The business of providing cargo-handling services at KIA is highly competitive. In addition to the PCC, two other cargo handling service providers – Aviance and AHS Menzies – are well entrenched at KIA where they have operated for several years, starting well before the

MCC Compact was initiated. The PCC faces stiff competition from these established companies. It will take some time for the PCC to become established as a cargo service provider.

- When the PCC was conceptualized, it was expected that all (100%) of perishable export products would be mandated to flow through the facility. It was anticipated that for product quality and phytosanitary reasons, shippers would be required by government to use the PCC for fresh horticultural exports. However, based on the consultant's interviews with the PCC management, this has not happened because the different airlines have long-term agreements in place with the different freight handling companies at the airport for cargo handling services. In other words, the present system "locks in" the existing commercial relationships between the airlines providing cargo services and the freight handling service companies that compete with the PCC.
- In this regard, the greatest hurdle to be overcome by the PCC to gain additional perishable cargo business is the presence of existing contracts between the airlines that transport cargo and their contracted cargo service providers. Exporters of perishable products do not contract with the PCC for cargo handling services; instead, they must arrange for the different airlines to transport their products to their final destination. It is the respective airline that contracts the services of the cargo handler, not the exporter. In other words, there is no direct relationship between the exporter and the PCC; it is the airline that decides which freight handler to use for its cargo. At KIA, most airlines have long term contractual relationships with the established cargo handlers such as Aviance and Menzies. Consequently, these long term arrangements have effectively locked out the PCC from a rapid entry into the cargo handling business for perishable products.

A weakness in the PCC's business model is that competing cargo handlers provide handling services for incoming, as well as outgoing air cargo, whereas the PCC handles only export cargo. Airlines prefer to deal with only one contractor for handling both import and export cargo. The PCC's service limitation to handle export shipments of perishables only puts it at a competitive disadvantage with the other service providers.

Perversely, the road network constructed by MiDA – in particular, the N1 highway – has reduced the demand for PCC services. It has shortened the travel time from the Southwest Horticultural Belt where most export fruit is produced and has made it possible for exporters to better control the delivery of fresh fruit to the airport for shipment as air cargo to their markets overseas. As a result, some fresh fruit exporters can now deliver their shipments to the airport for just-in-time loading directly into air cargo containers for the departing aircraft, thereby bypassing the PCC and saving the handling charge of US \$.07 per kilogram. Thus, improved logistics and easier access to air cargo services has lessened the need for cold storage at the airport prior to freight shipments.

Despite these many obstacles, the PCC has successfully managed to obtain service contracts with several airline companies at KIA, including the cargo carriers DHL and CargoLux. Furthermore, once Vegpro's fresh vegetable exports at Torgorme reaches full production; there should be a positive impact on PCC throughput as more fresh vegetables are exported as air cargo.

In conclusion, the PCC has been a positive factor in fresh horticulture exports, but, due to its limited volume, its impact thus far has not been substantial.

Irrigation - Botanga and Golinga Irrigation Schemes: Rehabilitation work for the two schemes was completed on January 31, 2012 and they began operating shortly thereafter. The Botanga irrigated area covers 495 hectares involving 528 farmers from 10 nearby communities, and Golinga covers 40 hectares involving 156 smallholders from four communities. MiDA was unable to select the Scheme Management Entity (SME) for the two schemes before the Compact ended. The SME was to have played a key role in overall scheme management – determining the timing and amount of water provided to the many smallholders at the two schemes, and managing the collection of fees for the irrigation water used by the different farmers that operate within the two schemes. In the absence of SMEs for Botanga and Golinga, GIDA has assumed responsibility for managing the two schemes. However, GIDA has neither the necessary technical staff nor the available administrative budget to properly manage the two schemes. As a result, routine maintenance of the irrigation canals is not carried out on schedule and management of the flow of irrigation water to the scheme farmers is deficient. Although the renovated schemes provide substantial improvements in irrigated agriculture, scheme management is not as effective as desired. However, smallholders have been farming their assigned, irrigated plots at both schemes from the moment that the schemes were completed and turned over to GIDA in approximately March 2012.

The anchor farm, Solar Harvest, has not yet begun commercial farming operations on its concession area at Botanga. The anchor farm has had access to irrigation water since January 31, 2012, but since that time it has worked to organize its commercial farming operation, clear its concession land area for crop production, and procure and install a center-pivot sprinkler irrigation system that covers 200 hectares. The company will begin crop production of maize, soybeans, and rice grains in early 2014.

Solar Harvest has not initiated its contract farming program, which will be a major step forward in realizing the full potential of the Botanga and Golinga irrigation schemes. The company plans to incorporate contract farmers within its grain production operations that will begin in early 2014. It intends to set aside approximately 20% of the irrigated area within its own farming operation to establish an outgrower program to produce grain crops, including maize, soybeans and rice. The company also plans to organize contract farming programs with small-scale farmers at the Botanga and Golinga irrigation schemes for the production of high-value export vegetable crops, such as butternut squash. However, before its export program for fresh vegetables can begin, Solar Harvest and its outgrowers must jointly obtain GlobalGap certification for export crop production.

Torgorme Irrigation System: Construction work for the Torgorme irrigation scheme is ongoing, with completion planned before the end of 2013. MiDA selected the SME for Torgorme before the Compact ended, but the company has not yet started managing the scheme. Several months – possibly a year – will be required to complete the many activities that must be carried out before the scheme can be fully operational. These include critical tasks such as the selection of smallholders to occupy the irrigation plots that have been established, the establishment of procedures for water management, the determination of water use fees, and the creation of an administrative structure and staffing the SME that will manage the scheme. In addition to completing these critical tasks, the main hurdle for the SME to overcome will be obtaining startup financing required to initiate scheme management. The financing programs

envisioned by MiDA for an initial three-year period for the Torgorme Irrigation System, as well as those at Botanga and Golinga, have not yet materialized.

Since the Torgorme scheme has not yet been completed, the farm plots have not yet been assigned to smallholders; the land is empty, and the scheme has had no impact on irrigated agricultural in Ghana.

MiDA constructed a separate, piped water system to the Vegpro anchor farm that has enabled it to begin irrigated farming operations before the Torgorme scheme serving small-scale farmers was completed. Irrigation water began flowing to Vegpro on November 1, 2011. Since that time, Vegpro has been organizing its farming operations, carrying out land clearing, and installing four center-pivot irrigation systems covering 256 acres of farm area. The company has also initiated commercial farming operations by producing two maize crops for local markets on 192 acres of irrigated land, and one export crop of baby corn on 64 acres. During the coming year, it will expand its production of fresh export vegetables to cover its entire irrigated area of 256 acres.

Agribusiness Centers: The construction of all 10 ABCs was completed near the Compact ending date and most began operating during the second half of 2012, after overcoming normal startup problems and correcting outstanding construction deficiencies. The start of one ABC – Investment Protocol Services Ltd. (IPSL) – was delayed due to the requirement to settle the estate of a deceased family member who was a partner in the venture.

Since the ABCs serve small-scale producers of rain-fed grain crops in Ghana's major grain producing areas, their production operations are primarily driven by the seasonal rains that are necessary for crop production. Northern Ghana has a single production season that normally occurs from July to December, whereas in central and southern Ghana, there exist two production seasons. Land preparation for the major season begins in March-April and the harvest takes place from July-September. Land preparation for the minor season begins in September with the harvest occurring in November-December. Consequently, as a result of the seasonal rainfall patterns, the ABCs located in central and southern Ghana have now operated for two production seasons during 2012 and 2013, whereas the ABCs located in northern Ghana have operated for only one season during 2013.

Thus far, the impact of the ABCs has been limited by the slow uptake by smallholders of ABC services, resulting in a limited volume of grain crops that have been processed and stored at the ABCs. Based on the site visits, observations, and interviews carried out during visits to seven (of 10) ABCs, a rough estimate is that the ABCs have operated thus far at between 25% and 50% of full capacity, which is 1,000 tons of storage capacity. As a result of their slow uptake and limited throughput, the impact of the ABCs on the production and marketing of grain crops has been modest.

The reasons for the slow uptake are: a) inertia – smallholders are accustomed to producing their grain crops that are stored at home and marketed in successive small quantities when cash is required for family needs; b) smallholders are not yet fully aware of the financial benefits of product consolidation and group marketing by the ABCs; c) smallholders are reluctant to pay the charges for grain cleaning, drying, and storage charged by the ABC, and d) the limited availability of land preparation equipment at the ABC, and the ABC's limited capacity to

provide production credit to the smallholders has limited the ABC's production support to its affiliated farmers and has therefore lessened its impact on smallholder crop production.

Tables 11 - 13 in Annex I show the throughput of three ABCs – Savannah Farmers, IPIL, and AMSIG – since they began commercial operations. These tables provide an indication of the limited level of activity that all ABCs have experienced since they opened.

2.1.3 Question 3

Was the program soundly managed and did the stakeholders receive value for money (efficiency) during the construction phase of the project when MCC and MiDA were in charge?

The most accurate method to assess the efficiency and value for money obtained from MiDA's construction projects would be to compare the construction cost for the different MiDA investments with standard costs for the construction of similar structures in Ghana. However, this method is beyond the scope of the assessment since detailed information on the cost of constructing specific agricultural investments (such as a particular ABC) is not available from MiDA nor is general construction cost data for similar structures in Ghana readily available. Consequently, the assessment of program management during the construction phase of the Agricultural Project when MCC and MiDA were in charge is based on observations, site visits, and in-depth interviews that were conducted to ascertain the perceptions of the users of these facilities based on their experience during the construction phase. A summary of findings and conclusions from these visits and interviews is presented as follows:

All the users interviewed were highly appreciative, and generally satisfied with the asset/facility they had received from MiDA.

In general, users were also satisfied with the management of the agricultural project and the quality of the structures they were provided. Where construction deficiencies existed, most were eventually corrected by the contractor to the user's satisfaction. However, some exceptions were noted. For example, the water supply for the Greenspan PPH was never completed (the well drilling contractor drilled a borehole but found no water) and the Greenspan operator must now purchase water from a nearby municipality and contract for its delivery to the pack house on days that pineapples are packed for export.

The SPEG exporters were involved in the selection and installation of equipment that was provided to them through MiDA loans. All interviewed expressed their satisfaction with the equipment received and they believe they received good value for money.

In those cases where the operators of the facilities were selected before the facility was constructed (i.e., the ABCs, the PPHs, and the irrigation water supply to the anchor farms), users were generally pleased with the interaction between MiDA, the construction contractor, and the user. Operators saw the on-site meetings held during the construction phase between the three parties as being extremely useful for information exchange, keeping users informed of construction progress, and resolving technical issues.

Most of those interviewed who received assets from MiDA expressed displeasure and disappointment that they were not able to participate more fully in the design of the facility,

selection of equipment, and layout for processing operations. They believed that, had they been involved in the project from the outset, the end result would have been far superior to what was actually achieved.

In some cases, users had to make heavy expenditures to correct design deficiencies. For example, the AGPCC had to spend a considerable sum of money to increase the height of the security fence, enhance the network of security cameras, improve the pavement of the entryway and patio of the PCC, modify the roller bearing system for moving palletized cargo, and add additional doors for improved access to the pallet assembly area. Furthermore, a major design deficiency still exists with the cold storage warehouse at the PCC. Since only one temperature setting is available for the entire open warehouse space, at any given time it is not possible to store different products in the warehouse that require different temperatures, such as fresh pineapples and pre-cut fruit. This severely limits the effectiveness of the cold storage facility.

All the operators of the ABCs who were interviewed expressed their dissatisfaction with the equipment selection and the layout for the grains processing area at the ABCs. The operators believe that the layout that was provided to them is inefficient and requires extra handling to manually move the grain being processed to the different workstations. Furthermore, the layout defined by the contractor wastes space because processing machines are installed in a cluster at the center of the grains processing area instead of being placed along the length of the interior walls of the processing area.

None of the ABC operators were satisfied with the processing equipment that was provided by MiDA. For example, the simple maize shelling machine provided by MiDA should have been a combination de-husking and shelling machine that could be easily transported to provide these services at the individual farms of ABC members. Providing on-farm services would be much less costly, since only the shelled maize would need to be transported from the farm to the ABC, and the fodder would remain at the farm. Consequently, none of the MiDA shellers are fully utilized by small farmers.

The grain dryers provided by MiDA were purchased with diesel-fired burners instead of the more efficient gas-fired burners. As a result, all ABCs have converted their grain dryers to gas. Furthermore, the capacity of the dryers is too low to dry maize during the rainy season for all the small-scale farmers that require maize drying services.

The land preparation equipment provided by MiDA is insufficient to meet the need for land preparation by all the smallholders affiliated with the ABCs, particularly in view of the brief window of time that is available for land preparation at the outset of the rainy season before crops are planted.

The ABC operators expressed their opinion that instead of MiDA providing equipment they found deficient, they should have been given the option to select the equipment they need, even if this would have required that the operators pay the extra cost of superior equipment.

Many of the operators interviewed expressed frustration and disappointment that MiDA has not been active since the Compact ended to resolve problems that have carried over from Compact implementation. This has created a leadership vacuum. Pending problems include the absence of a private scheme management entity at Golinga and Botanga irrigation schemes; the lack of start-

up financing for the three irrigation schemes at Torgorme, Botanga, and Golinga; the failure of the Dangme Union to operate the Acorley PPH, and the completion of work that has remained unfinished since the Compact ended, such as the Greenspan PPH water supply.

In sum, we conclude that the construction phase of the project was generally well managed when MiDA and MCC were in charge, but for greatest impact MiDA should have shown greater flexibility in incorporating the needs of the operators in the design of the facilities and equipment that were related to their activities.

2.1.4 Question 4

Was the transition to program management by private stakeholders achieved according to plan? Was the transition efficient?

The following discussion presents the consultant's findings and conclusions related to the transfer of management responsibility to private stakeholders in terms of the different types of assets transferred.

Public Pack Houses: MiDA's final Compact implementation report⁹ states that the taking-over date when management responsibility for the three PPHs was transferred to private operators was February 9, 2012, or approximately one week before the Compact ended on February 15, 2013. The defects notification period for the PPH construction contract began on February 10, 2012 and continued past the Compact's end, to February 10, 2013. Based on our expert's interviews with the Managing Directors of the pineapple anchor firms Chartered Impex and Greenspan Farms, these companies received the new pack houses, conducted production trials, supervised the correction of minor construction deficiencies, and began operating the pack houses as planned.

However, we learned during an interview with the Chairman of the Dangme Mango Farmers' Cooperative Union (Dangme Union), the owner of the mango PPH at Akorley, that the pack house had never been used for packing export mangos because MiDA had never officially turned it over to the farmers' organization. Consequently, the Dangme Union believed it had no authority to operate the pack house. The Chairman also advised that after the Compact ended, the Union tested the packing line and found its operation to be defective since it damaged fresh mangos during the process of grading and selecting the fruit to be packed for export. For approximately 18 months since the packing trials were first conducted, the Union has been attempting to force the contractor to take corrective action to resolve the problem of the malfunctioning packing line that damaged the fruit during processing. The contractor recently changed some of the parts in the line, and the Dangme Union is now waiting for the next mango production season that will begin in early 2014 to test the packing line once again. If the trials confirm that the problem has been corrected, the Union plans to begin packing mangos for commercial export shipments during the next production season in early 2014.¹⁰

⁹ The Millennium Development Authority (MiDA), *Millennium Challenge Account (MCA) Ghana Compact Completion Report*, September 2012

¹⁰ The consultant informed MiDA's senior management of the allegations of the Dangme Union Chairman, who reconfirmed that the pack line had, in fact, been turned over to the Union on February 9, 2012. The MiDA senior managers believe that the underlying reason for the Union's lack of initiative was that the mango production by the

On a positive note, the Dangme Union recently hired a large mango producer and exporter to manage the mango PPH beginning with the next production season. This company, Cotton-Weblink Portfolio Limited of the nearby town of Somanya, is an experienced mango exporter but has never managed a large pack house operation. The company's technical staff will be trained at the Bomart Farms mango pack house located in a nearby district.

It is our view that the misunderstanding between MiDA and the Dangme Union on the transfer of responsibility for operating the mango PPH, as well as the lack of effective communications between the two parties since the Compact ended, serves to dramatize the negative impact that MiDA's withdrawal from post-Compact program management has had on the effective operation and management of MiDA's investments. In addition, the lack of initiative and timid follow-up action by the Union to resolve these issues on a timely basis calls into question the desire, and the ability, of the Dangme Union to effectively oversee pack house operations and management. Clearly, in the case of the mango PPH, the transition to program management did not take place as planned.

SPEG Exporters: There was no transition required for private management of the post-harvest equipment provided through the SPEG loans. The equipment was installed at the pack houses that were owned by the exporters. The use of the equipment was achieved according to plan.

Perishable Cargo Center: MiDA issued the certificate of completion for the PCC on January 18, 2012. The defects notification period for the construction contract began on January 19, 2012 and extend past the Compact's end, to January 19, 2013. Based on the expert's interviews with the General Manager of AGPCC, the company was required to correct several construction and design deficiencies before the facility could be operated, as described earlier. After the required modifications to the PPC were completed, the center began commercial operations on December 5, 2012. The cost of the required changes was borne by the management company.

Clearly, the transition to program management of the PCC by private stakeholders was not achieved according to plan.

Agribusiness Centers: MiDA selected the operators of the ABCs through a competitive bidding process several months before the centers began operating and the construction of all 10 was completed before the end of the Compact. The ABCs were turned over to private operators, who began operating the facilities after testing the equipment and arranging for the correction of construction deficiencies, near the end of the contract. There were no problems reported in the transfer of operating responsibilities to the private stakeholders.

Irrigation Systems: As described earlier, MiDA was unable to contract for private operator(s) to manage the Botanga and Golinga irrigation schemes before the Compact ended. As a result, the management responsibility for these irrigation schemes has been assumed by a government agency, GIDA. Unfortunately, GIDA has neither the technical staff nor the administrative budget to effectively manage the irrigation schemes.

Construction of the Torgorme Irrigation System is still underway. Before the Compact ended, MiDA selected a private company, Post Agric Associates, as the Torgorme scheme management

FBO members has been extremely limited since the PPH was delivered to the Union. As a result, the Union has been under no pressure to operate the facility.

entity. Since the system is still under construction, the SME has not yet begun to actively manage the irrigation scheme. However, based on information our expert obtained from the SME General Manager, the company will not be able to manage the Torgorme scheme without startup funding from government. Considerable financing will be required for a period of at least two years to cover the costs of administering the irrigation system before sufficient revenue is realized from water sales to cover the SME operating costs. Initial work that will be required by the SME includes the identification of smallholders and assigning their farm plots, hiring and training technical staff to manage the flow of irrigation water to the users, establishing water use fees and developing the methodology for collection, and creating a business organization to manage the scheme. If startup funding is not available, the SME General Manager has declared that he will have no available option other than to withdraw the company's offer for scheme management. In that event, the Torgorme scheme would likely suffer the same fate as the Botanga and Golinga schemes that are presently under GIDA management.

Clearly, the transition of MiDA's three irrigation investments to program management via private stakeholders is not being achieved according to plan.

2.1.5 Question 5

Are program beneficiaries presently managing program assets and continuing activities efficiently?

During field interviews conducted by the consultant, the most common program beneficiary response to this question was "we are managing as best we can under the circumstances," meaning that, in general, the management and operation of investments are being carried out diligently, although in most cases, under difficult circumstances.

Public pack houses: The pineapple PPHs are under management by the anchor firm which is the majority owner of the facility. The main negative factor on the operation of the pineapple PPHs is their limited fresh fruit throughput, which drives up the per-unit cost of processing fresh pineapples for export. Throughput is low, largely because the outgrower schemes at the two pineapple PPHs have collapsed, and the small-scale pineapple farmers who are the minority owners of the PPHs are not supplying their fruit to their respective pack house. Pineapple production by contract farmers was planned to contribute approximately 40% of the entire product volume that is processed at each PPH. Furthermore, anchor firm production is also lower than anticipated, constrained by the lack of affordable credit for the required conversion to the MD-2 pineapple variety, and heavy working capital requirements for export pineapple production. Despite these difficulties, it is the conclusion of the consultant that the pineapple public houses are being managed effectively, although under difficult circumstances.

The mango PPH at Akorley has not yet begun operating as the result of an incredible miscommunication regarding the transfer of the PPH by MiDA to the project beneficiary, the Dangme Union as described earlier, and the required correction of construction deficiencies. The miscommunication was exacerbated by the lack of a contact and communications between the two parties since the end of the Compact. As a result of these problems, the facility has not been operating as planned.

In the opinion of the consultant, the complacency, passiveness, and lack of follow up by the Dangme Union with regard to the use of the mango PPH calls into question this producer organization's commitment and qualification to oversee the mango pack house.

SPEG Exporters: The post-harvest equipment and cooling facilities provided to the exporters through the SPEG loans is managed by the owners as a normal part of their business operations. It is being managed efficiently.

Perishable Cargo Center: The PCC Management Company was selected by MiDA through a public tender before the Compact ended. The main problem presently affecting the operations of the PCC is its limited product throughput, which has made it impossible for the center to achieve financial breakeven. Based on NORC's visits, observations, and interviews with senior management at AGPCC, the company appears to be managing program assets and continuing activities efficiently. Despite its operational problems, the PCC operation is well managed.

Irrigation: Since MiDA was unable to select a private scheme manager for Botanga and Golinga irrigation schemes before the Compact ended, the management of these systems has fallen on GIDA. As NORC's agricultural expert learned from his visits to the two irrigation schemes and his interviews with the GIDA directors there, this organization has neither the technical staff nor the administrative budget to adequately manage the two irrigation schemes. The Botanga Irrigation Scheme director stated that the recent increase in irrigation charges for water use by small-scale farmers at the scheme has resulted in a reduction in irrigation payments made by the smallholders. Only 13% of the water users at Botanga are presently up-to-date with their water-use payments. In comparison, smallholders at Golinga are fully current with their payments for water-use under the previous fee schedule, but none have paid the additional fees assessed for water usage after the renovation. Without corrective action, such as engaging a scheme management entity and providing start-up funding for scheme operations, the two schemes will undoubtedly begin to deteriorate. In our opinion, without corrective action, within five years the two schemes will deteriorate to the dismal conditions in which they were operating before the MiDA investments were made. Clearly, these two schemes are poorly managed.

The construction of the Torgorme Irrigation System is still underway, and as a result, the management responsibility for scheme operations has not yet been turned over to Post Agric Associates, the organization that was selected by MiDA to manage the scheme before the Compact ended. However, during the interview with the evaluation consultant, the Post Agric Associates scheme manager stated that without startup capital that was an integral part of MiDA's plan for scheme management, the company would not be able to begin scheme operations and would have to withdraw its services. In this event, it is likely that GIDA will be assigned the responsibility to operate the Torgorme scheme. Should GIDA assume responsibility for scheme management; it is likely that its performance will be deficient due to the organization's limited technical staff, its limited administrative budget, and its inability to collect irrigation fees from water users.

2.1.6 Question 6

What has been the overall impact of the program?

The overall impact on the agricultural sector resulting from MiDA's post-harvest support under the Agricultural Project has thus far not been substantial. This conclusion was reached in light of the limited product throughput thus far at the PPHs, the ABCs, and the perishable products center at KIA, the slow production start by the two anchor farms operating at the irrigation schemes at Botanga and Torgorme, along with the delayed start of their outgrower schemes, and the delayed completion of the Torgorme smallholder irrigation scheme that has yet to be placed in service. In effect, the greatest impact of the Agricultural Project is that it places the agricultural sector in an excellent position for future growth.

Based on NORC's observations during site visits to MiDA's investment locations and interviews with key informants over the course of the assessment, the following are the main accomplishments that have been seen thus far from the sub-projects that impact Ghana's agricultural sector.

- Interviews with small-scale farmers and farmer leaders who are associated with the project-supported ABCs and who received MiDA training in grain crop production and farming as a business reported that they benefitted greatly from the training interventions. By adopting a more business-like approach to farming and employing improved agricultural practices such as planting in rows with optimum spacing between plants, those farmers interviewed reported that they had doubled their maize production yield, from 4-5 sacks (120 kg) produced per acre to 8-10 sacks per acre.
- The post-harvest equipment provided to the exporters through the SPEG loans has improved the quality of their export products and has increased their marketing strength. Several of the SPEG pineapple exporters credit MiDA's funding support for the installation of post-harvest packing equipment and cold storage rooms as keeping them in the export pineapple business. Without these assets, two exporters said they would no longer be exporting pineapples. Instead, they would produce their pineapples for sale to processors such as pre-cut fruit exporters Peelco and Blue Skies, and for sale as fresh fruit on local markets.
- Several pineapple exporters also credit MiDA's support to the construction of the PPHs and the loan funds for the purchase of post-harvest equipment as helping the pineapple exporters become respected in international markets. Foreign buyers now realize that Ghanaian exporters can produce the level of export quality that foreign buyers require. This recognition has helped Ghanaian exporters not only maintain their existing markets but also to penetrate new export markets.
- The Botanga and Golinga irrigation schemes are now operating at near to full capacity after being renovated by MiDA. This is a considerable improvement over the previous situation where farm production was severely constrained by insufficient water during the dry season and poor drainage during the rainy season. The Botanga scheme director estimates that both schemes have approximately doubled the irrigated farm area as a result of the scheme renovation, which equates to an increase in production area of nearly 250 hectares at Botanga, and 20 hectares at Golinga. This is a substantial improvement to irrigated agriculture in northern Ghana.
- Although their production start has been slow, the establishment of the two anchor farms that now operate at the Botanga and Torgorme irrigation sites will potentially have a major impact on the production of grain crops for local and regional markets, and fresh vegetables

for export markets. Once their contract farming programs are underway, the two anchor farms will have a substantial impact on the livelihood of their associated small-scale farmers. The Solar Harvest farm at Botanga has the potential to produce 5,000 acres of grain crops, including maize, soybeans, and rice. Of this total area, approximately 1,000 acres (20%) is planned for production by contract farmers. The Vegpro farm at Torgorme is presently developing fresh vegetable export crops on an irrigated concession area of 1,000 acres, and plans to establish a contract farming arrangement with smallholders on a potential area of 1,200 acres located within the Torgorme irrigation scheme.

- MiDA’s agricultural investments, particularly those related to the irrigation schemes and the ABCs could potentially serve as development “magnets” by attracting international donors to leverage their development project funds by linking their beneficiaries with MiDA’s investments. For example, USAID has supported ACIDI/VOCA to establish rice production demonstrations at Golinga through the Agricultural Development and Value Chain Enhancement (ADVANCE) project to determine the best rice varieties to plant at the Golinga irrigation scheme.
- MiDA’s support to the PCC has positioned the operating company, AGPCC, and the GACL to substantially increase air cargo shipments of fresh fruit and vegetables as production output increases.
- The farm-to-market roads provided by MiDA have improved market access to agricultural producing areas, and numerous communities have benefitted from the supply of electrical power that was provided to them by tapping into the electric power lines that supply electric power to MiDA investments such as PPHs and ABCs.
- MiDA’s improvements to the N1 highway have resulted in less traffic congestion for exporters as they transport their fresh horticultural products from the farming areas to either the sea port at Tema or the KIA airport for shipment overseas. For example, pineapple exporters near Nsawam, located in the Southwestern Horticultural Belt, reported that the time required to reach the Tema port has been reduced from six hours before the improvements were made to the N1 highway, to less than two hours a presently.

2.1.7 Question 7

Are the results achieved sustainable? Are the facilities constructed still in use and being maintained according to schedule? Is a system in place to ensure that financial resources are available to maintain the facilities over the long-term?

All the MiDA investments were planned to be turned over to private entities and operated as private businesses after the Compact ended. Since the investment program was designed to support commercial enterprises serving available markets, the sustainability of the results would be assured as long as the enterprises have effective management with profitable results. The following is a summary of the consultant’s assessment of the sustainability of the different categories of MiDA investments.

Public Pack Houses: The two pineapple PPHs are being operated as going concerns by their anchor firms, even without the benefit of pineapple production by small-scale farmers serving as contract farmers. Given the limited volume of export pineapples now being processed at the two PPHs, the per-unit processing cost (i.e. cost per box exported) is considerably higher than the

standard “pack charge” of US \$25 per pallet-load that has been established by the two anchor firms. The excess packing cost must be absorbed by the exporting anchor firms, which makes their pineapples less cost competitive in international markets.

In our recent interviews, the Directors of both anchor firms – Chartered Impex and Greenspan Farms – expressed their commitment to operate the PPHs, even at low production volumes, over the intermediate term of two to five years. However, should their financial situation deteriorate further, as the result of external factors such as the loss of export market share or from a prolonged drought limiting production output, they would have no choice but to forego exports and to sell their pineapples to local processors, or as fresh fruit for local markets. Given the weak financial resilience of the two anchor firms, they would be unable to withstand severe financial stress. In conclusion, the sustainability of the two pineapple PPHs seems likely as long as a severe financial shock does not occur.

The sustainability of the mango PPH, we believe that this will depend entirely on the oversight and management capability of the pack house owner, the Dangme Union, and on the quality and efficiency of the services provided by Cotton-Weblink, the company that was contracted to manage the pack house. In light of the performance of the Dangme Union since the Compact ended, it does not seem likely that this organization will be able to effectively manage the PPH. Without effective management, the sustainability of the mango PPH operations beyond a three to five year period is highly unlikely.

SPEG Exporters: The post-harvest equipment and cooling facilities provided to exporters through their SPEG loans are sustainable as long as export operations continue.

Perishable Cargo Center: The PCC is presently struggling with low shipping volumes and needs to more than double its throughput to be able to achieve financial breakeven. However, the PCC appears to be well managed with the backing of two solid companies, Air Ghana, and Vegpro. Furthermore, the PCC management team has expressed its commitment to make the facility a financial success. In addition, the PCC is the property of the GACL, a private company, which would likely step in should there be severe operating problems at the center. The PCC’s product throughput should increase with increased market share, as more exporters become attracted to its export services for perishable products. In addition, the PCC throughput should increase as the output of fresh vegetables from the Vegpro farm at the Torgorme irrigation scheme comes into full production. Some of the additional fresh vegetable exports will undoubtedly be shipped through the PCC.

We conclude that the outlook for the PCC is highly positive and that it is entirely sustainable over the long term.

Irrigation: The rehabilitated irrigation schemes at Botanga and Golinga are presently managed by GIDA. This government agency has insufficient technical staff and an inadequate administrative budget to effectively manage the two schemes. Furthermore, neither scheme has small-scale farmers who are current with the increased payments for water-use established after scheme renovations.

The combination of deficient scheme management and maintenance, and insufficient payment for water usage by scheme farmers will affect the long-term sustainability of these two irrigation

schemes. It is the opinion of the NORC expert that if nothing changes with regard to scheme management and the inadequate collection of charges for water use, within a period of no more than five years the operations of the schemes will have deteriorated to the conditions in which they were operating before the MiDA renovations took place.

The Torgorme Irrigation System is an entirely new scheme that is now in its final stage of construction. The scheme management entity, Post Agric Associates, was named by MiDA before the Compact ended, but has not yet taken action to assume management responsibility for the scheme. Since the Compact ending date, EDAIF has funded the cost of scheme construction and has also contracted with ACDI-VOCA to provide agricultural training to the small-scale farmers who will occupy the Torgorme irrigated area. Smallholder training is presently being conducted in crop production for the agricultural products that will be exported by Vegpro, the anchor farm. Post Agric Associates has applied to EDAIF for a startup grant to finance the initial stage of scheme operations, but has received no response from that organization.

Without a private SME to manage the scheme, its operation will likely revert to GIDA, with the anticipated results being similar to that described for earlier Botanga and Golinga. In the opinion of the consultant, without private scheme management the Torgorme scheme will deteriorate within five years. Under the present circumstances, the long-term sustainability of the Torgorme Irrigation System is highly doubtful.

Agribusiness Centers: All ABCs that were constructed by MiDA are being operated by their majority owners as planned. None of the ABCs visited have reached a condition of financial breakeven due primarily to the limited use of ABC services by the smallholders who are their minority owners. However, all these centers seem to be well managed, and their respective managers expressed a firm commitment to achieve financial success. All managers interviewed are optimistic that within the next one or two years the ABCs will reach financial breakeven. Furthermore, managers believe their fundamental business is sound, and that the centers are filling a strong need for post-harvest consolidation, processing, and marketing of grain crops within their impact area.

The ABCs seem fully sustainable over the long run.

2.1.8 Question 8

What are the main positive and negative lessons learned, the main reasons for particular components not achieving the desired results, and the specific remedial actions recommended to achieve these results now, to the extent possible? If the results were not as planned or envisioned, then explain why the results were not achieved. What went wrong?

What went wrong? Earlier sections of the report described in considerable detail the negative factors that have affected the implementation of the Ghana Compact. For clarity, the main reasons for particular components not achieving the desired results are summarized as follows:

- MiDA's withdrawal from follow-on involvement with the operation of scheme assets provided under the Compact has created a leadership vacuum that is jeopardizing the successful operation of the investments.

- MiDA's inability to select the scheme management entity for Botanga and Golinga before the Compact ended is jeopardizing the operations of these irrigation schemes. Furthermore, startup financing by the government for irrigation operations at the two schemes, as envisioned by MiDA before the Compact ended, has never materialized.
- Construction delays at the Torgorme Irrigation Project have delayed crop production by small-scale farmers at the scheme. Construction completion is scheduled before the end of 2013. Furthermore, government startup financing for irrigation operations at the scheme planned by MiDA under the Compact is not available, which will limit scheme management.
- The mango PPH at Akorley is not operating as a result of poor communications between MiDA and the PPH operator, the Dangme Union, regarding ownership of the facility, as well as the lack of initiative and follow-up by the Union to resolve the problems that have delayed operating the facility.
- The PCC at KIA is operating at below breakeven capacity due to stiff competition from other cargo service providers, and in the face of long-term contracts between the airlines that carry perishable cargo exports and their contracted cargo handlers. This makes it difficult for the PCC to expand its market share by replacing other service providers.
- The amount of farm equipment provided by MiDA to the ABCs is insufficient to meet the needs of all their affiliated farmers, particularly in view of the short window for land preparation at the beginning of the rainy season when equipment is required.
- The abrupt cancellation of the credit component of the Ghana Compact has had dire consequences on fresh pineapple production and exports. Consequently, the availability of affordable credit for in-farm investments and working capital for crop production is limited, and has impacted pineapple production and exports as well as the utilization of facilities and equipment provided by MiDA.
- Similarly, the limited availability of affordable credit for investments in farm equipment by the ABCs and limited crop financing for smallholders has limited the throughput of the ABCs.

LESSONS LEARNED

The following is a summary of the lessons learned from the experience of implementing the Ghana Compact:

- Imposing a rigid, fixed timetable for a complex, pioneering development effort such as the Ghana Compact even in an advanced developing country such as Ghana involves a high risk of failure. Local institutions and service providers may not have the capability to perform as required to meet the fixed development timeline and the required network of support services may be too weak to ensure the program's success.
- Continuing leadership and the involvement of the development organization (i.e. MiDA) must be provided beyond the end of the Compact to ensure the effective operation of the assets that were provided and to resolve problems that arose during the Compact implementation period that limit their use.
- To ensure the most efficient use and the greatest overall impact of assets provided for commercial use by a development project such as post-harvest facilities and equipment

provided by MiDA, the operators of these assets must be actively involved in the design and operational planning of the assets being provided.

- When changes are made to one particular development project element, consideration must be given to the impact on other components of the project. For example, the abrupt cancellation of the credit component of the Ghana Compact has had dire consequences on fresh pineapple production and exports, and has limited the use of ABC services by small-scale grain farmers.
- For development efforts such as the MiDA Agricultural Project where the main component of the project is the delivery of fixed assets including facilities and equipment, full consideration must be given so that project “software” has equal importance as project “hardware” in providing operating results. In other words, it is not sufficient to only deliver the asset to the user. For the greatest impact, trials should be conducted and operating systems put into place to ensure that the asset functions as planned before it is transferred to the user.
- Training is a key element of project success, not only for the operators and users of the assets provided, but also for the small-scale farmers that supply products to the project facilities.
- Merely providing assets does not ensure development success. The post-harvest facilities and equipment that were provided to private operators under the Agricultural Project were entirely necessary, but they were insufficient to ensure the achievement of project goals and the development of the targeted commodities (pineapple, mango, grain crops) into vibrant agro-industries. A more comprehensive approach, such as focusing on the development of the entire value chain for these commodities would likely have provided greater success.
- The greatest impact on the reduction of rural poverty and increased rural household incomes is obtained by supporting the business activities in which most small-scale farmers are involved, such as the production of food grains. In this regard, support to the production and marketing of grain crops through the ABCs is having a much greater impact on rural poverty than is being provided through MiDA’s support to outgrower programs for export pineapple.

2.2 Other Questions Address in the Assessment

For ABCs, pack houses, PCC and SPEG facilities, what are the volumes of produce passing through each facility per agricultural season?

Annex I provides the data for pineapple exports by the PPHs; sea freight shipments by SPEG loan recipients; air cargo exports made by the PCC; repayment status of the loans for post-harvest equipment made by SPEG to exporters of pineapple and other fresh fruit at the end of the Compact; and the amount of products that have passed through two ABCs since they began operating. The data for the two ABCs provides a representative sample of the operations of the ten facilities that were constructed by MiDA.

What are the advantages to a small-scale farmer of being a co-owner of the ABC, compared to other farmers?

FBO members are given priority for land preparation services over non-members since there is limited availability of the land preparation equipment at the ABCs. Furthermore, the mandate of the ABCs operators is to provide production credit for their smallholder members, but only one (of seven) ABC managers interviewed has created a substantial program to advance agricultural

inputs for the members (IPIL). Another ABC (Victory Feed) plans to open a line of credit with a local financial institution during the next production season to provide agricultural inputs as production credit to the its smallholder members, with the ABC withholding funds from grain payments to its members to repay the bank loans. None of the other ABC managers interviewed presently have significant credit programs for smallholders.

In some cases, the ABC managers reported that they charge lower service fees to their members for grain processing and storage than they charge for non-members. The price reduction is in the range of 10% - 20%. Of the seven ABC managers interviewed, four ABCs give price breaks to their members for these services, compared to the price paid by third parties.

Have any of those farmers whose farms are located within the geographical area that was defined for the comparison group in the NORC baseline survey (i.e., distant smallholders who are located outside a radius of 20 kilometers centered on the ABC) used the services of the respective ABC?

The baseline survey conducted earlier by NORC at the University of Chicago indicated that in some cases, farmers located at considerable distances from the ABC, where none of the FBO members of the ABC were expected to be found, may have used the services of the ABC. The possible inter-mingling of project beneficiaries with members of the comparison group could have reduced the statistical significance of the findings of the baseline survey. The consultant was asked to analyze if possible data intermingling might have occurred between project beneficiaries and comparison groups during his visits and interviews with the ABC managers. Table 12 in Annex I summarizes the consultant's findings on this issue. As shown by Table 12, intermingling was possible in two of the seven ABCs that were visited by the consultant.

ANNEXES

ANNEX 1: DATA TABLES

Monthly Sea-freight Exports by Pineapple Public Pack Houses

Table 1 Monthly Sea-freight Fresh Pineapple Exports by Chartered Impex in Metric Tons													
Year	January	February	March	April	May	June	July	August	September	October	November	December	Total
2008	55	8	86	81	16	0	0	5	2	12	55	105	424
2009	11	20	29	35	0	0	0	0	0	0	109	62	267
2010	0	0	62	18	0	50	0	0	0	0	125	93	348
2011	9	64	80	91	0	0	0	0	0	0	0	23	268
2012	78	61	172	77	16	81	62	31	78	31	86	47	820
2013	70	129	164	28	42	72	76	47	30	N/A	N/A	N/A	658
Source: Sea-freight Pineapple Exporters of Ghana (SPEG). Chartered Impex began operating as a PPH in March 2012. N/A – Not Available													

Table 2 Monthly Sea-freight Fresh Pineapple Exports by Greenspan Farms in Metric Tons													
Year	January	February	March	April	May	June	July	August	September	October	November	December	Total
2008	0	0	0	0	0	0	0	0	0	0	0	0	0
2009	0	0	0	0	10	0	6	0	0	0	42	23	82
2010	10	48	29	27	0	0	0	16	0	13	38	37	218
2011	30	25	39	0	0	0	0	0	0	47	93	62	296
2012	47	78	90	47	31	12	16	0	0	0	0	0	320
2013	70	129	164	28	42	72	76	47	30	N/A	N/A	N/A	658
Source: Sea-freight Pineapple Exporters of Ghana (SPEG). Greenspan Farms began operating as a PPH in March 2012. N/A – Not Available													

Monthly Sea-freight Exports by SPEG Exporters

Table 3 Monthly Sea-freight Fresh Pineapple Exports by All SPEG Exporters in Tons													
Year	January	February	March	April	May	June	July	August	September	October	November	December	Total
2008	1237	2200	2503	1913	1421	1619	728	1473	1591	2117	4251	3122	24174
2009	1863	2313	3202	2076	1285	1195	955	991	1312	2523	4410	3256	25379
2010	1778	2274	2399	1863	1364	1484	1634	2024	2153	3427	4528	4553	29481
2011	2583	3259	3335	3056	1995	1892	1771	2172	2579	3218	4377	3804	34042
2012	2572	2856	3446	2446	2082	1685	2217	1852	2239	2297	3586	2825	30103
2013	2388	3224	3320	2129	1494	1278	1408	1292	1618	N/A	N/A	N/A	18151*
Source: Sea-freight Pineapple Exporters of Ghana (SPEG) *													
N/A – Not Available													
* Partial year													

Table 4 Monthly Sea-freight Fresh Pineapple Exports by Bomarts Farms in Tons													
Year	January	February	March	April	May	June	July	August	September	October	November	December	Total
2008	229	400	395	345	254	357	218	398	342	424	774	529	4664
2009	288	410	447	168	212	289	132	314	220	323	541	518	3862
2010	319	358	365	160	58	133	204	259	234	374	726	572	3762
2011	348	463	393	308	343	359	319	396	307	388	684	656	4965
2012	473	538	417	519	498	254	402	275	480	343	557	761	5519
2013	449	542	498	321	226	128	277	273	256	N/A	N/A	N/A	2969*
Source: Sea-freight Pineapple Exporters of Ghana (SPEG)													
N/A – Not Available													
* Partial year													

Monthly Sea-freight Exports by SPEG Exporters

Table 5 Monthly Sea-freight Fresh Pineapple Exports by Gold Coast Fruits in Tons													
Year	January	February	March	April	May	June	July	August	September	October	November	December	Total
2008	40	72	126	137	18	8	1	83	69	84	62	81	781
2009	101	229	225	133	30	88	70	59	109	255	360	303	1963
2010	223	254	165	95	114	95	78	166	192	211	355	202	2151
2011	243	400	355	368	122	101	167	140	195	197	194	158	2640
2012	199	236	212	265	279	140	151	214	173	122	186	172	2351
2013	220	251	160	154	211	140	112	182	161	N/A	N/A	N/A	1590*
Source: Sea-freight Pineapple Exporters of Ghana (SPEG) N/A – Not Available * Partial year													

Table 6 Monthly Sea-freight Fresh Pineapple Exports by Georgefields Farms in Tons													
Year	January	February	March	April	May	June	July	August	September	October	November	December	Total
2008	19	62	283	219	76	96	38	90	21	62	101	140	1207
2009	250	129	101	147	64	2	79	32	76	243	303	139	1563
2010	102	116	134	143	188	154	144	161	137	131	151	57	1618
2011	131	125	232	161	78	61	37	126	131	157	168	179	1585
2012	8	156	187	94	31	109	89	62	31	78	234	140	1221
2013	47	134	109	78	109	47	109	78	16	N/A	N/A	N/A	727
Source: Sea-freight Pineapple Exporters of Ghana (SPEG) N/A – Not Available; * Partial year													

Monthly Sea-freight Exports by SPEG Exporters

Table 7 Monthly Sea-freight Fresh Pineapple Exports by Jei River Farms in Tons													
Year	January	February	March	April	May	June	July	August	September	October	November	December	Total
2008	44	154	156	112	82	90	23	108	149	305	203	295	1720
2009	67	102	200	125	49	78	17	85	79	97	240	226	1366
2010	112	145	165	144	64	83	55	147	91	309	383	527	2225
2011	204	246	325	431	197	156	93	109	250	346	547	414	3317
2012	386	411	593	218	187	168	78	109	187	328	593	312	3570
2013	359	495	470	172	62	109	78	140	125	N/A	N/A	N/A	2010*
Source: Sea-freight Pineapple Exporters of Ghana (SPEG) N/A – Not Available * Partial year													

Table 8 Monthly Sea-freight Fresh Pineapple Exports by Koranco Farms in Tons													
Year	January	February	March	April	May	June	July	August	September	October	November	December	Total
2008	126	118	0	55	11	200	0	16	0	0	113	190	828
2009	69	113	285	147	16	76	16	69	55	122	345	410	1720
2010	174	180	154	109	102	126	110	207	133	234	408	649	2586
2011	68	149	211	168	119	159	103	182	113	236	456	527	2491
2012	100	119	365	76	94	103	122	61	75	96	246	323	1781
2013	132	229	220	51	20	69	46	44	105	N/A	N/A	N/A	915*
Source: Sea-freight Pineapple Exporters of Ghana (SPEG) N/A – Not Available; * Partial year													

Monthly Sea-freight Exports by SPEG Exporters

Table 9 Monthly Sea-freight Fresh Pineapple Exports by Prudent Farms in Tons													
Year	January	February	March	April	May	June	July	August	September	October	November	December	Total
2008	152	189	236	71	78	76	8	51	78	108	243	381	1671
2009	31	175	234	92	16	29	31	31	48	122	265	154	1229
2010	96	156	248	133	100	119	56	87	83	154	436	228	1895
2011	158	109	166	268	78	101	140	140	172	125	468	250	2175
2012	47	62	187	78	78	187	75	55	78	98	203	281	1428
2013	23	47	133	78	47	78	39	16	31	N/A	N/A	N/A	491*
Source: Sea-freight Pineapple Exporters of Ghana (SPEG) N/A – Not Available * Partial year													

PCC Air Cargo Shipments - 2013

Table 10	2013 Monthly Exports of Perishable Cargo from Air Ghana Perishable Cargo Centre in Metric Tons												
Airline	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
DHL Courier/Cargo	-	-	-	11.7	31.2	46.3	38.8	44.3	30.4	N/A	N/A	N/A	202.6*
DHL Perishable	-	-	-	49.5	112.4	121.6	157.3	180.4	144.7	N/A	N/A	N/A	765.8*
Virgin Atlantic	-	-	-	-	68.6	172.6	183.4	147.6	62.6	N/A	N/A	N/A	634.7*
Turkish Airline	29.7	90.5	72.0	124.5	123.5	141.9	128.8	124.0	53.2	N/A	N/A	N/A	888.1*
ANA - Allied	-	-	-	-	127.4	-	-	7.4	71.9	N/A	N/A	N/A	206.7*
Cargolux	-	-	-	-	-	-	-	292.9	272.8	N/A	N/A	N/A	565.6*
British Airways	-	-	-	-	-	-	-	45.1	38.1	N/A	N/A	N/A	83.2*
Tropicana 4L-AFS	-	-	-	-	-	-	-	0.2	-	N/A	N/A	N/A	0.2*
Total Weight	29.7	90.5	72.0	185.6	463.0	482.3	508.3	841.7	673.8	N/A	N/A	N/A	3,346.9
Source: Air Ghana Perishable Cargo Centre (AGPCC) N/A – Not Available * Partial year													

Activity at Selected ABCs 2012 - 2013

Table 11 Savannah Farmers ABC - SAVBAN Processing and Marketing Company					
Volume of Produce Passing Through Post-Harvest Treatment (Kg)					
Service Dates	Maize	Rice	Soybean	Cowpea	Total
2012 Year	289,600	0	0	0	289,600
January 2013	21,600	84,190	49,280	0	155,070
February 2013	214,250	0	18,480	0	232,730
March 2013	12,400	42,360	47,355	0	102,115
April 2013	516,800	0	0	30,200	547,000
November 2013	26,000	0	0	0	26,000
Total	1,080,650	126,550	115,115	30,200	1,352,515
FBO Members	578,350	34,540	96,635	0	709,525
Non-Members	502,300	92,010	18,480	30,200	642,990
Total	1,080,650	126,550	115,115	30,200	1,352,515
Source: SAVBAN Processing and Marketing Company Limited					
Note: Treatment includes drying, cleaning, de-husking, shelling, milling, and storage.					

Table 12 IPIL ABC - Busaka Agribusiness Company Limited					
Volume of Produce Passing Through Post-Harvest Treatment (Kg)					
Service Dates	Maize	Rice	Soybeans	Cowpea	Total
November 2012	48,000	0	0	0	48,000
December 2012	82,300	900	0	0	83,200
January 2013	70,100	4,200	0	0	74,300
February 2013	11,300	0	0	0	11,300
Total	211,700	5,100	0	0	216,800
FBO Members	24,200	900	0	0	25,100
Non-Members	187,500	4,200	0	0	191,700
Total	211,700	5,100	0	0	216,800
Source: Busaka Agribusiness Company Limited					
Note: Treatment includes drying, cleaning, de-husking, shelling, milling, and storage.					

Activity at Selected ABCs 2012 - 2013

Table 13 AMSIG ABC - Shekinah Agribusiness Company Limited					
Volume of Produce Passing Through Post-Harvest Treatment (Kg)					
Service Dates	Maize	Rice	Soybeans	Fertilizer	Total
March 2012	148,800	39,230	0	0	188,030
April 2012	53,150	0	0	0	53,100
May 2012	120,300	29,500	0	0	149,800
June 2012	140,300	99,500	0	0	239,800
July 2012	30,000	15,000	0	0	45,000
August 2012	0		0	105,000	105,000
September 2012	0		0	15,000	15,000
December 2012	0	158,340	0	0	158,340
January 2013	401,000	439,230	0	0	840,230
February 2013	37,200	112,000	0	0	149,200
March 2013	81,000	22,120	0	0	103,120
April 2013	0	0	7,000	0	7,000
July 2013	0	0	0	183,000	183,000
Total	1,011,750	914,720	7,000	303,000	2,236,670
Source: Shekinah Agribusiness Company Limited					
Note: Treatment includes drying, cleaning, de-husking, shelling, milling, and storage.					

Status of SPEG Loans at End of Ghana Compact

Table 11 Loan Status Summary - SPEG Loans to Exporters (US \$)							
	<u>Disbursement Dates</u>		<u>Payments Made During Compact Period</u>				<u>Amounts Due</u>
Name of Exporter	From	To	Loan Amounts	Principal	Interest	Total	At End of Compact
2K Farms	11/5/2008	1/14/2009	\$ 158,100.00	\$ -	\$ 16,758.00	\$ 16,758.00	\$ 158,100.04
Bomart Farms	11/5/2008	11/18/2009	\$ 530,919.68	\$ 24,872.61	\$ 82,545.97	\$ 107,418.58	\$ 506,047.15
Georgefield Farms	11/5/2008	4/8/2009	\$ 89,654.00	\$ 11,994.04	\$ 15,174.51	\$ 27,168.55	\$ 79,368.93
Gold Coast Fruits	11/6/2008	3/24/2009	\$ 194,474.67	\$ 15,734.90	\$ 28,811.51	\$ 44,546.41	\$ 28,811.51
Jei River Farms	11/5/2008	11/6/2008	\$ 129,460.40	\$ 27,019.22	\$ 24,348.01	\$ 51,367.23	\$ 102,441.00
Koranco Farms	11/5/2008	3/19/2009	\$ 375,074.61	\$ 38,679.81	\$ 72,633.59	\$ 111,313.40	\$ 289,356.78
Prudent Farms	11/5/2008	4/8/2009	\$ 523,695.59	\$ 8,525.55	\$ 78,884.50	\$ 87,410.05	\$ 515,169.35
Total			\$ 2,001,378.95	\$ 126,826.13	\$ 319,156.09	\$ 445,982.22	\$ 1,679,294.76
Source: Sea-freight Pineapple Exporters of Ghana (SPEG)							

Determination of Possible Baseline Data Intermingling

Table 12 Determination of Possible Data Intermingling Between Smallholder Project Beneficiaries and Comparison Group		
Name of ABC	Possible Intermingling?	Comments by ABC Manager
Seed Shop	No	It is quite possible that some third-party farmers beyond a 20-kilometer radius around the ABC would use the facility, but it is not very likely. The problem is the cost of transporting grain for long distances to the processing facility. Consequently, most of the grain that is processed by the facility is produced within a distance of 5-10 kilometers from the facility. The manager is aware of one medium-scale third-party farmer that has brought grain to the facility to be cleaned, who is located more than 20 kilometers from the ABC.
Quality Ag Services	Yes	The catchment area for the ABC includes four districts. The most distant member is 20-40 miles away. There are remote villages in deep areas that are not easily accessible. Telephone networks are very poor. The most distant town from the ABC is at Begoro (Fanteslava District), which is 26 miles away.
Yaweh Salom	No	There are no FBO members whose farms are more than 20 kilometers from the ABC. It is highly unlikely that non-members located more than 20 kilometers distant from the ABC would use the facility. The manager knows of no third party users who are located this far away.
Victory Feed	No	Sixty percent of the farmers' member groups have their production location within 10 kilometers of the ABC, whereas 100% of the groups operate within a radius of 20 kilometers. No members produce maize more than 20 kilometers from the ABC. However, for cleaning and storage services provided to non-members, there are a few third-party users of FBO services who are located more than 20 kilometers distant from the FBO.
AMSIG Resources	Yes	Some small-scale farmers who use the facility are located as far away as 45 kilometers distant. The Golinga irrigation scheme is only 6-7 kilometers away, but Botanga is approximately 30 kilometers from the ABC. Given that rice growers are widely dispersed, rice must be transported considerable distances to reach the ABC. Conversely, just about all the maize farmers who use the facility are from nearby

Determination of Possible Baseline Data Intermingling

Table 12 Determination of Possible Data Intermingling Between Smallholder Project Beneficiaries and Comparison Group		
Name of ABC	Possible Intermingling?	Comments by ABC Manager
Savannah Farmers	No	The most distant farmers are located between 10 – 15 kilometers from the ABC. No affiliated farmers are located more than 20 kilometers from the ABC.
IPIL	No	The small-scale farmers that are affiliated with the ABC all have their farms within a radius of 20 kilometers from the ABC. However, it is possible that third-party farmers who use the services of the ABC could be located a distance greater than 20 kilometers from the ABC.

ANNEX 2: EVALUATION QUESTIONS

Evaluation Questions Contained in the Evaluation Scope of Work

1. Was the MCC investment implemented according to plan? What positive and negative factors affected implementation?
2. Has the program as designed and implemented been able to provide substantial improvements in irrigated agriculture, the export of horticultural products, and the marketing of grain crops in Ghana?
3. Was the program soundly managed and did the stakeholders receive value for money (efficiency) during the construction phase of the project when MCC and MIDA were in charge?
4. Was the transition to program management by private stakeholders done efficiently?
5. Are program beneficiaries presently managing program assets and continuing activities efficiently?
6. What has been the overall impact of the program?
7. Are the results achieved sustainable? Are the facilities constructed still in use and being maintained according to schedule? Is a system in place to ensure that financial resources are available to maintain the facilities over the long-term?
8. What are the main positive and negative lessons learned, the main reasons for particular components not achieving the desired results, and the specific remedial actions recommended to achieve these results now, to the extent possible? If the results were not as planned or envisioned, then explain why the results were not achieved. What went wrong?
9. For ABCs, pack houses, PCC and SPEG facilities, what are the volumes of produce passing through each facility per agricultural season?

ANNEX 3: REFERENCES

References

1. The Millennium Development Authority (MiDA) *Millennium Challenge Account (MCA) Ghana Compact Completion Report*. September 2012
2. The Millennium Development Authority (MiDA) *Millennium Challenge Account (MCA) Ghana Compact Completion Report - Appendices*. September 2012
3. Millennium Development Authority (MiDA) *Millennium Challenge Compact with Ghana Executive Summary*. August 1, 2006
4. Millennium Development Authority (MiDA) *Amended and Restated Schedules 1-3 to Annex I of the Millennium Challenge Compact between The United States of America acting through the Millennium Challenge Corporation and the Government of the Republic of Ghana*. June 5, 2012
5. NORC at the University of Chicago *MCC Ghana Impact Evaluation Services Evaluation Design Report – Update* June 12, 2013
6. NORC at the University of Chicago *MCC Ghana Impact Evaluation Services Baseline Data Analysis of Agribusiness Centers*. November 8, 2013
7. NORC at the University of Chicago *GHANA Agribusiness Centres Impact Evaluation, (Baseline Questionnaire)*
8. Millennium Development Authority (MiDA) *Fact Sheet Kotoka International Airport Perishable Cargo Centre*, www.mida.gov.gh. Undated.
9. Millennium Development Authority (MiDA) *Fact Sheet Public Pack House, Mariakrom*, www.mida.gov.gh. Undated
10. SNC-Lavalin International Inc. *Final Report. Prepared for MiDA-Ghana O&M System for Kpong Irrigation Project Based on Public Private Partnership (PPP)*. Undated
11. Millennium Development Authority (MiDA) *Request For Proposals RFP: 1201104/RFP/QCBS/10/11 Millennium Challenge Account - Ghana on Behalf of: the Government of Ghana Funded by The United States of America through the Millennium Challenge Corporation - Procurement of Management Services - Scheme Management Entity for the Botanga and Golinga Irrigation Projects*. 13 October 2011
12. Peter Jaeger Accord Associates LLP (jaeger@accordassoc.biz) *Ghana Export Horticulture Cluster Strategic Profile Study-Part I - Scoping review, Prepared for World Bank Sustainable Development Network (WB-SDN) Africa Region, Agriculture and Rural Development (AFTAR), The Republic of Ghana Ministry of Food and Agriculture, and European Union All ACP Agricultural Commodities Programme (EU-AAACP)*. 2008

ANNEX 4: WORK CALENDAR

WORK AND TRAVEL SCHEDULE FOR MiDA AGRICULTURAL ASSESSMENT

Work Calendar

The following is the work calendar showing the schedule of activities that were carried out by the consultant during the evaluation.

~ November 2013 ~						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
27	28	29	30	31	1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18 Meetings in Accra: MiDA; SPEG; Perishable Cargo Centre (PCC) Accra	19 Visit Jei River Farm near Koso; travel to Kwanyarko-visit Chartered Impax Public Pack House Drive Accra-Awutu/Efutu/Senya District	20 Visit Greenspan Farms pineapple PPH near Asawam; visit SPEG pineapple producer Koranco Farms near Nsawam Drive Accra-Asawam and return	21 Visit SPEG papaya exporter 2K farms; visit SPEG pineapple exporters Bomarts Farms and Georgefields Farms near Bawjiase Drive Accra- Bawjiase and return	22 Visit Dangme mango Public Pack House, Yilo Krobo District, Akorley Drive Accra-Akorley and return	23 Visit Kpong West Bank irrigation scheme; interview scheme manager; Vegpro farm manager; Post Agric Associates, SME; ACIDI-Voca Training Drive Accra-Torgorme (Volta Reg.) and return
24	25 Meetings in Accra: Follow-up meeting with PCC; follow-up meeting with MiDA Accra	26 Meeting with Seed Shop Agribusiness Center (ABC), Accra Accra	27 Visit Visit Peelco, Ltd. near Bawjiase; Blue Sky Ghana Ltd. near Dobro Asawam (PCC exporters); Interview Prudent Farms Director in Accra Drive Accra- Bawjiase-Dobro, Nsawam, Eastern Region and return	28 Visit Quality Ag Services ABC in Manya Krobo District, Asesewa; Travel Accra – Kumase Starbow S9-104 - 16:45 pm Drive Accra-Asesewa and return; Air travel Accra-Kumase	29 Visit Yawah Shalom ABC and Victory Feed ABC in Ejura; interview ABC managers and smallholder farmer Drive Kumase-Ejura and return	30 Air travel Kumase-Accra Starbow S9-101 - 09:10 am Air travel Kumase-Accra

WORK AND TRAVEL SCHEDULE FOR MiDA AGRICULTURAL ASSESSMENT

~ December 2013 ~

Sun	Mon	Tue	Wed	Thu	Fri	Sat
1 Air travel Accra – Tamale Star bow S9-110 - 07:15 am	2 Visit Botanga irrigation scheme; visit Solar Harvest farm; interview anchor investor, GIDA scheme manager, and small-scale independent farmer; visit Tamale Avnash Rice	3 Visit Golinga irrigation site; interview scheme farmer and GIDA scheme manager; Visit Libga Irrigation System at Libga Town; visit IPSL ABC at Suvulugu Nanton	4 Visit AMSIG Resources ABC at Tolon, Woribogu Kukuo; interview manager and small farmers; visit Savannah Farmers ABC at Tamale Metro District, Chanzini	5 Meeting in Accra with Mr. Timothy J. Breitbarth, MCC	6 Air travel Accra – USA-Home	7
Air travel Accra-Tamale	Drive Tamale-Botanga and return	Drive Tamale-Golinga-Libga, Suvulugu Nanton and return	Drive Tamale-Tolon-Chanzini and return	Morning Air travel Tamale - Accra; Evening air travel Accra-Amsterdam	Air travel Amsterdam-New York- Bogota	
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

ANNEX 5: LIST OF INTERVIEWEES

People Interviewed by the Expert		
People met, and titles	Address	Telephone, Fax, E-mail contact
Millennium Development Authority (MiDA)		
Ms. Abigail Abandoh-Sam Director, Monitoring and Evaluation	4th Floor, Heritage Tower, PMB MB 56, Stadium Post Office, 6th Avenue, Ridge, Ministries, Accra, Ghana	AAbandoh-Sam@mida.gov.gh Cell +233 (0) 202-010408 Tel +233 (0) 2160 66624 Ext. 108
Mr. Matthew Armah Chief Operating Officer	4th Floor, Heritage Tower, PMB MB 56, Stadium Post Office, 6th Avenue, Ridge, Ministries, Accra, Ghana	Marmah@mida.gov.gh ; www.mida.gov.gh Cell +233 (0) 20 201 0401 Tel +233 (0) 21 666534 ; +233-(0) 21 666 619
Millennium Challenge Corporation (MCC)		
Mr. Timothy J. Breitbarth Senior Program Officer, Department of Policy and Evaluation Economic Analysis	875 Fifteenth Street, NW Washington, DC 20005-2221	Breitbarthtj@mcc.gov ; www.mcc.gov Cell +233 (0) 240 101 180 Tel. 202 521 2648 Mobile: 202 250 0765
Solar Harvest Limited (Anchor Firm – Botanga and Golinga)		
Mr. Awal Adam Operations Manager and Board Member	Solar Harvest Limited, Botanga Irrigation Site, Tolon-Kumbungu District, PO Box TL 1908, Tamale, Ghana	Adam@solarharvest.eu ; www.solarharvest.eu Cell +233 (0) 243 062 276
Mr. Steinar Kolnes Chairman and CEO	Norway: Solar Harvest AS, Soer Kolnesveien 78, NO-4050, Sola, Norway Ghana: Botanga Irrigation Site, Tolon- Kumbungu District, PO Box TL 1908, Tamale, Ghana	Steinar@solarharvest.eu ; www.solarharvest.eu Cell +233 (0) 200 313 133; +233 (0) 547 312 020 Norway (M) +47 9004 2374
Vegpro Ghana Limited (Anchor Firm – Torgorme Irrigation Project)		
Mr. Jagdish Patel, General Manager	Vegpro Ghana Limited After Kpong Powerhouse, Totgorme- Fodzoku-Juapong Road, North Tongu District PO Box PMB MD 210, Madina, Accra, Ghana	Jagdish@vegpro-group.com ; www.vegpro-group.com Cell 233 (0) 549 940 606 Tel +233 (0) 269 547 415
Sea-Freight Pineapple Exporters of Ghana (SPEG)		
Mr. Kwaku Amofo-Yeboah Operations Manager	Ampomah House, Olusegun Obasanjo Way, PO Box AN 5196, Accra North, Ghana	spegpine@yahoo.co.uk ; amofoyeboah@gmail.com ; www.spegpine.com Cell +233 (0) 244 654 848 Tel +233 (0) 302 244 358
Mr. Awal Baba Financial Director	Ampomah House, Olusegun Obasanjo Way, PO Box AN 5196, Accra North, Ghana	spegpine@yahoo.co.uk ; awalman2000@yahoo.com Cell +233 (0) 267 739 931 Tel +233 (0) 302 244 358
Air Ghana Perishable Cargo (AGPC) Centre, Ltd		
Mr. Sam Yeboa General Manager	AGPC Centre Ltd. KIA Cargo Village PO Box CT 8228, Kotoka International Airport Accra, Ghana	Sam@agpccentre.com ; www.agpccentre.com Cell +233 (0) 240 455 455 Tel +233 (0) 302 790 346
Mr. Rob Killick Business Development Mananger	Air Ghana, Block 12, KIA Cargo Village, PO Box 9892, Kotoka International Airport, Accra, Ghana	rob@airghana.com ; www.airghana.com Cell +233 (0) 302 766 251 Tel +233 (0) 242 187 777

People Interviewed by the Expert		
People met, and titles	Address	Telephone, Fax, E-mail contact
SPEG Exporters		
Mr. Nana Bebaako Addo	Jei River Farms, Ltd. Awutu/Efutu/Senya District, Near Kasoa	info@jeiriverfarms.com ; www.jeiriverfarms.com Cell +233 (0) 248 695 451 Tel (Ghana) +233 (0) 244 598 522 Tel (UK) +44 7899 991 174
Mr. Anthony Botchway, CEO	Bomarts Farms Ltd. Doboro (off Nsawam Road), PO Box 124, Nsawam	abotchway@bomarts.net ; www.bomarts.net Cell +233 (0) 244 467 928; +233 (0) 244 467 928 Tel +233 (0) 819 1154/1156
Mr. Edward Antwi-Twum, Director	Prudent Exports, Ltd. Awutu/Efutu/Senya District, near Bawjiase PO Box 7273, Accra-North, Ghana	Prudent@prudentexports.com ; Twum@prudentexports.com Cell +233 (0) 244 357 229 Tel +233 (0) 302 501 371
Mr. Doncor, Director	Georgefields farms Awutu/Efutu/Senya District, near Bawjiase	gfields@africaonline.com.gh Cell +233 (0) 244 357 363 ; +233 (0) 244 654 848
Mr. Manuel Brodi Koranteng, Director	Koranco Farms, Akwapim South District, near Oboadaka	Koranco.farms@gmail.com Cell +233 (0) 244 209 688; +233 (0) 202 110 192
Mr. Carr, Owner	2K Farms, Awutu/Efutu/Senya District, near Bawjiase	Lovecarr@yahoo.com ; Y2kfarmsltd@yahoo.com Cell +233 (0) 208 614 336 Tel +233 (0) 244 530 388
Public Pack Houses – Pineapple and Mango		
Mr. Solomon Benjamin, Director	Chartered Impex Gomoa District, Near Kwanyarko	Chartimpex@hotmail.com Cell +233 (0) 244 362 750
Mr. Kwabena Afari, Director	Greenspan Farms, Ltd Akwapim South District, near Agyanoa Junction	Greenspanfarms@yahoo.com ; Greenspan@africaonline.com.gh Cell +233 (0) 244 598 522 Tel +233 (0) 243 870 379
Mr. Joseph Odzeyem, Chairman Mr. Habel Teye Mensah, Consultant, and previous Chairman	Dangme Mango Farmers' Cooperative Union, Yilo Krobo District, near Akorley and near Afrao	Mr. Odzeyem: +233 (0) 244 562 468 Mr. Mensah : +233 (0) 244 675 802
Exporters of Fresh, Pre-cut Fruit Products Shipped by Air Cargo through KIA Airport		
Mr. Reginald Ashitey Logistics Manager	Blue Sky Products (Ghana) Ltd. PO Box C3506, Accra, Ghana	ghairlogs@blueskiesproducts.co.uk www.freshfromharvest.com Cell +233 (0) 212 90715 Tel +233 (0) 244 566 768
Mr. Frank Oberschilp, General Manager	PEELCO Ltd, Awutu/Efutu/Senya District, near Bawjiase; PO Box AN 5244 Accra, Ghana	gm@peelcofruits.com ; www.peelcofruits.com Cell +233 (0) 244 312 024
Agribusiness Centres (ABCs)		
Mr. Yaw Antoh, Owner and Manager	Yahwe Salom Farms Ltd. ABC, Ejura Sekyidumase District, near Afromso Ejura town PO Box AN 2389, N Ashante Town Kumasi, Ghana	Yahwe_salomfarms@yahoo.com Cell +233 (0) 244 231 168 Tel +233 (0) 204 583 909 Tel +233 (0) 322 190 670 Tel +233 (0) 322 020 275
Mr. E. Asante Krobea, Owner and Manager	Victory Feed ABC, Ejura Sekyidumase District, near Bonyon	krobeasant@yahoo.com Cell +233 (0) 208 127 765

People Interviewed by the Expert		
People met, and titles	Address	Telephone, Fax, E-mail contact
Mr. Kofi Owusu Nyantakyi, Owner and Manager	Seed Shop ABC, Gomoa District, Abassa Location	kofinyantakyi@hotmail.com ; feliseed@yahoo.com Cell +233 (0) 206 413 063
Mr. Naftalin N. Omcole, Director	Quality Ag Services ABC, Manya Krobo District, Asesewa	krobeasant@yahoo.com Cell +233 (0) 208 127 765
Mr. Aliu Yakubu, Project Officer	AMSIG Resources ABC, Woribogu Kukuo District, Tolon 4th Floor, Total House, 25th Liberia Road, PO Box AH 1240, Achimota, Accra, Ghana	info@amsigresources.com aliu@amsigresources.com gina@amsigresources.com Cell +233 (0) 265 664 410; +233 (0) 246 211 870 Tel +233 (0) 302 679 480/481
Mr. Emmanuel Baidoo, Operations Manager	Investment Protocol Services Limited (IPSL) ABC, Busaka Agribusiness Company, Suvulugu Nanton District, Savelugu town	krobeasant@yahoo.com ; busakaabc@gmail.com paakwambadu@yahoo.com ; Cell +233 (0) 208 127 765; +233 (0) 244 899 407 304 +233 (0) 244 890 556
Mr. Mohammed Sumaila, Operations Manager	Savannah Farmers ABC, Tamale Metro District, near Chanzini	ichigabatia@gmail.com ; sumaigh@yahoo.com Cell +233 (0) 208 202 305; +233 (0) 208 202 305
Torgorme Irrigation Scheme		
Mr. Satch Avudzi, Training Program Manager	ACDI/VOCA – ASI Training Program Manager Torgorme Irrigation Scheme	yaosatchi@yahoo.com Cell +233 (0) 244 089 677
Mr. Sammy Abagher, Director	Post Agriculture Associates, Scheme Management Entity (SME), Torgorme Irrigation Scheme	Postagric@yahoo.com Cell +233 (0) 208 132 484; +233 (0) 268 132 484
Botanga and Golinga Irrigation Schemes		
Mr. Augustine Opoku-Annin Scheme Manager	Ghana Irrigation Development Authority (GIDA), Botanga Irrigation Scheme	Augustineopokuannin@yahoo.com Cell +233 (0) 209 680 631; +233 (0) 242 803 643
Mr. C. B. George, Golinga Scheme Manager	Ghana Irrigation Development Authority (GIDA), Golinga Irrigation Scheme	Cell +233 (0) 246 690 845
Small-Scale Farmers		
Representatives	Hiawonwu Maize and Cowpea Farmers' Association	Victory Feed ABC, , Ejura Sekyidumase District, Contact : Mr. E. Asante-Krobea, Director Cell +233 (0) 208 127 765; krobeasant@yahoo.com
Representatives	Maize and Marketing Farmers' Association	Victory Feed ABC, , Ejura Sekyidumase District, Contact : Mr. E. Asante-Krobea, Director Cell +233 (0) 208 127 765; krobeasant@yahoo.com
Representatives	Ntease Group	Victory Feed ABC, , Ejura Sekyidumase District, Contact : Mr. E. Asante-Krobea, Director Cell +233 (0) 208 127 765; krobeasant@yahoo.com
Representatives	Ntease Group	Victory Feed ABC, , Ejura Sekyidumase District, Contact : Mr. E. Asante-Krobea, Director Cell +233 (0) 208 127 765; krobeasant@yahoo.com
Mr. Mr. Abubakari Issah-ku, small-scale farmer, Golinga Irrigation Scheme	Smallholder farmer at the Golinga Irrigation Scheme	GIDA Golinga Office, Contact : Mr. C. B. George, Scheme Manager Cell +233 (0) 246 690 845

ANNEX 6: INTERVIEW GUIDES FOR OPEN-ENDED INTERVIEWS WITH DIFFERENT RESPONDENTS

Interview Questions – MiDA

1. Request for contact information, if possible:
 - MiDA Northern Zone office
 - ABCs: Savannah Farmers ABC at Tamale Metro District; IPSL ABC at Suvulugu Anton
 - Recommended hotel for visit to Kumase and Tamale
 - Previous MiDA sub-contractors – ACDI-VOCA, ADRA, IFDC, DAI
 - Integrated Tamale Fruit Company
2. Request for information related to the first Compact, if possible:
 - The completion date of each specific agricultural investment (i.e., each ABC, each public pack house, each irrigation scheme, and the airport PPC).
 - The final cost of each specific agricultural investment (including the cost of the electric power supply to the respective facility).
 - The number of FBOs and FBO members associated with each specific agriculture investment.
 - The current repayment status of the SPEG loans that were made to several of its members.
3. What is MiDA's status as a government organization since the first compact ended? What have been its duties?
4. What is the current status of the second MCC Compact?
5. Which of the planned investments were not completed when the first Compact ended? What has happened to them since the end of the Compact? What is their present status?
6. What, in your opinion, has been the greatest overall impact of the first Compact?
7. What, in your opinion, has been the greatest overall impact of the Compact?
8. From your perspective, how would you rate the MCC program (scale 1-10; 10 is highest)?
9. Were the MCC investments implemented according to plan? Were there delays, bottlenecks, and/or deviations from plan? What positive and negative factors affected implementation?
10. Have the program results been as initially planned or envisioned? If not, what went wrong? Please explain why the expected results were not achieved.
11. In your opinion, was the program soundly managed and did the stakeholders receive value for money (efficiency) during the construction phase of the project when MCC and MiDA were in charge?
12. Was the transition to program management by private stakeholders achieved according to plan? Was the transition efficient? What problems were encountered?
13. Are the MiDA program beneficiaries presently managing program assets and the continuing activities in an efficient manner? Why or why not?
14. Are the results achieved sustainable? Are the facilities constructed still in use and being maintained according to schedule? Is a system in place to ensure that financial resources are available to maintain the facilities over the long-term? Are the business relationships continuing? Are the business relationships profitable to all concerned?
15. What are the main positive and negative lessons learned, the main reasons for particular components not achieving the desired results, and the specific remedial actions needed to achieve these results now, to the extent possible? If the project had to be done over, what should be changed?
16. What are the main benefits derived from MCC's agricultural investments? Has production increased? Are more crops being produced? Have exports increased? Has product quality improved? Are there fewer quality claims? Are costs lower? Have exporters obtained new markets as a result of the agricultural investments? Have small farmers benefited?

Interview Questions – SPEG

1. Please provide your name and contact information for you and for your organization.
2. Can you please provide a brief background summary of your organization?
3. What has been your organization's relationship with MiDA/MCC? How did the relationship evolve?
4. What did the Ghana Millennium Challenge compact do for your organization? What services/assistance did it provide?
5. What, in your opinion, has been the greatest overall impact of the program?
6. From your perspective, how would you rate the MCC program (scale 1-10; 10 is highest)?
7. Were the MCC investments relevant to your organization implemented according to plan? Were there delays, bottlenecks, and/or deviations from plan? What positive and negative factors affected implementation?
8. Has the program as designed and implemented been able to provide substantial improvements in the export of fresh fruit from Ghana?
9. Have the program results been as initially planned or envisioned? If not, what went wrong? Please explain why the expected results were not achieved.
10. In your opinion, was the program soundly managed and did the stakeholders receive value for money (efficiency) during the implementation phase of the project when MCC and MiDA were in charge?
11. Was the transition to program management by private stakeholders achieved according to plan? Was the transition efficient? What problems were encountered?
12. Are the MiDA program beneficiaries (i.e. SPEG and its exporters) presently managing program assets and the continuing activities in an efficient manner? Why or why not?
13. Are the results achieved sustainable? Are the facilities constructed still in use and being maintained according to schedule? Is a system in place to ensure that financial resources are available to maintain the facilities over the long-term? Are the loans being repaid? Are the business relationships continuing?
14. What are the main positive and negative lessons learned, the main reasons for particular components not achieving the desired results, and the specific remedial actions needed to achieve these results now, to the extent possible? If the project had to be done over, what should be changed?
15. What are the main benefits derived by your members from MiDA support? Has production increased? Are more crops being produced? Have exports increased? Has product quality improved? Are there fewer quality claims? Are costs lower? Have exporters obtained new markets as a result of the support by MiDA?
16. Can you provide the actual completion dates for the public pack houses that were funded by MiDA?
17. Can you provide the actual repayment amounts for the SPEG loans to its members that were funded by MiDA, and the current status of the loans? How was the conflict with MiDA over loan repayments resolved?
18. Can you provide the actual monthly volume of exports of pineapple and other fruit by SPEG members since the MiDA program began (2007)? What, in your opinion would have been the amount of exports, had there been no support from MiDA?
19. What has been the impact of MiDA investments on the production of export fruit by smallholders?
20. Do you know the monthly amount of exported fruit that is provided by contract farmers?
21. Do you know how many of your members use contract farmers as suppliers of export products? Do you know how many contract farmers are affiliated with each member, and how they are organized?

Interview Questions – SPEG Exporters

1. Please provide your name and contact information for you and for your organization.
2. Can you please provide a brief background summary of your organization?
3. What has been your organization's relationship with MiDA/MCC? How did the relationship evolve?
4. What did the Ghana Millennium Challenge compact do for your organization? What services/assistance did it provide?
5. What, in your opinion, has been the greatest overall impact of the program?
6. From your perspective, how would you rate the MCC program (scale 1-10; 10 is highest)?
7. Were the MCC investments relevant to your organization implemented according to plan? Were there delays, bottlenecks, and/or deviations from plan? What positive and negative factors affected implementation?
8. Has the program as designed and implemented been able to provide substantial improvements in the export of fresh pineapples and other fresh fruit from Ghana?
9. Have the program results been as initially planned or envisioned? If not, what went wrong? Please explain why the expected results were not achieved.
10. In your opinion, was the program soundly managed and did the stakeholders receive value for money (efficiency) during the construction phase of the project when MCC and MiDA were in charge?
11. Was the transition to program management by private stakeholders achieved according to plan? Was the transition efficient? What problems were encountered?
12. Are the MiDA program beneficiaries (i.e. SPEG and its exporters) presently managing program assets and the continuing activities in an efficient manner? Why or why not?
13. Are the results achieved sustainable? Are the facilities constructed still in use and being maintained according to schedule? Is a system in place to ensure that financial resources are available to maintain the facilities over the long-term? Are the loans being repaid? Are the business relationships continuing?
14. What are the main positive and negative lessons learned, the main reasons for particular components not achieving the desired results, and the specific remedial actions needed to achieve these results now, to the extent possible? If the project had to be done over, what should be changed?
15. What are the annual/seasonal volumes and values of the products being produced by your farm as a result of MiDA's support? What would these amounts be, had there been no support from MiDA?
16. When were the investments completed at your farm? How long did it take for the new facilities to become fully operational, after they were completed?
17. Would it be possible to get from you a recent history of fresh fruit shipments from your farm by month, to compare the amount of shipments before the investment with the amount of shipments after the investment?
18. Does your organization use contract farmers as suppliers? If, so, how many contract farmers does your organization have, and how are they organized? Where are they located? What type of contractual relationship does your organization have with them?
19. When did you begin your relationship with small-scale farmers? Was that before, or after the MiDA investments? Was your smallholder program the result of MiDA investments?
20. What are the main benefits derived from MiDA support? Has production increased? Are more crops being produced? Have exports increased? Has product quality improved? Are there fewer quality claims? Are costs lower? Have exporters obtained new markets as a result of the support by MiDA?
21. What is the approximate volume and value of products that are provided to your organization by contract farmers per year/season? What percent of your total volume and value does the amount provided by contract farmers represent?

Interview Questions – Perishable Cargo Center (PCC) Operator

1. Please provide your name and contact information for you and for your organization.
2. Can you please provide a brief background summary of your organization, and the PCC management structure??
3. What has been your organization's relationship with MiDA/MCC? How did the relationship evolve?
4. What did the Millennium Challenge Corporation (MCC) compact with Ghana do for your organization? What services/assistance did it provide?
5. What, in your opinion, has been the greatest overall impact of the MiDA program?
6. From your perspective, how would you rate the MiDA program (scale 1-10; 10 is highest)?
7. Were the MCC investments relevant to your organization implemented according to plan? Were there delays, bottlenecks, and/or deviations from plan? What positive and negative factors affected implementation?
8. Has the program as designed and implemented been able to provide substantial improvements in the export of horticultural products from Ghana?
9. Have the program results been as initially planned or envisioned? If not, what went wrong? Please explain why the expected results were not achieved.
10. In your opinion, was the program soundly managed and did the stakeholders receive value for money (efficiency) during the construction phase of the project when MCC and MiDA were in charge?
11. Was the transition to program management by private stakeholders achieved according to plan? Was the transition efficient? What problems were encountered?
12. Are the MiDA program beneficiaries (PCC operator) presently managing program assets and the continuing activities in an efficient manner? Why?
13. Are the results achieved sustainable? Are the facilities constructed still in use and being maintained according to schedule? Is a system in place to ensure that financial resources are available to maintain the facilities over the long-term? Are the business relationships stable, and productive? Is the business profitable?
14. What are the main positive and negative lessons learned, the main reasons for particular components not achieving the desired results, and the specific remedial actions needed to achieve these results now, to the extent possible? If the project had to be done over, what should be changed?
15. What are the main benefits derived from the PCC? Has production increased? Have exports increased? Has product quality improved? Are there fewer quality claims? Are costs lower? Have exporters obtained new markets as a result of the PCC?
16. What are the volumes and values of products passing through the PCC facility per agricultural season/year? Would it be possible to get monthly amounts, to compare the situation before the new PCC opened, with the situation after it opened?
17. What are the freight charges and service fees that exporters are required to pay for export to European countries? Are these charges competitive/ reasonable?
18. Do you believe that the renovation of the PCC has had an impact on the production of horticultural crops by smallholder farmers who supply the exporters?
19. Does the PCC export fruit for exporters from other countries? Are the service charges assessed for foreign exporters the same as for national exporters? Where are they located (distance)?

Interview Questions – Perishable Cargo Center (PCC) Exporters

1. Please provide your name and contact information for you and for your organization.
2. Are you familiar with the Millennium Challenge Corporation (MCC) compact with Ghana, and what it set out to do? Have you had a direct relationship with MCC or MiDA?
3. MiDA provided a grant of US \$2.7 million to construct the PCC at the KIA airport. From your point of view, was this money well spent?
4. Can you please provide a brief background summary of your organization, and your relationship with the PCC?
5. Have you noticed any changes in export services for fresh horticulture since February 2012 when the new PCC was completed?
6. In your view, has the PCC been able to provide substantial improvements in the export of horticultural products from Ghana?
7. From your perspective, how would you rate the services of the PCC (scale 1-10; 10 is highest)?
8. Has the PCC met your expectations? If not, what has gone wrong? Please explain why the expected results were not achieved.
9. In your opinion, was the program soundly managed and did the stakeholders receive value for money (efficiency) during the construction phase of the project when MCC and MiDA were in charge?
10. Was the transition to facilities management by the current management group achieved in an efficient manner? What problems have you observed?
11. Is the current management group operating the facilities in an efficient manner? Why or why not?
12. Are the results achieved sustainable? Are the facilities constructed still in use and being maintained according to schedule? Is a system in place to ensure that financial resources are available to maintain the facilities over the long-term? Are the business relationships stable? Do you perceive the businesses involved with the PCC to be profitable?
13. What are the main positive and negative lessons learned, the main reasons for particular components not achieving the desired results, and the specific remedial actions needed to achieve these results now, to the extent possible? If the project had to be done over, what should be changed?
14. What is the approximate volume and value of products that you ship through the PCC facility per agricultural season/year (monthly amounts if possible)? Would it be possible to get monthly data for several months before the new PCC opened, to be able to compare with data after the new PCC opened?
15. What was the actual date the new PCC opened?
16. What are the freight charges and service fees that exporters are required to pay for export to European countries? Do you believe these are reasonable?
17. What are the main benefits derived from the PCC? Has production increased? Have exports increased? Has product quality improved? Are there fewer quality claims? Are costs lower? Have exporters obtained new markets as a result of the PCC? What has been your experience?
18. Are any of your exported products provided by smallholder contract farmers? If so, what is the approximate volume and value?
19. Has the operation of the new PCC had any impact on the amount of exports by your company that are supplied by contract farmers?

Interview Questions – Public Pack Houses (PPH)

1. Please provide your name and contact information for you and for your organization.
2. Can you please provide a brief background summary of your organization?
3. What has been your organization's relationship with MiDA/MCC? How did the relationship evolve?
4. What did the Ghana Millennium Challenge Compact do for your organization? What services/assistance did it provide?
5. What, in your opinion, has been the greatest overall impact of the MiDA program?
6. From your perspective, how would you rate the MiDA program (scale 1-10; 10 is highest)?
7. Were the MiDA investments relevant to your organization implemented according to plan? Were there delays, bottlenecks, and/or deviations from plan? What positive and negative factors affected implementation?
8. Has the program as designed and implemented been able to provide substantial improvements in the export of fresh fruit from Ghana?
9. Have the program results been as initially planned or envisioned? If not, what went wrong? Please explain why the expected results were not achieved.
10. In your opinion, was the program soundly managed and did the stakeholders receive value for money (efficiency) during the construction phase of the project when MCC and MiDA were in charge?
11. Was the transition to program management by private stakeholders achieved according to plan? Was the transition efficient? What problems were encountered?
12. Are the MiDA program beneficiaries (the PPH operators) presently managing program assets and the continuing activities in an efficient manner? Why or why not?
13. Are the results achieved sustainable? Are the facilities constructed still in use and being maintained according to schedule? Is a system in place to ensure that financial resources are available to maintain the facilities over the long-term? Are the business relationships stable and productive? Are they profitable?
14. What are the main positive and negative lessons learned, the main reasons for particular components not achieving the desired results, and the specific remedial actions needed to achieve these results now, to the extent possible? If the project had to be done over, what should be changed?
15. What was the actual construction completion date of the PPH facility? How long did it take to become fully operational?
16. What are the volumes of products passing through each PPH facility per agricultural season/year? Can we get a record of monthly shipments?
17. What are the main benefits derived from the PPH? Has production increased? Has product quality improved? Are there fewer quality claims? Are costs lower? Have you obtained new markets?
18. Do the PPH minority owners (smallholders) ship their entire amount of fruit production through the PPH? Does the majority owner (exporter) purchase and export all the fruit that is available from the minority PPH owners? How many minority owners are there, and how much fruit do they provide? Do any of the minority owners export their own fruit? Can we get a record of their shipments as well?
19. Does the majority owner/exporter also obtain fresh fruit for export from external third-party, contract farmers who are not minority owners of the PPH? If so, how many third party contract farmers provide fruit, and how are they organized? Where are they located? What type of contractual relationship does the exporter have with them?
20. What is the approximate volume and value of products that are processed by the PPH from the external, third party contract farmers? Does the PPH operator export 100% of the export fruit they have available?
21. Does the PPH process fruit for third party farmers or exporters who are not owners of the PPH? If so, what are the pack charges assessed for this service? Where are they located (distance)? What amount of fruit is processed for them (monthly records)?

Interview Questions – Anchor Farmers

1. Please provide your name and contact information for you and for your organization.
2. Can you please provide a brief background summary of your organization?
3. What has been your organization's relationship with MiDA/MCC? How did the relationship evolve?
4. What did the Ghana Millennium Challenge compact do for your organization? What services/assistance did it provide?
5. What, in your opinion, has been the greatest overall impact of the program?
6. From your perspective, how would you rate the MCC program (scale 1-10; 10 is highest)?
7. Were the MCC investments relevant to your organization implemented according to plan? Were there delays, bottlenecks, and/or deviations from plan? What positive and negative factors affected implementation?
8. Has the program as designed and implemented been able to provide substantial improvements in irrigated agriculture in Ghana?
9. Have the program results been as initially planned or envisioned? If not, what went wrong? Please explain why the expected results were not achieved.
10. In your opinion, was the program soundly managed and did the stakeholders receive value for money (efficiency) during the construction phase of the project when MCC and MiDA were in charge?
11. Was the transition to program management by private stakeholders achieved according to plan? Was the transition efficient? What problems were encountered?
12. Are the MiDA program beneficiaries presently managing program assets and the continuing activities in an efficient manner? Why?
13. Are the results achieved sustainable? Are the facilities constructed still in use and being maintained according to schedule? Is a system in place to ensure that financial resources are available to maintain the facilities over the long-term? Are the business relationships continuing? Are the business relationships profitable to all concerned?
14. What are the main positive and negative lessons learned, the main reasons for particular components not achieving the desired results, and the specific remedial actions needed to achieve these results now, to the extent possible? If the project had to be done over, what should be changed?
15. What are the main benefits derived from MiDA's irrigation investments? Has production increased? Are more crops being produced? Have exports increased? Has product quality improved? Are there fewer quality claims? Are costs lower? Have exporters obtained new markets as a result of the irrigation investments?
16. When did irrigation water to your farm begin flowing? When did you initiate your farming operation?
17. When did irrigation water begin flowing to the irrigation scheme for small farmers? When did the small farmers start working their plots?
18. Has your farming company established a contract farming venture as a result of MiDA's irrigation investments? If, so, when (date)? How many contract farmers does your organization have, and how are they organized? Where are they located? What type of contractual relationship does your organization have with them?
19. What are the monthly volumes and values of the products being produced by your farm as a result of MiDA's irrigation investments?
20. What is the approximate monthly volume and value of products that are provided to your organization by contract farmers per year/season? What percent of your total volume and value does the amount provided by contract farmers represent?
21. What services does your anchor farm provide to smallholders (i.e., markets; inputs; technical assistance, training)? Do you hire them as workers? When did your farm begin providing these services? What are your plans for the future, related to these services?

Interview Questions – ABCs

1. Please provide your name and contact information for you and for your organization.
2. Can you please provide a brief background summary of your organization?
3. What has been your organization's relationship with MiDA/MCC? How did the relationship evolve?
4. What did the Ghana Millennium Challenge compact do for your organization? What services/assistance did it provide?
5. What, in your opinion, has been the greatest overall impact of the program?
6. From your perspective, how would you rate the MCC program (scale 1-10; 10 is highest)?
7. Was the MCC investment relevant to your organization implemented according to plan? Were there delays, bottlenecks, and/or deviations from plan? What positive and negative factors affected implementation?
8. When did the ABC begin operating? How long did it take for the facility to become fully operational?
9. What specific services do you provide to the farmers who are served by the ABC?
10. Have the program results been as initially planned or envisioned? If not, what went wrong? Please explain why the expected results were not achieved.
11. In your opinion, was the program soundly managed and did the stakeholders receive value for money (efficiency) during the construction phase of the project when MCC and MiDA were in charge?
12. Was the transition to program management by private stakeholders achieved according to plan? Was the transition efficient? What problems were encountered?
13. Are the MiDA program beneficiaries (ABC management and owners) presently managing program assets and the continuing activities in an efficient manner? Why or why not?
14. Are the results achieved sustainable? Are the facilities constructed still in use and being maintained according to schedule? Is a system in place to ensure that financial resources are available to maintain the facilities over the long-term? Are the business relationships continuing?
15. What are the main positive and negative lessons learned, the main reasons for particular components not achieving the desired results, and the specific remedial actions needed to achieve these results now, to the extent possible? If the project had to be done over, what should be changed?
16. What are the volumes of the different products passing through each ABC facility per agricultural season? Could we please obtain a recent history of shipments, since the ABCs were completed?
17. What is the difference in the benefits, or treatment received by small-scale farmers using the ABCs who are members of the farmer organizations that are minority owners of the ABC; compared to third-party farmers who are not co-owners of the facility? In other words, what are the advantages to a small-scale farmer of being a co-owner of the ABC, compared to other farmers?
18. Do you know if distant farmers (i.e., those who are located outside a radius of 20 kilometers centered on the ABC) have, in fact, used the services of the respective ABC? Please elaborate. (The baseline survey conducted earlier indicated that in some cases, distant farmers within the comparison group may have used the services of the ABC. Is this the case?)

Interview Questions – Small-scale Farmers and Farmer Leaders

Note: The following questions will be made in the context of the type of MiDA investments that were made: ABC, irrigation, or public pack house.

1. Please provide your name and contact information for you and for your organization.
2. Can you please provide a brief background summary of your organization?
3. What has been your organization's relationship with the MiDA project? How did the relationship come about?
4. What did the project do for you? What results were achieved?
5. How did this benefit you personally?
6. What is the main benefit that you have obtained from the MiDA project?
7. What, in your opinion, has been the greatest overall impact of the MiDA program?
8. How was the project managed during the construction phase? What problems did you see?
9. How well is the project managed now, after the construction has been completed? Is everything working properly? Are there problems that affect you?
10. From your perspective, how would you rate the MiDA project (scale 1-10; 10 is highest)?
11. If the project had to be done over, what should be changed?
12. When did you start receiving benefits from the MiDA project (i.e., ABC, irrigation, contract farming)?
13. As a result of the MiDA investment, have you been able to establish a contract farming arrangement with an anchor farm or anchor investor?
14. Are you a minority owner of any of the MiDA investments (i.e., ABC, PPH)?
15. Are you better off now than you were before the MiDA project was completed? Why or why not? What has improved?
 - a. Has your monthly income increased? How much? - From ₦_____ to ₦_____?
 - b. Has your crop yield increased? Crop _____ How much? – From _____ to _____ kg.?
 - c. Are you getting better selling prices? How much? Crop _____ From ₦_____ to ₦_____?
 - d. Are you producing more crops per year? Crop _____ How much? From _____ to _____?
 - e. Have you changed your cropping pattern? Which crops have you changed? How many hectares? – Crop _____ From _____ ha, to _____ ha.
16. Are the results achieved sustainable? Will you continue to operate now that the project has ended? Are the facilities constructed still in use and being maintained according to schedule? Are they being operated as a business? Are the business relationships continuing?

ANNEX 6: MCC COMMENTS AND NORC RESPONSES

MCC Comment: P. 13: The Conditions Precedent related to the National Plant Protection Legislation was tied only to disbursements for the post-harvest activity (not for the entire agricultural component as the report reads). The way it is presented in the report, it suggests that no implementation of any ag activity could have started prior to complying with this CP. It also should be clarified that the CP was interpreted to mean any disbursement for the actual construction of any post-harvest infrastructure. MiDA was approved and able to spend resources in all the preparatory phases for post-harvest prior to construction—including feasibility/viability studies, preparing bidding documents, etc. (in addition to other activities like credit, farmer training, etc).

The GoG complied with this CP on Q14 (Y4) Sep. 2010—and by then clearly there were several activities being implemented. This is the exact CP language: “Prior to any MCC Disbursement of Post-Harvest Activity on or after the Commencement of Quarter 4 of year 1: MiDA has submitted evidence demonstrating that the Government has adopted an Amendment to cause the National Plant Protection legislation to be in compliance with IPPC 199.”

NORC Response: We have modified the text on page 13 to reflect these comments.

MCC Comment: p. 13: Regarding the credit for small-scale farmers, it should be noted that credit was facilitated through rural banks that did not have the capacity to adequately assess and manage risk as banks that did not even have any type of MIS in place (it was all paper documentation). Loans were not reported to any credit bureau, or info on borrowers was not shared among rural banks, resulting in some cases in farmers taking several loans from different banks—(because they could). Thus, although I agree that having an outgrower production has a great potential for increasing re-payment capacity by farmers, there were other major problems with the banks themselves and a culture (and history) of non-payment among farmers—because most credit programs have been guaranteed by donor programs and repayment from rural banks to the donors has never been enforced- or from farmers to banks. Also it should be noted that several borrowers that defaulted were FBO pineapple growers connected to one of the exporters (Greenspan, Chartered Impex) but they still managed to default.

NORC Response: These observations by MCC are included as a footnote (FN #5) within the revised report.

MCC Comment: p. 14: The statement that MiDA’s primary focus under the agricultural component was to provide “hardware” (facilities and equipment) and that the program did not have a value chain approach is not correct. MiDA spent significant amount of resources working across the value chain including:

- ♦ Training of farmers and their organizations both on production (agronomic training and in some cases Global GAP training and certification) and in institutional/capacity building for FBOs
- ♦ Identifying, vetting and negotiating and developing agreements with anchor farmers (for irrigation), private investors/managers (for ABCs), well established exporters (for the pineapple PPHs and SPEG)—which suggests that markets were essential for the success of the project.
- ♦ Launching (although late) RFPs for private management entities for the irrigation schemes (and worked with GIDA, farmers, traditional authorities, etc. go get a buy in for sustainable

management structure). It secured one private manager for Togorme and negotiated start up operating expenses through EDAIF which may or not materialized.

- ♦ Developing the PCC at KIA to strengthen the cold chain.
- ♦ MIDA hired contractors (the RICs) to facilitate market research and market linkages and all support all the “soft” investments needed including identification of exporters and anchor farmers, development of the organizational management frameworks for centers, establishment of board of directors for each of the investments, development of shareholder agreements/structures, etc.
- ♦ MIDA worked with the GoG to pass the National Plant Protection Legislation to comply with IPPC in an effort to address major challenges in inputs market (seeds and fertilizers) allowing the GoG to register seed growers, register seed importers, monitor planning materials, etc. It provided major support for training and lab equipment to the MOFA to take on the new responsibilities under IPPC.
- ♦ It understood that financing was a constraint which is why it had a credit component and the SPEG grant-loan fund.
- ♦ It provided additional infrastructure (irrigation/roads)

NORC Response:

These observations by MCC are included in full as a footnote on page 14 (FN #7) of the revised report.

Please note, however, that the text of the report related to this issue stated that “However, with the benefit of hindsight, had MiDA support been provided through a value chain approach focused on the different agricultural products instead of simply providing ‘hardware’, the problems related to production limitations might well have been resolved during project implementation.”

With the exception of providing some general training, we do not see that MiDa had substantial involvement in the resolution of production limitations.

MCC Comment: The project was designed to address major constraints across the value chain in key agriculture value chains including production capacity, markets, financing, infrastructure (post-harvest, irrigation, roads) and even key legislative reform. I would say that the implementation of the program (not necessarily the design) was the problem both in terms of sequencing and ensuring that the different infrastructure investments were indeed complementing each other. Unfortunately during implementation, each of the activities was implemented in a silo approach –roads were not connected necessarily to the irrigation and/or post-harvest infrastructure. There was a one size fits all approach for training all FBOs regardless of whether they grew pineapples or basic grains. And unfortunately the exporters and private sector players have not been able to play the role that it was envisioned in some cases due to outside market forces and in other cases perhaps due to their limited financial capacity.

NORC Response: We appreciate these observations by MCC but do not consider that changes to the report will be required as a result of these comments.

MCC Comment: p. 17: It will be very helpful if consultant clarifies the challenge for the PPC at KIA. As consultant highlights in p. 10 at the time the PCC was constructed there was no packing shed at KIA available to exporters where fresh produce could be consolidated nor there was a cold storage facility to maintain the quality of exporter fresh products (therefore there was significant quality and weight losses due to heat, sun and rain. The consultant highlights that greatest hurdle that PCC has now appears to a highly competitive cargo handling services sector in KIA. Does this mean that now cargo service providers that have contracts with airlines offered cold storage services? Or is basically that N1 highway has had such an effect on fresh produce that it really has reduced the demand for PPC. Otherwise it is hard to understand how exporters of fresh products go through other cargo handlers if those do not offer a service that was much needed when this project was conceived.

NORC Response:

We have made some clarifications to the text (pg. 17-18) of the report. However, please note the report explains that the reasons for the low throughput by the PCC are the following:

- ♦ *The largest exporter of pre-cut fresh fruit from Ghana, operates its wholly owned PCC at KIA and has no need for PCC services.*
- ♦ *The business of providing cargo-handling services at KIA is highly competitive, and existing cargo handlers are well-established. It will take some time for the PCC to become established as a cargo service provider.*
- ♦ *When the PCC was conceptualized, it was planned that all (100%) of perishable export products would be required to flow through the facility, but this has not happened.*
- ♦ *Additional factors include a) competing cargo handlers provide handling services for incoming, as well as outgoing air cargo, whereas the PCC handles only export cargo; airlines prefer to deal with only one contractor for handling both import and export cargo. b) Quick access to the airport by exporters as a result of N1 improvements has had some impact on the demand for cooling services provided by the PCC.*

MCC Comment: p.22: Did the consultant ask MIDA about the Mango Producer's Union statement that the facilities were never officially turned to the FBO Union? I was particularly surprised to hear that because we spent significant amount of time drafting the shareholder agreement for them and explaining to them (the structure, rights, and responsibilities) and it was ready for official signature along with the ownership documents. MIDA was still fully engaged for 120 days after the end of the Compact (Until June 2012) with all close-out processes. The report suggest this misunderstanding captures the negative impact of MIDA's withdrawal but MIDA did not withdrew until 4 months later and there is no indication of MIDA's side of the story.

Footnote No. 10 (or FN #7 in the draft report submitted to MCC on January 17, 2014), related to Question 4 states the following:

The consultant informed MiDA's senior management of the allegations of the Dangme Union Chairman, who reconfirmed that the pack line had, in fact, been turned over to the Union of

February 9, 2012. The MiDA senior managers believe that the underlying reason for the Union's lack of initiative was that the mango production by the FBO members has been extremely limited since the PPH was delivered to the Union. As a result, the Union has been under no pressure to operate the facility.