



# **Evaluation of the KIA Perishable Cargo Center Final Report**

**June 4, 2015**



## **ACRONYMS**

|                  |   |
|------------------|---|
| <b>ACDI/VOCA</b> | Agricultural Cooperative Development International/ Volunteers in Overseas Cooperative Assistance |
| <b>AESL</b>      | Architectural and Engineering Services, Limited   |
| <b>AGPCC</b>     | Air Ghana Perishable Cargo Center   |
| <b>BA</b>        | British Airways   |
| <b>EU</b>        | European Union  |
| <b>FWL</b>       | Freight Wings, Limited  |
| <b>GACL</b>      | Ghana Airports Company, Limited   |
| <b>IRR</b>       | Internal Rate of Return   |
| <b>KIA</b>       | Kyoto International Airport   |
| <b>MCC</b>       | Millennium Challenge Corporation  |
| <b>MiDA</b>      | Millennium Development Agency   |
| <b>MT</b>        | Metric tons   |
| <b>MTI</b>       | Ministry of Trade and Industry  |
| <b>PCC</b>       | Perishable Cargo Center   |
| <b>UK</b>        | United Kingdom  |
| <b>US</b>        | United States   |

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## Executive Summary

This report presents the results of the final evaluation of the operations of the Perishable Cargo Center (PCC) at the Kyoto International Airport (KIA). The PCC was constructed by the Millennium Development Authority (MiDA) with funding provided by the Millennium Challenge Corporation (MCC) under the Ghana Compact during 2011 – 2012. The evaluation was carried out in Ghana during September 2014 by an international agribusiness consultant. The objective of the evaluation was to provide a clear picture of MCC's investment in the PCC, to analyze the performance of the PCC since it began commercial operations, and to determine its likely sustainability, impact, and effectiveness.

When the PCC was constructed, exports of fresh agricultural products from KIA amounted to almost 20,000 tons annually. At that time, there was neither a packing shed for consolidating fresh products nor a cold storage facility to maintain the quality of fresh horticultural exports. Nearly all shipments of fresh fruit, vegetables, and root crops such as cassava were packed, consolidated, and held in the open air exposed to the sun and rain while awaiting air shipment to overseas markets. The PCC was designed to be the final link in an integrated cold chain for exporting horticultural products that began at the pack houses where products would be initially cooled.

The financial viability of the project was based on: a) first-year exports of 20,000 tons, increasing to 24,300 tons over 5 years; b) first year revenue and profits of \$500,000 and \$63,000 respectively; and c) fifth year revenue and profits amounting to \$608,000 and \$247,000 respectively. The internal rate of return (IRR) for the investment was calculated to be 14%, well in excess of MCC's hurdle rate of 10 percent for its economic rate of return (ERR) calculations<sup>1</sup>.

A key assumption underlying the planned PCC operation was that the facility would be authorized to handle all export perishable cargo that was being shipped from KIA. This assumption later proved invalid and when the PCC began operating, it was forced to compete with well-established cargo handlers in a highly competitive environment at KIA.

Construction of the PCC was completed and the facility turned over to the operator, Air Ghana Perishable Cargo Center, Ltd. (AGPCC) on the last day of the compact, on February 15, 2012. The user then required almost ten months to complete several modifications to the facility and to install the required equipment to meet the company's standards for commercial operations. The PCC began commercial operations in December 2012.

Since it opened, the PCC's cargo throughput has been disappointingly low. Recently, the PCC's export volume has ranged from 600-800 metric tons per month, or less than 40% of its originally planned capacity. The reasons for the low throughput are: a) cargo-handling services at KIA are highly competitive, and competing companies are well established; b) the different airlines have in place long-established agreements with their

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<sup>1</sup> The difference between the internal rate of return (IRR) for capital budgeting and the economic rate of return (ERR) used by MCC is explained in a later section of the report, on page 15.

preferred freight handling companies at the airport, and it is the airlines that decide which freight handler to use for its cargo shipments; not the exporters; and c) AGPCC's operating concession permits it to handle only outgoing cargo, while airlines prefer to contract with freight handling companies that handle both incoming and outgoing cargo for operating simplicity.

In light of its reduced throughput, during its first eighteen months of commercial operations through June 2014, the PCC registered cumulative losses amounting to \$318,000 and saw only two profitable operating months over the period. However, the company's financial situation has progressively improved, with an increasing cargo throughput during this period. Company executives believe that AGPCC has now reached financial breakeven and will begin to show profitable growth in the coming months. Based on an analysis of the financial data and the company's rate of growth for cargo throughput, the evaluation consultant estimates that the company will show zero profit for the entire 2014 year, which would be a substantial improvement over the loss amounting to \$257,000 reported for the 2013 year.

AGPCC has managed to substantially offset the revenue shortfall from its reduced throughput of perishable cargo shipments by expanding into general cargo handling services, and also by providing cargo scanning services for export shipments as required by import regulations that are in effect for the European Union. During its first eighteen months of commercial operations, revenue from its scanning services amounted to 33%, while general cargo handling accounted for 18%, and perishable cargo handling amounted to 49% of total PCC revenue. Clearly, the PCC has evolved from a simple provider of export services for the horticulture sub-sector to a broad-based cargo handler providing a wide range of freight services. While this may not have been the original intent when the PCC was conceptualized, this transition reflects a normal business progression for a dynamic company operating in a highly competitive environment.

The Ministry of Trade and Industry recently issued an executive order, which is expected to go into effect by the end of 2014, stating that all airport cargo scanning services must be consolidated at one airport location that is fully under government control. As a result of this administrative requirement, AGPCC will likely lose the revenue that has until now been provided by its security scanning services. This loss of scanning revenue by the PCC will have to be offset by increasing the amount of cargo that it handles, or by providing other export services that have yet to be determined.

However, there is a good possibility that additional revenue can eventually be generated by AGPCC as the result of business expansion by its parent company, Air Ghana. This company recently created an alliance with the Ghanaian subsidiary of Swissport, a leading international provider of ground and cargo handling services to the aviation industry. This joint venture company is presently constructing a new, large cargo warehouse within the KIA cargo area that will serve as an air cargo transport hub for a dedicated fleet of cargo planes serving West Africa. The planned hub-and-spoke arrangement will be centered on Accra, and will serve all countries in West and Central Africa. This new initiative is expected to generate additional revenue for AGPCC, since it will be the designated handler for all perishable cargo on behalf of the new company.

Furthermore, the PCC will undoubtedly benefit from increased fresh vegetable exports by Vegpro, the anchor farm of the Torgorme irrigation scheme, as this company expands its farming operations. Vegpro's parent company in Kenya is a partner with Air Ghana, Ltd. in its investment the Air Ghana Perishable Cargo Center (AGPCC).

### **Summary of Findings**

The ownership of the perishable cargo center is held by the private airport management company, Ghana Airports Company, Limited. The operations and management of the center is carried out by the private company, Air Ghana Perishable Cargo Center, which is a joint venture partnership between Air Ghana and Freight Wings (Kenya).

The initial planned throughput for the perishable cargo center during its first five operating years began with a base amount of 20,000 tons during the first year that progressively increased by 5% each year thereafter.

A key assumption underlying the economic and financial analyses for the perishable cargo center was that AGPCC would obtain an exclusive position as the sole provider of perishable cargo handling services from KIA for reasons of food safety and export product quality.

The current low level of cargo throughput at the perishable cargo center is the main limiting factor on the profitability of AGPCC.

The PCC ownership structure provides a solid foundation for PCC operations.

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.

The initial design and construction of the perishable cargo center had to be modified to bring the facility up to the operating requirements of the management company, AGPCC.

AGPCC's new businesses for product scanning and general cargo handling have brought additional revenue to the perishable cargo center. Its ability to increase freight handling fees has also impacted favorably on revenue and profitability.

The PCC has reached a position of financial breakeven after 18 months of commercial operations.

It is the airlines, not the exporters themselves, that contract for the services of air cargo handlers at KIA. Exporters have little influence over the decisions taken by the airline companies as to which freight handler to use for their cargo handling services.

Only a few exporters that ship highly perishable pre-cut fruit products through the PCC consistently require refrigerated storage for their products while they are awaiting export shipment. It is only when there is a delay in the scheduled departure time by the airline transporting cargo that there is a strong demand for refrigerated storage by perishable exporters.

AGPCC has been notified that all cargo scanning services at KIA will be consolidated within the government-controlled scanning facility as a step toward improved airport security. This would require that AGPCC suspend its scanning service for export cargo.



## **Conclusions**

Since the initial assumption that the PCC would be given a position as the sole provider of perishable cargo handling services at KIA was found invalid, AGPCC has been required to start its new business in a highly competitive environment for air cargo handling.

The requirement that AGPCC take corrective measures to improve the design of the PCC resulted in operating delays and additional costs to the operator, and delayed the planned initiation of PCC operations.

It has proven difficult for AGPCC to develop new business relationships with airline companies since this normally requires replacing the incumbent service providers with the services of a new company.

After a slow start, it seems that the PCC has now turned the corner on its current financial operation and is close to financial breakeven. Under its present operating method where additional revenues are provided from general cargo handling and scanning services, its financial outlook has until now, been good. However, the expected loss of its revenue from cargo scanning services has increased the uncertainty of its profitability over the intermediate term.

When the current executive order by the Minister of Trade and Industry goes into effect, it will eliminate the cargo scanning services provided by the PCC and thus substantially reduce its revenue by approximately 33%. This revenue shortfall must be offset by an increased cargo throughput at the PCC or by diversifying into an even broader range of export services.

Under the new anticipated operating conditions at the perishable cargo center, the evaluation consultant estimates that an annual amount of around 16,000 tons of cargo would be required for the AGPCC to achieve decent profitability and cash flow. As the current volume of cargo handled by the PCC is approaching approximately 10,000 tons annually, a further increase in annual throughput amounting to roughly 60% of its current volume would be required to achieve good profitability in the face of its lost scanning revenue. Based on the anticipated increased throughput from increased fresh vegetable exports as well as increased regional cargo anticipated for KIA, in our opinion, this volume level can be achieved in the intermediate term.

The PCC's product throughput should continue to increase with normal growth in exports along with an increased market share as more exporters and their airlines become attracted by its export services for perishable products.

The partnership agreement between Air Ghana and Freightwings (Kenya) provides a strong foundation for AGPCC. The throughput of the PCC 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.

The joint venture partnership between Air Ghana Limited and Swissport Ghana for regional freight handling should further increase the amount of cargo handled by the PCC and thereby increase its profitability once the new joint venture company begins operating in late 2015.

The PCC has been a positive factor in fresh horticulture exports since it began operating but, due to its limited volume, its impact thus far has not been substantial. Furthermore, due to its low throughput volume, the time that it has required to achieve financial break even, and the likely loss of its revenue from scanning services, it now appears doubtful that the PCC would achieve an internal rate of return greater than 10 percent on the investment that was made. This also makes it unlikely that the PCC would achieve MCC's hurdle rate of ten percent for the economic rate of return from PCC operations, given the close alignment between the two analytical methods.

In view of the strong administrative and institutional foundation of the PCC, along with the anticipated increased amount of cargo that would be handled as new business is developed, its perishable handling operations should be sustainable over the long term.

Despite the initial difficulties that had to be overcome during the construction phase and the initial operating period of the PCC, the facility is now operating effectively and is fully serving its intended purpose.

Due to AGCPP's initial operating difficulties and its presently unclear financial future, the long-term success of MCC's investment in the PCC is still uncertain.

### **Recommendations**

The PCC should make the greatest possible effort to expand the amount of cargo throughput it handles as a means to ensure its financial viability.

Future investments funded by MCC should strive to fully involve the operator of the facility in project planning and design.

### **Lessons Learned**

The users and operators of facilities such as the PCC should be involved from the outset in facility planning and design.

Sometimes small decisions made during program implementation can have large effects on program results, as was the case when MiDA was compelled to change its plan original plan predicated on using a single service provider for perishable cargo at KIA to an alternative plan that had to take into consideration a landscape of competitive perishable cargo handling services.

## 1. Introduction

This report presents the results of the final evaluation of the operations of the Perishable Cargo Center (PCC) at the Kyoto International Airport (KIA) near Accra, Ghana. The PCC was constructed by Ghana's Millennium Development Authority (MiDA) during 2011 – 2012 with funding provided by the Millennium Challenge Corporation (MCC) under the agriculture component of the Ghana Compact. The main purpose of the PCC was to provide services for cooling and handling, and temporary storage for fresh horticultural products that were exported as air cargo from KIA to markets overseas.

The work for the assessment was carried out in Ghana during September 2014 by an international agribusiness consultant. The work included in-depth interviews with relevant members of AGPCC staff and its parent company, Air Ghana, Limited, as well as KIA airport officials; interviews with current and previous members of MiDA staff in Accra; a desk review of documents and other information that was provided by MCC and MiDA; and information obtained from Internet sources.

The objective of the evaluation was to provide a clear picture of MCC's investment in the PCC, to analyze the performance of the PCC since it began commercial operations, and to determine its likely sustainability, impact, and effectiveness.

The following pages of this report present the background, analysis, summary of findings, conclusions, recommendations, and lessons learned from MCC's investment in the PCC. The report Annexes present supporting tables, the work plan for the study, meeting notes that were taken during the different interviews, and contact information for the people with whom the consultant met over the course of the evaluation.

## 2. Background

MiDA provided grant funds under its Agricultural Project for the construction and equipping of a US \$2.47 million PCC at KIA to facilitate increasing amounts of fresh fruit and vegetable exports from Ghana. KIA is the aviation hub for the coastal sub-region of West African countries. In 2013, the airport served 2.68 million incoming and outgoing passengers who traveled on some 30 local and international airlines. KIA also serves nine cargo airlines that in 2010 transported 46,000 tons of air cargo. Furthermore, KIA is the only airport in Ghana that is capable of handling large aircraft, such as the Airbus A380.

At the time when the PCC was constructed, exports of fresh agricultural products from KIA amounted to almost 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 fresh horticultural exports<sup>2</sup>. Even before the PCC was placed in service, nearly all exports of fresh vegetables and root crops such as cassava were shipped by air to overseas markets. Around 80% of Ghana's fresh papaya exports and approximately 10% of its fresh pineapple exports were shipped from

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<sup>2</sup> Blue Skies, Ltd., one of the exporters of fresh-cut fruit for food service markets had a company-owned cold storage facility for its exclusive use at KIA. Otherwise, there were no commercial cooling services available at the airport.

KIA as air cargo. Furthermore, food processors such as Blue Skies, Ltd. exported pre-cut, packaged pineapple chunks and other prepared, pre-cut fruit to overseas markets.

The PCC was considered to be the final link in an integrated cold chain for the horticultural sub-sector that began at the pack houses where products would be initially cooled. The PCC was planned to be a key element in achieving better quality for 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 to stimulate export growth in emerging export products such as cut flowers.

The 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 freight containers in the open air, exposed to the heat, sun, and rain. Even when cargo arrived by refrigerated truck, 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 the 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 and resulted in lower selling prices. The proposed facility was considered a top priority to improve the quality of the fresh produce exported through KIA. The only cold storage facility that was available at that time was the cold room owned by Blue Skies Company for its pre-cut fruit exports.

## **2.1. PCC Financial Viability**

When the feasibility study for the PCC was completed in January 2010, the tonnage of perishable products exported by air from KIA was estimated to be slightly less than and 20,000 metric tons (MT) per annum, with an anticipated annual growth rate for export cargo of approximately 5%. Fresh pineapple and fresh vegetables were exported mainly on air pallets, whereas pre-cut fruit was shipped by air containers.

As a component of the initial planning for PCC operations, MiDA contracted the Netherlands consulting company Adviesburo Verhoef to conduct an economic viability analysis<sup>3</sup> of the PCC investment. Based on the estimated tonnage requirement, a perishable cargo facility of 1,150 square meters was designed at an investment cost initially estimated at \$1,667,400. The design included a product receiving area including a location for customs clearance and phyto-sanitary inspection and certification; an area for the assembly of air pallets and stuffing air containers; a temporary product storage area; a cold storage area for products awaiting shipment or arriving perishable cargo; and a discharge area for products that were to be shipped.

A summary of the results of the analysis by this company include:

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<sup>3</sup> Millenium Development Authority (MiDA), *Viability Statement Kotoka International Airport Perishable Cargo Centre*, Adviesburo Verhoef B.V. The Netherlands, January 2010

- 1) An initial handling and cooling charge of US \$0.025 per kilogram was proposed for PCC commercial operations.
- 2) Based on 20,000MT of annual exports, first year operating costs were projected at US\$20.42 per ton, corresponding to US \$0.0204 per kilogram. By year 5, operating costs were estimated to be US \$17.91 per ton, or US \$0.0179 per kilogram.
- 3) It was calculated that the PCC would generate revenue amounting to US \$500,000 during the first operating year, resulting in a net profit of US \$68,000 and a net margin of 14%. With an annual increase in export volumes amounting to 5%, year 5 revenue was projected to increase to US \$607,753, and net profit was projected to be US \$129,268.
- 4) It was calculated that the PCC would generate positive, annual cash flows throughout the ten-year period. Cash flows would grow from US \$185,873 in year one to US \$246,508 in year 10.
- 5) Calculations made to determine the payback period showed that it would require 6.4 years for the project to generate adequate cash to pay off the initial investment of US \$1.67million.
- 6) The projected results during the first five years of PCC operations are shown in the following table.

| <b>Table 1</b>                                       | <b>Five-Year Projected PCC Financial Results for the Period 2011 – 2015<br/>(Amounts in US \$)</b> |               |               |               |               |
|--|--|---------------|---------------|---------------|---------------|
|  | <b>Year 1</b>  | <b>Year 2</b> | <b>Year 3</b> | <b>Year 4</b> | <b>Year 5</b> |
| <b>Cargo handled (tons)</b>                          | 20,000   | 21,000        | 22,050        | 23,153        | 24,310        |
| <b>Sales Revenue</b>                                 | 500,000  | 525,000       | 551,250       | 578,813       | 607,753       |
| <b>Operating Costs</b>                               | 408,490  | 414,622       | 421,404       | 428,059       | 435,396       |
| <b>Gross Profit</b>                                  | 91,510   | 110,378       | 130,110       | 150,753       | 172,357       |
| <b>Gross Margin (%)</b>                              | 18%  | 21%           | 24%           | 26%           | 28%           |
| <b>Net Profit</b>                                    | 68,633   | 82,784        | 97,583        | 113,065       | 129,268       |
| <b>Net Margin (%)</b>                                | 14%  | 16%           | 18%           | 20%           | 21%           |
| <b>Net Cash Flow</b>                                 | 185,873  | 200,024       | 214,823       | 230,305       | 246,508       |
| <b>Source: MiDA: Verhoef-VEK Viability Statement</b> |  |               |               |               |               |

A key assumption underlying the planned PCC operation was that the facility would be authorized to handle all export perishable cargo that was being shipped from KIA. The consultants who conducted the feasibility analysis wrongly assumed, based on earlier discussions with the operator of KIA Airport, Ghana Airports Company, Limited (GACL), that the PCC would be awarded a position as a single service provider whereby all perishable cargo would have to be handled by the PCC for food safety and phyto-sanitary reasons. This regulation was never issued and once the PCC began operating, it was forced to compete with well-established cargo handlers that did not welcome a donor-supported competitor suddenly appearing in their midst. The primary reason for

the decision to maintain open competition for cargo handling was because the different airlines have long-term cargo handling service contracts in place with different freight handling companies at the airport, and changing those relationships would have been disruptive and difficult.

During the consultant's interview with the Air Ghana Perishable Cargo Center (AGPCC), executives revealed that the request for proposals for PCC management that was published by MiDA under the Ghana Compact specified that it was the government's intention that the PCC would have the exclusive right to handle all perishable horticultural products exported from KIA. After the announcement was published, the freight handling company Aviance Ghana strongly protested the planned regulation and MiDA was eventually forced to change the plan from using a single service provider to open competition for cargo handling services.

Another limitation on PCC export services that was not considered in the feasibility analysis was that the Blue Skies pre-cut products exporter has located its company-owned cold storage facility for its perishable export products within the airport handling area of Aviance Ghana, a major competitor of the PCC. Blue Skies accounts for around 20% to 25% of all perishable horticultural exports from KIA, and its business is entirely locked-in with one of main competitors of the PCC. This was clearly evident during the design phase of the program, but was not reflected in the initial financial studies. The original assumption was that the PCC would have the exclusive right to handle all perishable export cargo, without regard to the business relationships that were in effect at the time.

## **2.2. Design and Construction**

The work contracted by MiDA for the construction of the facility included two main activities: a) feasibility studies and facilities design; and b) PCC construction and civil works, including the installation of cooling and electromechanical equipment.

The final feasibility and engineering designs for PCC construction were completed by VEK-Verhoef of the Netherlands in association with Architectural and Engineering Services, Limited (AESL) of Ghana. MiDA awarded the contract for PPC construction to Stamek Ltd. The engineering consultants VEK-Verhoef and AESL were jointly responsible for construction supervision. The consultancy contract for the PCC was signed with the joint venture consortium at a final contract price of \$1.52mm. The start date for the consulting contract was June 2, 2009.

The final design for the PCC facility was completed in January 2010 using data collected on the movement of air cargo from KIA for the six main perishable air carriers that were operating at that time. These data were compiled by MiDA's implementing partner, ACIDI-VOCA. It was calculated that KIA would handle a daily peak volume of 130MT of produce and a yearly export volume of slightly below 20,000MT, with an export growth rate of 5% per annum. The subsequent design was based on these figures.

The commencement of construction activities for the facility was delayed for approximately two years while awaiting passage of the Plants and Fertilizer Act (Act 830) by Ghana's Parliament, which was finalized in September 2010. Passage of this Act

was a Condition Precedent to the disbursement of funds for the PCC, as well as other post-harvest installations that were funded under the Compact<sup>4</sup>.

Additional startup problems included: a) delays by Ghana Airport Company Limited (GACL) in releasing a suitable site within the airport cargo area for the PCC; b) difficulties encountered in the relocation of existing utilities prior to the initiation of PCC construction; and c) the initial arrangements for construction works supervision by the consulting company were found to be unsatisfactory, leading to weak management during the first three months of project construction. This problem was resolved when the consulting company formed an association with a reliable, local company.

The works contract for the PCC was signed on October 4, 2010 with the Ghana construction company, Stamek, Limited, in the amount of \$2.473 million for a 12-month construction period, from November 3, 2010 until November 2, 2011. However, over the course of the construction period several modifications were required due to site conditions, primarily to strengthen the paved area by using high-strength concrete paving blocks instead of asphalt, and to increase the area paved. The final contract price for facility construction was \$3.180 million, corresponding to an increase of \$707K, or 28.6%. The construction completion date was extended until January 20, 2012. After a final no-cost contract extension, the facility was officially completed on February 15, 2012, which was the last day of the Compact.

The project completion certificate was issued on 18 January, 2012 following an inspection by the stakeholders, including MiDA and GACL. The defects notification period for the Contract began on January 19, 2012 and extended beyond the end of the Compact, until January 19, 2013.

The facility was officially opened on February 15, 2012, by Ghana's Minister of Trade along with the Minister of Food and Agriculture. It was handed over to the client, GACL, which is a private company that began operating in January 2007, after being divested from the Ghana Civil Aviation Authority in 2006 to manage KIA and Ghana's smaller, regional airports. The PCC is managed and operated by a private partnership under a concession from GACL.

### **2.3. Institutional Structure**

Following the MiDA/Ghana Airports Company Public Tender of 2011, a joint venture company owned by Air Ghana Ltd and Freight Wings (Kenya) Ltd. was awarded a seven-year contract to manage the facility. The joint venture company is known Air Ghana Perishable Cargo Center, Limited (AGPCC). Its parent company, Air Ghana Limited, was established in 1994 as a limited liability company operating at KIA to

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<sup>4</sup> The purpose of the Condition Precedent (CP) was to ensure public sector capacity to monitor compliance with international plant protection standards. The CP required that MiDA submit evidence demonstrating that the Ghana government has adopted an amendment to cause the National Plant Protection Legislation to be in compliance with the International Plant Protection Convention of 1997 (IPPC), prior to making the investments related to Post-Harvest Infrastructure. It was only in September 2010 that the Ghana Government satisfied these conditions. The Plant and Pest Diseases Act (Act 307) of 1965 was revised to be consistent with IPPC standards, passed by Parliament on June 4, 2010, given Presidential assent and gazetted in September 2010. Investments in the related infrastructure, including the PCC, were delayed while waiting for this CP to be satisfied.

provide air cargo charter transport services specifically aimed at the fruit and vegetable sector. Air Ghana has since grown to become a major shipping company as well as a general sales agent responsible for cargo sales provided by several major airline companies.

Air Ghana's services at KIA include export and import cargo handling, aircraft servicing and ramp handling, charter services for air cargo and passenger travel, and corporate jet services. It has cargo handling agreements with numerous passenger and cargo airlines at KIA, including Cargolux, Delta Airlines, DHL Aviation, Lufthansa, and Turkish Airlines. Air Ghana sees AGPCC as a complementary business that supports its core activities.

Freight Wings, Limited (FWL) is a leading Kenyan shipper of fresh horticultural products with many years' experience in supplying fresh vegetables to the UK and other European retail markets. FWL is part of the Vegpro Group, which is the largest grower, packer, and exporter of vegetables and flowers in Kenya. The Vegpro Group is also the parent company of Vegpro Ghana, the anchor farm located at the Torgorme irrigation scheme, which was established under the MCC Ghana Compact. FWL was incorporated in 1991 and has since grown to be the third largest perishable air cargo agent in Kenya. FWL deals solely with perishable horticultural products and currently ships over 450 tons of fresh products weekly to European markets.

The facility management contract was signed in April, 2012 by the Ghana Airports Company Limited, and the AGPCC. After the AGPCC team assumed responsibility for the perishable cargo center's commercial operations, approximately 10 months was required to complete the desired construction modifications and make further improvements, and to procure the needed equipment that was required for efficient cargo operations. Correction of the construction deficiencies started in May 2012 and the company began operating the facility on December 5, 2013.

AGPCC company officials advised the consultant that the company had spent around US \$1.13 million for changes and improvements to the facility, as well as cargo handling and scanning equipment that was required to begin commercial operations. Some of these outlays will be reimbursed to the company at the end of its operating concession by the GACL. For example, the required changes to the facility included improved security fencing (the original fence was too low and its height had to be increased from 1.7 meters to 2.4 meters); the pavement at the customer parking lot had to be resurfaced; the concrete floor at the PCC building had to be sealed with epoxy to keep the concrete dust from the original floor from contaminating the perishable food products, and the company had to install a machine for scanning cargo at the PCC under its liability to ensure cargo security before the products were loaded onto the aircraft.

The following table provides a summary of the required expenditures.

**Table 2 Required Startup Expenditure by AGPCC Ltd.**

| Description                         | Amount (US\$) |
|-------------------------------------|---------------|
| Epoxy Flooring                      | 86,181        |
| Extension to Security Fencing       | 23,314        |
| Fire Emergency Exits/Security Doors | 7,748         |
| CCTV cameras and equipment          | 47,166        |
| X-Ray & CCTV Security Offices       | 59,990        |



|                                      |                    |
|--------------------------------------|--------------------|
| Asphalt Paving                       | 79,679             |
| Castor Decks                         | 107,964            |
| Lazy/Slave Dollies                   | 105,702            |
| Smith's Detection X-Ray Scanner      | 302,182            |
| Doosan 3t Forklift                   | 22,500             |
| 3 x Toyota Tugs                      | 131,907            |
| 24 x 10ft Dollies & 2 x 20ft Dollies | 154,883            |
| Dangerous Goods and Security Cage    | 2,500              |
| <b>Total</b>                         | <b>\$1,131,721</b> |

It is our opinion that it would have been appropriate for the construction project (MiDA) to assume the cost of the required changes to the PCC facility, whereas the required handling and scanning equipment (X-Ray scanner, forklift, Toyota tugs and dollies) were appropriate costs for the operating company, AGPCC. Some of these omissions and shortcomings were likely the result of budget considerations. However, had AGPCC been able to participate in the design of the facility, the need for many of these corrections might have been avoided.

Some of the problems encountered could not be corrected – for example, the ceiling of the cold room is several meters too high, with the result that a considerable amount of dead space is cooled at unnecessary expense. Also, the rollers on the pallet dock should have been better planned for improved safety. Finally, there are no changing rooms for facility staff. Had AGPCC participated in the design of the facility, these deficiencies might have been avoided.

The total area of the PCC 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 at the PCC before being loaded onto an aircraft.

In addition, cargo that is handled by the PCC must also pass through a “Nick TC” pallet scanner that is operated by the Ghana Link Company under concession from Ghana’s Narcotics Control Board and the Ministry of Trade. This national security scanning operation is required for all export air cargo shipped from Ghana.

### 3. Analysis

#### 3.1 Air Cargo Operations

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.

However, since the PCC began commercial operations on December 5, 2012, its throughput has been disappointingly low. As shown by Tables 1 and 2 in Annex I, recent PCC export volume has ranged from 600-800MT per month, or less than 40% of its originally planned capacity. AGPCC executives estimate that the facility is presently handling around 60% of all perishable air cargo exports from Ghana, although this estimate appears to be highly optimistic.

The perishable cargo center has service contracts with several airlines, including Deutsche Post DHL (courier cargo and perishable), Lufthansa, Cargo Lux, All Nippon Airways - Allied (vaccine transporter), Turkish Airways, and occasional charter carriers. Its main competitor, Aviance, handles most of the perishable exports for other airline companies including British Airways, KLM, Emirates, Delta, Lufthansa, South African Airways, Alitalia, and Iberia.

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

- ♦ The business of providing cargo-handling services at KIA is highly competitive. In addition to the PCC, two other cargo service providers – Aviance Ghana Limited and AHS Menzies – are well entrenched at KIA, where they have operated for years. The PCC faces stiff competition from these established companies, despite their non-availability of refrigerated storage<sup>5</sup>.
- ♦ When MiDA conceptualized the AGPCC, it was planned that all (100%) perishable exports would flow through the facility. It was anticipated that for export product quality and phytosanitary reasons, GACL would require that shippers use the PCC for all perishable horticultural products. However, this has not happened primarily because the different airlines have different long-term agreements in place with their preferred freight handling companies at KIA. It is the airline company providing transport services that decides which freight handler to use for its cargo shipments; not the exporter. Consequently, the AGPCC must compete with other KIA freight handlers for business, the largest which is Aviance Ghana Limited.
- ♦ For example, Vegpro, the anchor farm at the Torgorme irrigation scheme that is a sister company to AGPCC, exports most of its fresh vegetable exports to the United Kingdom (UK), using British Airways (BA). Since BA has an exclusive cargo handling contract with Aviance Ghana, Vegpro's fresh vegetable exports to the UK must be handled by Aviance Ghana, and not by AGPCC. If AGPCC were to handle Vegpro's export vegetables it would be necessary to trans-ship the cargo through Frankfurt by Lufthansa Airlines, and then use a regional carrier to transport the Vegpro fresh cargo on to the UK. This would be inconvenient for Vegpro, and would likely increase its shipping costs.
- ♦ Blue Skies Limited, the largest exporter of pre-cut fresh fruit from Ghana, operates its own cold storage facility that is physically located within the property boundary of the competing freight service company, Aviance Ghana Limited, whose cargo handling center is adjacent to the PCC. Aviance allows Blue Skies to locate its cold storage facility on Aviance property, in exchange for the exclusive agreement to handle the entire amount of Blue Skies shipments to its company in the UK for

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<sup>5</sup> Neither of the two main PCC competitors, Menzies and Aviance Ghana, has a cold storage facility at KIA, where perishable cargo can be stored. Instead, they depend on the rapid delivery of their perishable cargo shipments by air, including fresh horticulture, to minimize the risk of spoilage of these perishable products. However, fresh-cut fruit such as that exported by Blue Skies, Ltd. is extremely sensitive to temperature change and requires an unbroken cold chain to ensure good product quality upon delivery to its customers. Consequently, Blue Skies has its company-owned cold storage facility that is located within the Aviance freight handling facility at KIA. This facility is used exclusively for export shipments by Blue Skies. All cargo that is exported by Blue Skies is handled by Aviance. The only cooling facility at KIA that is available for all exporters is the PCC.

distribution there. Due to this arrangement, Blue Skies is essentially a captive client of Aviance, and is not a potential client for PCC handling services. Furthermore, Blue Skies does not require the cold storage service provided by the PCC, since it uses its company-owned facility for cold storage. This pre-existing arrangement was apparently not recognized during the feasibility study for the PCC.

The justification for the perishable cargo facility was to create a continuous cold chain from the producing farmers all the way to the overseas buyers. However, this would require that perishable cargo be transported in refrigerated trucks, which in effect, does not happen. Only the fresh-cut fruit exporters, Blue Skies Limited and Peelco use refrigerated transport to move their fresh-cut products. Almost none of the other fresh horticultural exporters use refrigerated transport. Contrary to the original plan, the export cold chain for fresh horticulture shipped by air does not begin at the exporter's pack house.

During interviews with the AGPCC management team, it was revealed that the actual demand by horticultural exporters for refrigerated storage of their perishable exports at the airport is quite limited. There is an absolute requirement for refrigerated storage for delicate perishable exports such as pre-cut fruit that is exported by Blue Skies and Peelco, which together account for around 25% of perishable exports from KIA. However, most other exporters of fresh, whole fruit and vegetables ship their products without benefit of refrigeration. Since most air cargo exporters do not have cooling facilities at their farms, they are unable to initiate the "cold chain" for their products at the location where they are packaged for export. Consequently, since their products have not been cooled before they reach the airport, they see no problem in bypassing the refrigerated storage capability at the PCC. Instead, they depend on the rapid, one-day transit time to Europe to ensure their products arrive in good, fresh condition. Only when there are flight delays do most exporters demand cooling services for their products. The PCC management team estimates that, with the exception of delicate pre-cut fruit, no more than 10% of all perishable horticultural exports that it handles utilize the PCC's refrigerated storage facility before being shipped from KIA. Thus, the limited demand for refrigerated storage prior to export shipment is another factor that erodes the PCC's competitive position vis-à-vis other freight service providers<sup>6</sup>.

For example, the pre-cut pineapple and other fruit exported by Peelco Company to Germany are shipped entirely through the PCC. This company absolutely requires cold storage for its delicate pre-cut fruit that is commercially available only at the PCC. The PCC has a freight handling contract with Lufthansa, which transports Peelco's pre-cut fruit to Germany. Thus, Peelco is a loyal client and an enthusiastic beneficiary of the PCC's refrigerated services. However, most other exporters of whole, fresh fruit and

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<sup>6</sup> It is the opinion of the consultant that the conceptual basis for the PCC was sound. Access to refrigerated storage is an important service that is generally needed by exporters, particularly in cases when flights are delayed. Cold storage is available at the airports of most leading horticulture exporting countries, as well as at the Tema wharf in Ghana. However, most exporters of perishable horticulture products in Ghana prefer to run the risk of poor quality products upon arrival, instead of investing in post-harvest cooling equipment at the farm location that would be the starting point for the cold chain. Since most horticultural products now arrive at the airport at ambient temperature, exporters are not overly concerned about an additional delay of 3-4 hours before the products can be loaded into the aircraft containers where they can be cooled during transit.

vegetables whose products are handled by the PCC do not see a pressing need to store their fresh produce under refrigeration while it is awaiting shipment unless there is a considerable delay in the departure time of the aircraft.

The greatest hurdle that must be overcome by the PCC to gain additional perishable cargo business at KIA are the active service contracts between the airlines that transport export cargo and their contracted cargo service providers. Exporters of perishable products do not contract with the PCC for cargo handling services; instead, they simply arrange for an airline to transport their products to their final destination. 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, 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. In the event that there is a transport delay by the airlines that have cargo handling contracts with either Aviance or Menzies, it is the exporter that suffers the consequences of not having access to refrigerated storage at these companies. The likely impact is that the quality of the export products deteriorate, which can result in claims against the exporter if their products have sub-par quality and shelf life upon arrival at foreign markets.

Table 3, below, shows the total amount of cargo exports from the PCC for the entire 2013 year and partial year results reported for the six-month period from January – June 2014.

| <b>Table 3</b>                     | <b>PCC Cargo Export Shipments by Category (Kilograms)</b> |                   |                                  |                   |
|------------------------------------|---|-------------------|----------------------------------|-------------------|
|                                    | <b>2013 Annual Results</b>                                |                   | <b>2014 Partial Year Results</b> |                   |
| <b>Cargo type</b>                  | <b>Total Year</b>   | <b>Percentage</b> | <b>Six Months</b>                | <b>Percentage</b> |
| <b><i>Non-perishable cargo</i></b> |   |                   |                                  |                   |
| <b>Courier</b>                     | 0   | 0.0%              | 0                                | 0.0%              |
| <b>Diplomatic</b>                  | 0   | 0.0%              | 144,869                          | 3.2%              |
| <b>General Cargo</b>               | 476,558   | 8.6%              | 444,364                          | 9.7%              |
| <b>Mail</b>                        | 34,431  | 0.6%              | 118,069                          | 2.6%              |
| <b>Pharmaceuticals</b>             | 369,996   | 6.7%              | 364,083                          | 7.9%              |
| <b>Subtotal</b>                    | 880,985   | 15.9%             | 1,071,385                        | 23.4%             |
| <b><i>Perishable Cargo</i></b>     |   |                   |                                  |                   |
| <b>Cut fruit</b>                   | 272,614   | 4.9%              | 248,716                          | 5.4%              |
| <b>Fresh fish</b>                  | 9,881   | 0.2%              | 1,949                            | 0.0%              |
| <b>Food Items</b>                  | 508,471   | 9.2%              | 263,663                          | 5.8%              |
| <b>Mangos</b>                      | 172,817   | 3.1%              | 127,683                          | 2.8%              |
| <b>Papaya</b>                      | 718,357   | 13.0%             | 564,891                          | 12.3%             |
| <b>Passion Fruit</b>               | 585,727   | 10.6%             | 85,298                           | 1.9%              |
| <b>Pineapple</b>                   | 1,466,072   | 26.5%             | 1,047,385                        | 22.8%             |
| <b>Vaccines</b>                    | 9,247   | 0.2%              | 10,422                           | 0.2%              |
| <b>Vegetables</b>                  | 818,809   | 14.8%             | 1,115,929                        | 24.3%             |
| <b>Yams</b>                        | 81,222  | 1.4%              | 47,225                           | 1.1%              |
| <b>Subtotal</b>                    | 4,643,217   | 84.1%             | 3,513,161                        | 76.6%             |
| <b>Total</b>                       | 5,524,202   | 100.0%            | 4,584,546                        | 100.00%           |
| <b>Source: AGPCC</b>               |   |                   |                                  |                   |
|                                    |   |                   |                                  | <b>100.0%</b>     |

A review of Table 3 reveals the following:

- ♦ The total amount of cargo handled during the 2013 year was 5,524MT, compared to 4,585MT reported for the first six months of 2014. This is a substantial rate of growth (around 60%), although from a low base. If this growth rate continues, the PCC could achieve an amount of 10,000MT of export cargo shipments for the entire 2014 year.
- ♦ Since perishable items include cut fruit, fresh fish, food items, vaccines, and the different fruit and vegetables shown in the table, the amount of perishables exported by the PCC during 2013 was 4,643 MT, or 84% of its total shipments. For the partial year 2014, the amount of perishable exports was 3,513MT, or 77% of its total shipments. Clearly, non-perishable shipments are an important part of the PCC's freight handling business.
- ♦ Despite having the advantage of being able to provide a cooling facility, the cargo volumes handled by AGPCC have been, until now, below its breakeven level. One problem that AGPCC faces is that it handles only outbound cargo, whereas Aviance and other competitors handle a full range of both incoming and outbound cargo. Airlines are reluctant to work with a company that handles only export cargo, since they require services for both import and export cargo and prefer to consolidate all cargo services with one service provider. Under AGPCC's operating concession with Ghana Airports Company, Limited, the company is only permitted to handle outbound cargo.

Despite these many obstacles, the PCC has successfully managed to obtain service contracts with several airline companies that operate at KIA, including the carriers DHL and CargoLux that transport only cargo. Furthermore, once Vegpro's fresh vegetable farming venture at the Torgorme irrigation scheme reaches full production there should be a positive impact on PCC throughput as this company seeks additional markets for its exports, which could be served by airline carriers that have contracted the PCC as their cargo handler.

### **3.2 Financial Results**

The unaudited financial results for PCC operations to-date that were provided by the AGPCC management team to the evaluation consultant are presented in Annex 1, Tables 1 and 2. These are the actual financial results provided to the consultant for the first eighteen months of PCC operations.

Table 4, below, summarizes these financial results for the first 18 months and compares the actual results with the original feasibility analysis prepared by Verhoef.

As shown by the following Table 4, despite the higher freight handling charges now in effect by AGPCC than was considered in the original plan, the limited throughput of perishable cargo has resulted in lower perishable cargo revenue than was initially planned. For the 2013 year, the actual revenue of \$312,009 earned from perishable cargo was only 62% of plan, whereas for the first six months of 2014 the revenue earned from perishable cargo was only \$98,671, or 37% of the initial plan prepared by Verhoef.

| <b>Table 4 AGPCC Actual Revenue and Profit Compared to Original Verhoef Plan</b> |                         |                    |                                   |                   |
|--|-------------------------|--------------------|-----------------------------------|-------------------|
|  | <b>2013 Entire Year</b> |                    | <b>2014 Partial Year<br/>June</b> |                   |
|  | <b>Verhoef Plan</b>     | <b>Actual</b>      | <b>Verhoef Plan</b>               | <b>Actual</b>     |
| <b>Sources of Revenue</b>  |                         |                    |                                   |                   |
| Handling Perishables   | \$500,000               | \$312,099          | \$267,500                         | \$98,671          |
| Scanning Perishables   | -                       | -                  | -                                 | 62,821            |
| Handling General Cargo   | -                       | 2,344              | -                                 | 149,278           |
| Scanning General Cargo   | -                       | -                  | -                                 | 54,296            |
| X-Ray Fees   | -                       | 160,426            | -                                 | -                 |
| <b>Total Revenue</b>   | <b>500,000</b>          | <b>474,869</b>     | <b>267,500</b>                    | <b>365,065</b>    |
| <b>Net Profit</b>  | <b>\$68,633</b>         | <b>\$(256,576)</b> | <b>\$41,392</b>                   | <b>\$(61,799)</b> |
| <b>Source: AGPCC</b>   |                         |                    |                                   |                   |

However, when revenue earned from other sources is added to the revenue earned from perishable cargo handling, the total revenue earned during 2013 was \$474,869, which was only 5% less than the planned amount of \$500,000. Despite the strong revenue earned during 2013, the PCC showed an operating loss of \$256,576 compared to a planned profit of \$68,633. The AGPCC's operating costs are higher than was initially planned as the result of an increased number of supervisory and technical staff that is required for the scanning and general cargo handling operations; the required payment of the royalty amounting to 15% of sales that is assessed by GACL, and higher administrative costs required for the expanded AGPCC operations. Once the PCC is required to suspend its scanning operations, it will have to eliminate the staff that has been employed to carry out this activity. However, AGPCC senior management has indicated that it will attempt to place the staff made redundant, with the new company that would be responsible for cargo scanning.

Based on the unaudited financial reports provided to the consultant by AGPCC, for the 2014 six-month partial year the total amount of revenue earned by the company was \$365,065, or 36% greater than the original plan of \$267,500. For this six-month time period AGPCC reported an operating loss of \$61,799, which reflects an improving profit picture over the previous year. AGPCC executives advised the consultant that the parent company, Air Ghana Limited, has been meeting AGPCC's cash flow shortfall that has resulted since the PCC began operating. Clearly, Air Ghana views AGPCC as a good investment over the long run and believes that the company will fully recover its initial capital outlay along with its working capital investment it has made since the PCC began operating.

Table 5, below, shows the percentage of total revenue that is contributed by the different business activities carried out by the PCC.

As shown by Table 5, AGPCC reported that the amount of income earned during 2013 by the PCC for handling perishable cargo was approximately 66% of its total income. A very small amount of income was derived from handling general cargo, while X-Ray scanning as a cargo handling service accounted for one-third of total income.

For the partial year 2014, the income derived from handling perishables has accounted for only 27% of total income. This reflects a substantial increase in general cargo handling (41% of total revenue)<sup>7</sup> and a continued high percentage of revenue earned from scanning services (32%). Clearly the PCC has evolved from a simple provider of export services for the horticulture sub-sector to a broad-based cargo handler providing a wide range of freight services. While this may not have been the original intent when the PCC was conceptualized, this transition reflects a normal business progression for a dynamic company operating in a highly competitive environment.

| <b>Table 5 AGPCC Revenue Contribution by Activity</b> |                           |                             |  |                             |
|---|---------------------------|-----------------------------|--|-----------------------------|
|   | <b>2013 Entire Year</b>   |                             | <b>2014 Partial Year<br/>Jan. - June</b> |                             |
|   | <b>Revenue<br/>Amount</b> | <b>Percent of<br/>Total</b> | <b>Revenue<br/>Amount</b>                | <b>Percent of<br/>Total</b> |
| <b>Sources of Revenue</b>                             |                           |                             |  |                             |
| Handling Perishables                                  | \$312,099                 | 65.7%                       | \$98,671                                 | 27.0%                       |
| Scanning Perishables                                  | -                         | 0.0%                        | 62,821                                   | 17.2%                       |
| Handling General Cargo                                | 2,344                     | 0.5%                        | 149,278                                  | 40.9%                       |
| Scanning General Cargo                                | -                         | 0.0%                        | 54,296                                   | 14.9%                       |
| X-Ray Fees  | 160,426                   | 33.8%                       | -  | 0.0%                        |
| <b>Total Revenue</b>                                  | <b>474,869</b>            | <b>100.0%</b>               | <b>365,065</b>                           | <b>100.0%</b>               |
| <b>Net Profit</b>                                     | <b>\$(256,576)</b>        | <b>-54.0%</b>               | <b>\$(61,799)</b>                        | <b>-16.9%</b>               |

Tables 5 and 6 in Annex 1 show the amounts by month of revenue and profits earned by the PCC during 2013 and during the first six months of 2014. As shown by the tables, the PCC's monthly financial results have been consistently negative since it began operating, with the exception of November 2013 when a small profit was reported and for June 2014 when a second profitable month was reported. As described earlier, the cumulative loss for 2013 was US \$256,576 while its cumulative loss during the first six months of 2014 was US \$61,799. However, despite this negative picture, the consultant found during interviews with the AGPCC management team they believe that the PCC has turned the corner and is now at a point in its current operations where it can begin to report an operating profit.

Tables 7 and 8 of Annex 1 show the pro-forma monthly cash flow projections for PCC operations for its first two operating years (2013 and 2014). These are the operating budgets for the PCC prepared by AGPCC management for these first two years.

### 3.2.1 Recent Events

As shown in the earlier Table 2, before the PCC began commercial operations it purchased a cargo scanning machine to provide security scanning services to detect illegal substances or dangerous items within each air cargo shipment in compliance with

<sup>7</sup> A possible reason for this could be that some amount of perishable cargo handled by the PCC is classified as general cargo. A PCC executive advised the consultant that all freight that is being transported by cargo aircraft chartered by AGPCC is classified as general cargo, without distinction as to the different types of products that are actually transported. Perishable cargo is not reported as a separate category for charter shipments.

import regulations in effect in the European Union (EU). After the shipments have cleared this scanning process, the AGPCC staff is responsible for the security of the air cargo shipment until it is loaded onto the aircraft. However, shortly before the PCC began commercial operations, the Ministry of Trade and Industry (MTI) contracted a private company, Nick TC Scan Limited, to install and operate a large pallet scanner at the airport cargo area, and required that all air cargo pass through the new scanner. This effectively required that AGPCC cargo be scanned twice – once by AGPCC to comply with EU import requirements, and once by Nick TC Scan to comply with the Government of Ghana’s export security requirement.

As shown above in Table 5, the AGPCC scanner has generated around 1/3 of the total revenue earned by the company since it began commercial operations. Recently, however, MTI issued an executive order that is expected to go into effect by the end of 2014 stating that all airport cargo scanning services must be consolidated at one airport location that is fully under government control, corresponding to the location of the Nick TC Scan operation. This “official” government scanning service will cost exporters an amount of \$50 per ton, or \$.05 per kilogram. As a result of the administrative requirement that all scanning be consolidated at the government facility with an additional assessment of \$50 per ton, AGPCC will lose the revenue that has until now been provided through its security scanning services. AGPCC management feels that in light of this directive, it will have no available option other than to sell or lease its scanning machine to the Nick TC Scan company. The loss of scanning revenue by the PCC will have to be offset by increasing the amount of cargo that it handles, or by providing other export services that are yet to be determined.

There is, however, a good possibility that additional revenue can eventually be generated by AGPCC as the result of business expansion by its parent company, Air Ghana, Limited. Air Ghana recently created an alliance with the Ghana subsidiary of Swissport, a leading international provider of ground and cargo handling services to the aviation industry. This joint venture company is presently constructing a new, large cargo warehouse within the KIA cargo area that will serve as an air cargo transport hub for a dedicated fleet of cargo planes serving West Africa. The planned hub-and-spoke arrangement will be centered on Accra, and will serve all countries in West and Central Africa. Air Ghana owns 50% of the new company, Swissport Ghana Limited. This company will begin operating five Boeing 737 cargo aircraft between Ghana and nearby countries. This new initiative is expected to generate additional revenue for AGPCC since it will be the designated handler for all perishable cargo on behalf of the new company. Under its operating concession, Swissport Ghana will be authorized to handle outgoing as well as incoming cargo. The new company plans to start commercial operations in late 2015.

Furthermore, the PCC will undoubtedly benefit from the increased fresh vegetable exports by Vegpro, the anchor farm the Torgorme irrigation scheme as this company expands its contract farming operations. As described earlier, Vegpro’s parent company in Kenya is the minority owner of AGPCC, in partnership with Air Ghana, Limited. While the PCC will not likely be able to handle the entire amount of Vegpro’s increasing



air cargo exports, some of its products will undoubtedly be shipped to other markets by carriers that have cargo handling contracts with AGPCC<sup>8</sup>.

In light of these changes, AGPCC's likely loss of scanning revenue will be a heavy financial blow to the company. In time, however, it should be able to overcome the financial setback.

### **3.3 PCC Sustainability**

For the purposes of the ensuing discussion, sustainability is considered as the capability for endurance of AGPCC's business operations or, in other words, its long-term economic viability. As described in earlier sections of this report, AGPCC's profitability during its first 18 months of commercial operations has been negative. During this period, AGPCC's parent company, Air Ghana, has provided the operating capital required by the company to continue its business operations. The company's management team feels that AGPCC has now turned the corner and is poised to begin a period of continuing profitability. The lifeblood of its operations, export cargo handling, is increasing at a substantial rate of growth, although from a very low base. By the end of the present calendar year, the level of exports handled on an annual basis should be around 10,000 MT. Under its current operating conditions where its operating income is derived from a combination of product scanning and handling as well as perishable cargo, that level of exports would be able to provide for continuing profitable operations.

The threat to the PCC's revenue stream resulting from the consolidation of scanning services at the airport facility location under direct government control may occur before the end of the present calendar year. This required change will effectively eliminate a substantial part of AGPCC's income since the company will not be able to operate its scanning machine within the government facility. If AGPCC would be able to lease its scanning machine to the contracted operator at the government facility, some amount of revenue would be provided but the income obtained would be only a fraction of the amount of revenue that is now being earned from scanning services.

While this loss would be a severe setback to AGPCC's future revenue and profitability, in the opinion of the consultant, it would not be a mortal blow to the company. Based on the consultant's visits, observations, and interviews with senior management at AGPCC, it is the consultant's opinion that the company is managing its assets and its continuing operations efficiently. Even in the face of its low throughput, the PCC operation is well managed. Furthermore, the PCC management team has expressed its strong commitment to make the facility a financial success. In addition, the AGPCC team has shown strong revenue growth and an improving profit picture since it began commercial operations. Finally, the AGPCC management team has provided creative solutions to difficult problems that the company has experienced during its short life span.

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<sup>8</sup> As described earlier, it is the airline, and not the exporter that decides which freight service provider it will use to handle its freight shipments. Vegpro's exports to the UK are transported by British Airways (BA), since that airline provides direct air cargo service from Accra to London. Because BA has contracted Aviance to handle its air cargo, Vegpro's shipments with BA to London will be handled by Aviance. On the other hand, Vegpro's fresh vegetable exports to Frankfurt are shipped by KLM, which has contracted AGPCC as its freight handler. Therefore, the PCC would handle all shipments made to Frankfurt by Vegpro, using KLM as the freight carrier.

AGPCC has the backing of two solid companies, Air Ghana, and FWL, the leading shipper of fresh horticultural products from Kenya. 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. Consequently, the PCC has a solid institutional foundation for its business.

AGPCC's product throughput will undoubtedly increase with increasing market share as more exporters and airlines 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 and its outgrowers at the Torgorme irrigation scheme come into full production. Some of the increased amount of fresh vegetable exports will undoubtedly be shipped through the PCC to reach new markets that are served by airlines that use the PCC's cargo handling services. Furthermore, the regional cargo center for West Africa that is now being built by Air Ghana and Swissport is expected to generate additional freight handling business for AGPCC.

It is the consultant's conclusion that despite its present financial challenges, the long term outlook for the PCC is positive, and that it is sustainable.

### **3.4 PCC Effectiveness**

The effectiveness of the PCC can be defined as the extent to which the facility has produced the desired effect; that is, to provide post-harvest handling and cooling services that are required by horticulture exporters for their fresh products to arrive at their final markets in good condition. Clearly, the PCC is now operating as designed, and its management team is operating the center as a commercial cargo service provider for fresh horticultural exports. There is no evidence of unusual or severe operational problems, and none of the perishable products spoil during the short period of time they are awaiting shipment. The management team has largely compensated for a reduced cargo throughput by providing additional, diversified cargo services and by generating additional income through higher fees for cargo handling than was originally planned.

Two setbacks that happened during the construction and startup phase of the PCC's operations had a substantial, although temporary impact on the PCC's planned activities. The first was the requirement during the construction phase to expand the paved area for PCC vehicle parking and to increase the strength of the pavement that had been previously installed at the PCC service area, as well as at the entrance and exit locations for cargo vehicles. The asphalt paving had to be strengthened by placing an overlay of high-strength asphalt tile, at an additional cost of \$710,000, or 28% over the initial PCC budget of \$2.47 million. The additional work extended the time required for construction completion by a period of four months, until the end of the Compact on February 15, 2012.

The second setback occurred after the PCC facility was turned over to the management company, AGPCC, on February 15, 2012. Since a number of changes had to be made to the building and the parking area of the PCC before the management company could operate the facility; it did not open for commercial operations until December 5, 2012. These changes were made at AGPCC's expense, and delayed the starting date for operating the facility by almost 10 months.

Since that time, however, the PCC has been operating normally and providing the export cargo handling services that are required.

It is the conclusion of the consultant that despite the initial difficulty that had to be overcome during the construction phase and the initial operating period of the PCC, the facility is now operating effectively and it is fully serving its intended purpose. The PCC operation is entirely effective.

### **3.5 PCC Impact**

We consider impact as the extent to which long-term and sustained changes have occurred within Ghana's export horticultural agro-industry, and what outputs have been achieved as a result of the PCC.

The planned impact of the PCC was to handle an initial volume of 20,000 tons of export horticulture, with the initial amount increasing by 5% annually, to an amount of 23,530 tons within the fifth operating year (see the earlier table 1). The actual amount of perishable exports reported by AGPCC for the 2013 year was 4,135 tons, with a projected amount of 7,200 tons of perishable commodities exported for the entire 2014 year. For the year 2015, it is estimated that total cargo exports handled by the PCC would range from 10,000 – 12,000 tons, while exports of perishable cargo would be around 20% less, falling somewhere between 8,000 – 10,000 tons. In other words, the PCC is operating at considerably less than 50% of its planned level of horticultural exports in 2014, and it is unlikely that it would exceed 50% of the initially anticipated level of horticultural exports over the intermediate term, extending through the 2015 calendar year.

The initial, planned financial impact of the perishable cargo center was to generate first-year revenues in the amount of \$500,000, with a net profit of \$68,000. These were expected to increase to the amounts of \$607,753 and 129,268, respectively, by the fifth operating year. When the initial, planned investment of \$1.67 million was considered along with the amount of cash flow derived from this income level, the internal rate of return (IRR) for the investment in the perishable cargo center was calculated to be 14% and the payback period was determined at 6.4 years. The calculated IRR of 14% was comfortably above MCC's hurdle level of 10 percent for its economic rate of return (ERR) calculations for its investments<sup>9</sup>.

However, by the time the PCC was completed, the construction cost had risen by 29% from the initial contract amount of \$2.67 million to a final amount of \$3.18 million. Furthermore, the final investment amount of \$3.18 million was nearly double the original estimate of \$1.67 million, which was the basis for the calculation of an IRR of 14%. As stated earlier, during the company's first operating year (2013), AGPCC reported an actual revenue amount of \$312,099 and a net loss of \$256,576. For the first half of the

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<sup>9</sup> Capital budgeting for business investments normally uses IRR calculations as the method to determine the rate of financial growth a project is expected to generate. This method considers the direct financial impact of an investment, whereas MCC's calculation of ERR compares the costs and benefits of a public investment, including indirect benefits. In MCC's analysis, the costs of a project reflect the necessary financial expenses, including those covered by other parties. The benefits include the increased income of a country's population or value added by its firms due specifically to the proposed project. Thus, MCC's estimate of the ERR of a proposed project offers forecast of the project's likely economic impact, which, in the case of the PCC, would likely be slightly higher than the calculated IRR.

company's second operating year (2014), the company reported a loss of \$61,799; however, the AGPCC management believes that the company has reached a position where it can now begin to show an operating profit. The effect of the negative, cumulative cash outflow during the first two operating years will further reduce the calculated IRR for MCC's investment in the PCC.

In light of the increased PCC investment cost above the original estimate of \$1.67 million and the operating losses that have been seen to date, it would be nearly impossible for the PCC to achieve an IRR of at least 10%. Based on the consultant's estimate, to achieve an IRR of 10% would require annual, average cash flow of approximately \$520,000; annual revenue of nearly \$2 million, and annual PCC throughput of more than 28,000 tons over the remaining investment horizon.

A more likely scenario would be that for 2014, the PCC would achieve a breakeven cash flow for the entire year. Afterwards, beginning in the third year (2015) the PCC would register an average throughput of 16,000 tons per year for the remainder of a 20-year investment horizon. Without considering income from scanning services, this amount of throughput would generate annual revenues of approximately \$1,120,000, which would provide annual cash flow of around \$295,000 (using the same relationship between annual revenues and annual cash flow as shown by the cash flow projections in Table 8, Annex 1). Under this scenario, the IRR for the PCC is calculated to be 3.8%, well below the desired IRR of 10%. The payback period would be 14 years. This projection can be seen in the following Table 6.

| <b>Table 6 IRR Calculation Based on 16,000 Tons Annual Throughput for Years 3-10</b>   |        |        |     |      |      |      |      |      |       |      |
|--|--------|--------|-----|------|------|------|------|------|-------|------|
| <b>(Cash Flow Amounts in Millions of Dollars)</b>  |        |        |     |      |      |      |      |      |       |      |
| <b>Years</b>   | 0      | 1      | 2   | 3    | 4    | 5    | 6    | 7    | ..... | 20   |
| <b>Cash Flow</b>   | (3.28) | (.257) | 0.0 | .295 | .295 | .295 | .295 | .295 | ..... | .295 |
| <b>IRR: 3.8% Payback: 14 Years</b>   |        |        |     |      |      |      |      |      |       |      |
| <b>Note:</b> For the IRR calculation, net cash flows for year one and year two are assumed to be the same amount as the net profits for those two years. |        |        |     |      |      |      |      |      |       |      |

In conclusion, the PCC has been a positive factor in fresh horticulture exports, but as a result of its limited throughput, its impact on Ghana's export horticulture industry has been limited. It is unlikely to achieve the return on equity of 10% that is desired for MCC investments.

## 4. Findings, Conclusions, and Recommendations

### 4.1 Summary of Findings

The ownership of the PCC is held by the private airport management company, GACL. The operations and management of the center are carried out by the private company, AGPCC, which is a joint venture partnership between Air Ghana and Freight Wings (Kenya).

The initial planned throughput for the PCC during its first five years of operations was a base amount of 20,000 tons per year that progressively increased by 5% each year thereafter.

A key assumption underlying the economic and financial analyses for the PCC was that AGPCC would obtain an exclusive position as the sole provider of perishable cargo handling services from KIA for reasons of food safety and export product quality.

The current low level of cargo throughput at the PCC is the main limiting factor on the profitability of AGPCC.

The PCC ownership structure provides a solid foundation for PCC operations. As described earlier, the parent company of AGPCC is Air Ghana, Limited, which has a twenty-year history as a major shipping company and cargo provider at KIA. Air Ghana also has a solid financial base, and has shown its willingness to fund the shortfall in AGPCC's cash flow when required. The management and financial support provided by Air Ghana to AGPCC is an important factor in the latter's long term profitability and sustainability.

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 service provider for handling both import and export cargo.

The initial design and construction of the PCC had to be modified to bring the facility up to the operating standards of the management company, AGPCC, and to meet its operating requirements.

The company's new businesses for product scanning and general cargo handling have brought additional revenue to the PCC. Its ability to increase freight handling fees has also impacted favorably on revenue and profitability.

The average amount of revenue earned by AGPCC is \$0.07 per kilogram handled (\$70 per ton), which is nearly three times the handling charge of \$25 per ton that was initially planned by MiDA.

During its first operating year, the PCC achieved 27% of its planned throughput volume; whereas during the first half of its second operating year, the PCC achieved 47% of its planned throughput volume. Also during its first operating year, the PCC achieved 95% of its planned amount of revenue. During the first half of its second operating year, the PCC achieved 136% of its planned revenue. The PCC reported an operating loss of \$256,576 during its first year of operations, and a loss of \$ 61,799 during the first half of its second operating year. The company's cash shortfall during its first 18 months of operations has been provided by Air Ghana, Limited.

The PCC has reached a position of financial breakeven after 18 months of commercial operations.

It is the airlines, not the exporters themselves, that contract for the services of air cargo handlers at KIA. Exporters have little influence over the decisions by the airline companies as to which freight handler to use for their cargo handling services. Business

relationships between the airlines and their cargo handling service providers are governed by long-term contractual relationships between the two parties.

Based on the consultant's interviews with AGPCC senior management, it was learned that only a few exporters that ship highly perishable pre-cut fruit products through the PCC consistently require refrigerated storage for their products while they are awaiting export shipment. Interviews and site visits with the two main exporters of pre-cut fruit products for the export food service industry confirmed their requirement for refrigerated storage at KIA prior to shipment of their products. On the other hand, AGPCC management informed the consultant that most export shipments of perishable, whole fruit and vegetables do not arrive at KIA in a refrigerated condition and the exporters of these products do not see the need for temporary refrigerated storage before their products are shipped. It is only when there are delays in the scheduled departure time by the airlines transporting their cargo is there a strong demand for refrigerated storage by these perishable exporters.

Perversely, the road network upgraded 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 fruit for export is produced, and has therefore 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. For example, one exporter of fresh pineapples informed the consultant that the transit time from Bawjesi to KIA had been approximately halved, from about five hours to 2½ - 3 hours as a result of the improved highway. 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. Thus, improved logistics and easier access to air cargo services has further lessened the need for cold storage at the airport prior to freight shipments. This finding was also confirmed by AGPCC management.

AGPCC has been notified that all cargo scanning services at KIA will be consolidated within the government-controlled scanning facility as a step toward improved airport security. This would require that AGPCC suspend its cargo scanning service.

## **4.2 Conclusions**

Since the initial assumption that the PCC would be given a position as the sole provider of perishable cargo handling services at KIA was invalid, AGPCC has been required to start its new business in a highly competitive environment for air cargo handling at KIA.

The requirement that AGPCC take corrective measures to improve the design of the PCC resulted in operating delays and additional costs to the operator and delayed the planned initiation PCC operations.

It has been extremely difficult for AGPCC to develop new business relationships with the airline companies since this would normally require replacing incumbent service providers with the services of a new company.

After a slow start it seems that the PCC has turned the corner and its current financial operation is close to financial breakeven. Under its present operating method where additional revenues are provided from general cargo handling and scanning services, its financial outlook over the intermediate to long-term is good.

However, when the current executive order by the Minister of Trade and Industry goes into effect, it will eliminate the cargo scanning services provided by the PCC, thus substantially reducing its revenue by an amount of approximately 33%. This revenue shortfall must be offset by an increased cargo throughput at the PCC or by diversifying into an even broader range of export services.

Under the new, anticipated operating conditions at the PCC, we estimate that an annual amount of around 16,000 tons of cargo would be required for the AGPCC to achieve good profitability and cash flow. The current, volume of cargo handled by the PCC is approaching approximately 10,000 tons annually. A further increase in annual throughput amounting to roughly 60% of its current volume would be required to achieve good profitability in the face of its lost scanning revenue. In the opinion of the consultant, this volume level can be achieved in the intermediate term.

The PCC's product throughput should continue to increase with normal growth in exports along with an increased market share as more exporters become attracted to its export services for perishable products.

The partnership agreement between Air Ghana, Limited and Freightwings (Kenya), Limited provides a strong foundation for AGPCC. The throughput at the PCC 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.

The joint venture partnership between Air Ghana Limited and Swissport Ghana for regional freight handling should further increase the amount of cargo handled by the PCC and thereby increase its profitability once the new joint venture company begins operating in late 2015.

The PCC has been a positive factor in fresh horticulture exports since it began operating but, due to its limited volume, its impact thus far has not been substantial. Furthermore, it is unlikely to achieve the desired return on investment of 10% for investments by MCC.

In view of the strong administrative and institutional structure of the PCC, along with the anticipated increased amount of cargo handled, it should be sustainable over the long term.

Despite the initial difficulty that had to be overcome during the construction phase and the initial operating period of the PCC, the facility is now operating effectively and is fully serving its intended purpose.

Due to AGCPP's initial operating difficulties and its unclear financial future, the longer term success of MCC's investment in the PCC is still uncertain.

### **4.3 Recommendations**

The PCC should make the greatest possible effort to expand the amount of cargo throughput as a means to ensure its financial viability.

Similar, future investments funded by MCC should strive to involve the operator of the facility in project planning and design.

#### **4.4 Lessons Learned**

The users and operators of facilities such as the PCC should be involved from the outset in facility planning and design.

Sometimes small decisions made during program implementation can have large effects on program results, as was the case when MiDA was compelled to change its plan original plan predicated on using a single service provider for perishable cargo at KIA to an alternative plan that had to take into consideration a landscape of competitive perishable cargo handling services.



## **ANNEXES**

## **ANNEX 1. SUPPORTING TABLES**

| <b>Table 1</b>   | <b>Air Ghana Perishable Cargo Center Export Shipments by Air Carrier by Month 2013 - All Cargo (Amounts in Kilograms)</b> |               |               |               |               |               |               |               |               |               |               |               |                   |
|------------------|---|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|-------------------|
|                  | <b>Jan-13</b>   | <b>Feb-13</b> | <b>Mar-13</b> | <b>Apr-13</b> | <b>May-13</b> | <b>Jun-13</b> | <b>Jul-13</b> | <b>Aug-13</b> | <b>Sep-13</b> | <b>Oct-13</b> | <b>Nov-13</b> | <b>Dec-13</b> | <b>Total Year</b> |
| <b>Airline</b>   |   |               |               |               |               |               |               |               |               |               |               |               |                   |
| <b>Cargolux</b>  | -   | -             | -             | -             | -             | -             | -             | 292,858       | 272,776       | 421,957       | 349,217       | 359,167       | 1,695,975         |
| <b>DHL</b>       | -   | -             | -             | 68,810        | 119,827       | 134,814       | 173,461       | 188,927       | 150,872       | 238,619       | 227,049       | 177,765       | 1,480,144         |
| <b>Lufthansa</b> | -   | -             | -             | -             | -             | -             | -             | -             | -             | -             | -             | -             | -                 |
| <b>Turkish</b>   | 43,846  | 95,403        | 77,083        | 126,036       | 126,488       | 142,847       | 141,952       | 124,378       | 53,670        | 139,460       | 190,706       | 89,948        | 1,351,817         |
| <b>Virgin</b>    | -   | -             | -             | -             | 68,547        | 172,578       | 183,468       | 147,552       | 62,645        | -             | -             | -             | 634,790           |
| <b>Charter</b>   | -   | 49,047        | -             | -             | 186,913       | -             | 69,649        | -             | -             | -             | 64,387        | -             | 369,996           |
| <b>Total</b>     | 43,846  | 144,450       | 77,083        | 194,846       | 501,775       | 450,239       | 568,530       | 753,715       | 539,963       | 800,036       | 831,359       | 626,880       | 5,532,722         |

**Table 2**                      **Air Ghana Perishable Cargo Center Export Shipments by Air Carrier by Month 2014 - All Cargo (Amounts in Kilograms)**

|                  | Jan-14         | Feb-14         | Mar-14         | Apr-14         | May-14         | Jun-14         | Jul-14   | Aug-14   | Sep-14   | Oct-14   | Nov-14   | Dec-14   | Partial Year     |
|------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------|----------|----------|----------|----------|----------|------------------|
| <b>Airline</b>   |                |                |                |                |                |                |          |          |          |          |          |          |                  |
| <b>Cargolux</b>  | 249,897        | 296,635        | 264,571        | 432,704        | 356,112        | 361,566        | -        | -        | -        | -        | -        | -        | 1,961,485        |
| <b>DHL</b>       | 131,214        | 109,738        | 172,421        | 155,368        | 123,954        | 99,970         | -        | -        | -        | -        | -        | -        | 792,665          |
| <b>Lufthansa</b> | -              | -              | 2,571          | 59,201         | 118,158        | 105,097        | -        | -        | -        | -        | -        | -        | 285,027          |
| <b>Turkish</b>   | 116,860        | 110,777        | 175,927        | 135,635        | 263,749        | 177,644        | -        | -        | -        | -        | -        | -        | 980,592          |
| <b>Others</b>    | -              | -              | -              | -              | -              | -              | -        | -        | -        | -        | -        | -        | -                |
| <b>Charter</b>   | 253,708        | 78,516         | -              | 76,022         | 79,074         | 77,457         | -        | -        | -        | -        | -        | -        | 564,777          |
| <b>Total</b>     | <b>751,679</b> | <b>595,666</b> | <b>615,490</b> | <b>858,930</b> | <b>941,047</b> | <b>821,734</b> | <b>-</b> | <b>-</b> | <b>-</b> | <b>-</b> | <b>-</b> | <b>-</b> | <b>4,584,546</b> |

| Table 3              | Air Ghana Perishable Cargo Center Export Shipments by Cargo Category and by Month 2013 - All Cargo (Amounts in Kilograms) |                |               |                |                |                |                |                |                |                |                |                |                  |                |
|----------------------|---|----------------|---------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|------------------|----------------|
|                      | Jan   | Feb            | Mar           | Apr            | May            | June           | July           | Aug            | Sept           | Oct            | Nov            | Dec            | Total Year       | Percentage     |
| Non-perishable Cargo |   |                |               |                |                |                |                |                |                |                |                |                |                  |                |
| Courier              | -   | -              | -             | -              | -              | -              | -              | -              | -              | -              | -              | -              | -                | 0.00%          |
| Diplomatic           | -   | -              | -             | -              | -              | -              | -              | -              | -              | -              | -              | -              | -                | 0.00%          |
| General Cargo        | 11,407  | 13,306         | 15,310        | 29,720         | 17,987         | 48,724         | 35,632         | 65,638         | 72,280         | 57,118         | 73,538         | 35,898         | 476,558          | 8.63%          |
| Mail                 | 2,239   | 1,561          | 3,316         | 266            | 3,050          | 357            | 9,387          | 124            | 13,766         | 245            | 39             | 81             | 34,431           | 0.62%          |
| Pharmaceuticals      | -   | 49,047         | -             | -              | 186,913        | -              | 69,649         | -              | -              | -              | 64,387         | -              | 369,996          | 6.70%          |
| Subtotal             | 13,646  | 63,914         | 18,626        | 29,986         | 207,950        | 49,081         | 114,668        | 65,762         | 86,046         | 57,363         | 137,964        | 35,979         | 880,985          | 15.95%         |
| Perishable Cargo     |   |                |               |                |                |                |                |                |                |                |                |                |                  |                |
| Cut fruit            | -   | -              | -             | 10,271         | 23,320         | 28,055         | 23,651         | 39,347         | 31,998         | 29,053         | 39,581         | 47,338         | 272,614          | 4.93%          |
| Fresh fish           | -   | -              | -             | -              | -              | 8,589          | -              | -              | -              | 1,292          | -              | -              | 9,881            | 0.18%          |
| Food Items           | -   | 3,791          | 1,733         | 30,657         | 45,330         | 63,134         | 74,665         | 51,310         | 42,217         | 68,121         | 77,171         | 50,342         | 508,471          | 9.20%          |
| Mangos               | -   | 34,865         | -             | 19,539         | 20,991         | 48,045         | 14,170         | 12,356         | -              | -              | 5,251          | 17,600         | 172,817          | 3.13%          |
| Papaya               | -   | 12,039         | -             | 34,797         | 20,733         | 12,064         | -              | 8,388          | 43,992         | 231,033        | 231,397        | 123,914        | 718,357          | 13.00%         |
| Passion Fruit        | -   | -              | -             | -              | -              | -              | 83,846         | 210,949        | 69,646         | 138,373        | 66,156         | 16,757         | 585,727          | 10.60%         |
| Pineapple            | 29,728  | 29,599         | 55,881        | 69,082         | 123,729        | 99,857         | 108,162        | 172,916        | 147,879        | 152,195        | 186,545        | 290,499        | 1,466,072        | 26.54%         |
| Vaccines             | 472   | 242            | 843           | 514            | 906            | 872            | 197            | 220            | -              | 588            | 882            | 3,511          | 9,247            | 0.17%          |
| Vegetables           | -   | -              | -             | -              | 58,816         | 122,473        | 89,253         | 180,837        | 118,185        | 121,893        | 86,412         | 40,940         | 818,809          | 14.82%         |
| Yams                 | -   | -              | -             | -              | -              | 18,069         | 51,398         | 11,630         | -              | 125            | -              | -              | 81,222           | 1.47%          |
| Subtotal             | 30,200  | 80,536         | 58,457        | 164,860        | 293,825        | 401,158        | 445,342        | 687,953        | 453,917        | 742,673        | 693,395        | 590,901        | 4,643,217        | 84.05%         |
| <b>Total</b>         | <b>43,846</b>   | <b>144,450</b> | <b>77,083</b> | <b>194,846</b> | <b>501,775</b> | <b>450,239</b> | <b>560,010</b> | <b>753,715</b> | <b>539,963</b> | <b>800,036</b> | <b>831,359</b> | <b>626,880</b> | <b>5,524,202</b> | <b>100.00%</b> |

| Table 4              | Air Ghana Perishable Cargo Center Export Shipments by Cargo Category and by Month 2014 - All Cargo (Amounts in Kilograms) |                |                |                |                |                |      |     |      |     |     |     |                  |               |
|----------------------|---|----------------|----------------|----------------|----------------|----------------|------|-----|------|-----|-----|-----|------------------|---------------|
|                      | Jan   | Feb            | Mar            | Apr            | May            | June           | July | Aug | Sept | Oct | Nov | Dec | Total Year       | Percentage    |
| Non-perishable Cargo |   |                |                |                |                |                |      |     |      |     |     |     |                  |               |
| Courier              | -   | -              | -              | -              | -              | -              | -    | -   | -    | -   | -   | -   | -                | 0.0%          |
| Diplomatic           | 65,812  | 78,516         | -              | 169            | 218            | 154            | -    | -   | -    | -   | -   | -   | 144,869          | 3.2%          |
| General Cargo        | 53,723  | 105,413        | 73,233         | 88,037         | 79,199         | 44,759         | -    | -   | -    | -   | -   | -   | 444,364          | 9.7%          |
| Mail                 | 117,786   | 19             | 264            | -              | -              | -              | -    | -   | -    | -   | -   | -   | 118,069          | 2.6%          |
| Pharmaceuticals      | 131,530   | -              | -              | 76,022         | 79,074         | 77,457         | -    | -   | -    | -   | -   | -   | 364,083          | 7.9%          |
| Subtotal             | 368,851   | 183,948        | 73,497         | 164,228        | 158,491        | 122,370        | -    | -   | -    | -   | -   | -   | 1,071,385        | 23.37%        |
| Perishable Cargo     |   |                |                |                |                |                |      |     |      |     |     |     |                  |               |
| Cut fruit            | 32,387  | 37,547         | 41,611         | 47,183         | 52,656         | 37,332         | -    | -   | -    | -   | -   | -   | 248,716          | 5.4%          |
| Fresh fish           | -   | -              | -              | -              | 1,737          | 212            | -    | -   | -    | -   | -   | -   | 1,949            | 0.0%          |
| Food Items           | -   | 43,033         | 48,411         | 51,377         | 51,681         | 69,161         | -    | -   | -    | -   | -   | -   | 263,663          | 5.8%          |
| Mangos               | 75  | 70,897         | 25,768         | 1,697          | 1,838          | 27,408         | -    | -   | -    | -   | -   | -   | 127,683          | 2.8%          |
| Papaya               | 49,311  | 47,483         | 142,092        | 201,254        | 68,435         | 56,316         | -    | -   | -    | -   | -   | -   | 564,891          | 12.3%         |
| Passion Fruit        | 82,752  | 2,546          | -              | -              | -              | -              | -    | -   | -    | -   | -   | -   | 85,298           | 1.9%          |
| Pineapple            | 17,594  | 140,126        | 177,287        | 216,261        | 276,132        | 219,985        | -    | -   | -    | -   | -   | -   | 1,047,385        | 22.8%         |
| Vaccines             | 449   | 738            | 361            | 807            | 1,240          | 6,827          | -    | -   | -    | -   | -   | -   | 10,422           | 0.2%          |
| Vegetables           | 155,657   | 69,348         | 106,463        | 176,123        | 326,215        | 282,123        | -    | -   | -    | -   | -   | -   | 1,115,929        | 24.3%         |
| Yams                 | 44,603  | -              | -              | -              | 2,622          | -              | -    | -   | -    | -   | -   | -   | 47,225           | 1.0%          |
| Subtotal             | 382,828   | 411,718        | 541,993        | 694,702        | 782,556        | 699,364        | -    | -   | -    | -   | -   | -   | 3,513,161        | 76.63%        |
| Total                | <b>751,679</b>  | <b>595,666</b> | <b>615,490</b> | <b>858,930</b> | <b>941,047</b> | <b>821,734</b> | -    | -   | -    | -   | -   | -   | <b>4,584,546</b> | <b>100.0%</b> |

| Table 5              | Air Ghana Perishable Cargo Center Revenue and Net Profit by Month 2013 - All Cargo |          |          |          |         |         |          |         |          |         |        |           |            |
|----------------------|--|----------|----------|----------|---------|---------|----------|---------|----------|---------|--------|-----------|------------|
|                      | Jan  | Feb      | Mar      | Apr      | May     | June    | July     | Aug     | Sept     | Oct     | Nov    | Dec       | Total Year |
| Revenue Sources      |  |          |          |          |         |         |          |         |          |         |        |           |            |
| Handling Perishables | 2,676  | 8,235    | 6,643    | 16,664   | 30,505  | 31,505  | 24,751   | 40,171  | 31,892   | 45,586  | 43,336 | 30,136    | 312,099    |
| Handling Gen. Cargo  | -  | -        | -        | 2,533    | -       | -       | -        | -       | -        | -       | 478    | (667)     | 2,344      |
| X-Ray Fees           | 892  | 2,753    | 2,217    | 5,659    | 10,519  | 15,252  | 12,200   | 23,389  | 17,937   | 25,978  | 22,893 | 20,736    | 160,426    |
| Total Revenue        | 3,567  | 10,988   | 8,860    | 24,856   | 41,024  | 46,757  | 36,951   | 63,560  | 49,829   | 71,564  | 66,707 | 50,205    | 474,869    |
| Net Profit           | (40,452)   | (14,005) | (17,914) | (13,531) | (5,151) | (5,279) | (18,659) | (7,634) | (19,945) | (2,833) | 5,390  | (116,563) | (256,576)  |

| Table 6              | Air Ghana Perishable Cargo Center Revenue and Net Profit by Month 2014 - All Cargo |          |         |          |          |        |      |     |      |     |     |     |            |
|----------------------|--|----------|---------|----------|----------|--------|------|-----|------|-----|-----|-----|------------|
|                      | Jan  | Feb      | Mar     | Apr      | May      | June   | July | Aug | Sept | Oct | Nov | Dec | Total Year |
| Revenue Sources      |  |          |         |          |          |        |      |     |      |     |     |     |            |
| Handling Perishables | 4,452  | 3,418    | 13,172  | 23,727   | 28,281   | 25,622 | -    | -   | -    | -   | -   | -   | 98,671     |
| Scanning Perishables | 3,928  | 3,016    | 11,582  | 16,586   | 15,277   | 12,433 | -    | -   | -    | -   | -   | -   | 62,821     |
| Handling Gen. Cargo  | 38,777   | 29,800   | 20,894  | 14,092   | 24,997   | 20,719 | -    | -   | -    | -   | -   | -   | 149,278    |
| Scanning Gen. Cargo  | 12,435   | 11,946   | 8,278   | 5,454    | 2,543    | 13,640 | -    | -   | -    | -   | -   | -   | 54,296     |
| Total Revenue        | 59,591   | 48,180   | 53,926  | 59,858   | 71,097   | 72,412 | -    | -   | -    | -   | -   | -   | 365,065    |
| Net Profit           | (3,624)  | (29,267) | (4,046) | (18,022) | (13,469) | 6,628  | -    | -   | -    | -   | -   | -   | (61,799)   |

Table 7

| Table 7                           | AGPC LIMITED                                      |                 |              |              |            |             |             |               |                  |                |                 |                 |              |
|-----------------------------------|---|-----------------|--------------|--------------|------------|-------------|-------------|---------------|------------------|----------------|-----------------|-----------------|--------------|
|                                   | PROJECTED CASH FLOW FROM JANUARY TO DECEMBER 2013 |                 |              |              |            |             |             |               |                  |                |                 |                 |              |
|                                   | JANUARY<br>USD                                    | FEBRUARY<br>USD | MARCH<br>USD | APRIL<br>USD | MAY<br>USD | JUNE<br>USD | JULY<br>USD | AUGUST<br>USD | SEPTEMBER<br>USD | OCTOBER<br>USD | NOVEMBER<br>USD | DECEMBER<br>USD | TOTAL<br>USD |
| Cash in Flows                     |   |                 |              |              |            |             |             |               |                  |                |                 |                 |              |
| X ray Fees @ 0.03 Cents per kilo  |   |                 |              | 13,341       | 24,571     | 24,571      | 24,571      | 25,051        | 35,371           | 30,197         | 29,897          | 29,597          | 237,168      |
| Cargo Handling Service@ 0.06 Cent | 5,335   | 5,335           | 5,335        | 26,681       | 49,143     | 49,143      | 49,143      | 50,103        | 70,743           | 60,394         | 59,794          | 59,194          | 490,341      |
| Total operating Cash in flow      | 5,335   | 5,335           | 5,335        | 40,022       | 73,714     | 73,714      | 73,714      | 75,154        | 106,114          | 90,590         | 89,690          | 88,790          | 727,509      |
| Cash Outflows                     |   |                 |              |              |            |             |             |               |                  |                |                 |                 |              |
| Royalty 15% of gross revenue pa   | 800   | 800             | 800          | 6,003        | 11,057     | 11,057      | 11,057      | 11,273        | 15,917           | 13,589         | 13,454          | 13,319          | 109,126      |
| Maint Fund 1% of annual turnover  | 53  | 53              | 53           | 400          | 737        | 737         | 737         | 752           | 1,061            | 906            | 897             | 888             | 7,275        |
| Rent                              | 6,750   | 6,750           | 6,750        | 6,750        | 6,750      | 6,750       | 6,750       | 6,750         | 6,750            | 6,750          | 6,750           | 6,750           | 81,000       |
| Wages and salaries                | 3,500   | 3,500           | 3,500        | 3,500        | 3,500      | 3,500       | 7,000       | 7,000         | 7,000            | 7,000          | 7,000           | 7,000           | 63,000       |
| Pallet Builders                   |   |                 |              | 4,000        | 5,610      | 5,610       | 5,610       | 5,610         | 5,610            | 5,610          | 5,610           | 5,610           | 48,880       |
| Hygiene Cleaners (out source      | 940   | 940             | 940          | 940          | 940        | 940         | 940         | 940           | 940              | 940            | 940             | 940             | 11,280       |
| Security Services out source      | 2,760   | 2,760           | 2,760        | 2,760        | 2,760      | 2,760       | 2,760       | 2,760         | 2,760            | 2,760          | 2,760           | 2,760           | 33,120       |
| Maintenance Cost                  | 1,000   | 1,000           | 1,000        | 1,000        | 1,000      | 1,000       | 1,000       | 1,000         | 1,000            | 1,000          | 1,000           | 1,000           | 12,000       |
| Communications                    | 300   | 300             | 300          | 300          | 300        | 300         | 300         | 300           | 300              | 300            | 300             | 300             | 3,600        |
| Water and Sanitation              | 500   | 500             | 500          | 500          | 500        | 500         | 500         | 500           | 500              | 500            | 500             | 500             | 6,000        |
| Sanitation                        | 500   | 500             | 500          | 500          | 500        | 500         | 500         | 500           | 500              | 500            | 500             | 500             | 6,000        |
| Energy Cost                       | 2,000   | 2,000           | 2,000        | 2,000        | 2,000      | 2,000       | 2,000       | 2,000         | 2,400            | 2,400          | 2,400           | 2,400           | 25,600       |
| Stationery                        | 200   | 200             | 200          | 200          | 200        | 200         | 200         | 200           | 200              | 200            | 200             | 200             | 2,400        |
| Vehicle Running                   | 500   | 500             | 500          | 500          | 500        | 500         | 500         | 500           | 500              | 500            | 500             | 500             | 6,000        |
| Insurance                         | 1,000   | 1,000           | 1,000        | 1,000        | 1,000      | 1,000       | 1,000       | 1,000         | 1,000            | 1,000          | 1,000           | 1,000           | 12,000       |
| Bank Charges                      | 100   | 100             | 100          | 100          | 100        | 100         | 100         | 100           | 100              | 100            | 100             | 100             | 1,200        |
| Professional Fees                 | 5,000   | 5,000           | 5,000        | 5,000        | 5,000      | 5,000       | 5,000       | 5,000         | 5,000            | 5,000          | 5,000           | 5,000           | 60,000       |
| Staff Medical Bills               | 300   | 300             | 300          | 300          | 300        | 300         | 300         | 300           | 300              | 300            | 300             | 300             | 3,600        |
| Training & Development            | 500   | 500             | 500          | 500          | 500        | 500         | 500         | 500           | 500              | 500            | 500             | 500             | 6,000        |
| Transportation                    | 250   | 250             | 250          | 250          | 250        | 250         | 250         | 250           | 250              | 250            | 250             | 250             | 3,000        |
| Registration & Permits            | 100   | 100             | 100          | 100          | 100        | 100         | 100         | 100           | 100              | 100            | 100             | 100             | 1,200        |
| Rent Expenses                     | 1,600   | 1,600           | 1,600        | 1,600        | 1,600      | 1,600       | 1,600       | 1,600         | 1,600            | 1,600          | 1,600           | 1,600           | 19,200       |
| Total Cash Outflows               | 28,654  | 28,654          | 28,654       | 38,204       | 45,204     | 45,204      | 48,704      | 48,935        | 54,288           | 51,804         | 51,660          | 51,516          | 521,481      |
| Net Cash inflows                  | (23,318)  | (23,318)        | (23,318)     | 1,818        | 28,510     | 28,510      | 25,010      | 26,219        | 51,826           | 38,786         | 38,030          | 37,274          | 206,028      |
|                                   |   | (23,318)        | (46,637)     | (69,955)     | (68,137)   | (39,627)    | (11,117)    | 13,893        | 40,112           | 91,938         | 130,724         | 168,754         |              |
| Cash flow                         | (23,318)  | (46,637)        | (69,955)     | (68,137)     | (39,627)   | (11,117)    | 13,893      | 40,112        | 91,938           | 130,724        | 168,754         | 206,028         |              |
| Projected Cargo Handled (Tons)    | 88.92   | 88.92           | 88.92        | 444.69       | 819.04     | 819.04      | 819.04      | 835.04        | 1,179.04         | 1,006.56       | 996.56          | 986.56          | 8,172.36     |
| Projected Carao Scanned (Tons)    | -   | -               | -            | 444.69       | 819.04     | 819.04      | 819.04      | 835.04        | 1,179.04         | 1,006.56       | 996.56          | 986.56          | 7,905.60     |



TABLE 8

| AGPC LIMITED   |           |           |           |           |           |           |           |            |            |            |            |            |            |
|--|-----------|-----------|-----------|-----------|-----------|-----------|-----------|------------|------------|------------|------------|------------|------------|
| PROJECTED CASH FLOW STATEMENT FOR THE YEAR 2014  |           |           |           |           |           |           |           |            |            |            |            |            |            |
|  | JANUARY   | FEBRUARY  | MARCH     | APRIL     | MAY       | JUNE      | JULY      | AUGUST     | SEPTEMBER  | OCTOBER    | NOVEMBER   | DECEMBER   | TOTAL      |
| CASH INFLOWS   | USD       | USD       | USD       | USD       | USD       | USD       | USD       | USD        | USD        | USD        | USD        | USD        | USD        |
| Handling-Perishable Cargo  | 4,500.00  | 3,500.00  | 13,200.00 | 24,000.00 | 29,000.00 | 26,000.00 | 26,520.00 | 26,785.20  | 27,053.05  | 29,785.41  | 30,083.26  | 30,384.10  | 270,811.02 |
| Scanning-Perishable Cargo  | 5,000.00  | 3,200.00  | 12,500.00 | 17,000.00 | 26,000.00 | 13,000.00 | 13,260.00 | 13,392.60  | 13,526.53  | 14,892.71  | 15,041.63  | 15,192.05  | 162,005.51 |
| Handling- General Cargo  | 39,000.00 | 30,000.00 | 21,000.00 | 15,000.00 | 25,000.00 | 21,000.00 | 21,420.00 | 21,634.20  | 21,850.54  | 24,057.45  | 24,298.02  | 24,541.00  | 288,801.21 |
| Scanning- General Cargo  | 13,500.00 | 12,500.00 | 10,000.00 | 6,000.00  | 2,600.00  | 14,000.00 | 14,280.00 | 14,422.80  | 14,567.03  | 16,038.30  | 16,198.68  | 16,360.67  | 150,467.47 |
| TOTAL CASH INFLOWS   | 62,000.00 | 49,200.00 | 56,700.00 | 62,000.00 | 82,600.00 | 74,000.00 | 75,480.00 | 76,234.80  | 76,997.15  | 84,773.86  | 85,621.60  | 86,477.81  | 872,085.22 |
| CASH OUTFLOWS  |           |           |           |           |           |           |           |            |            |            |            |            |            |
| Royalty 15% of gross revenue pa  | 9,300.00  | 7,380.00  | 8,505.00  | 9,300.00  | 12,390.00 | 11,100.00 | 11,322.00 | 11,435.22  | 11,549.57  | 12,716.08  | 12,843.24  | 12,971.67  | 130,812.78 |
| Maint Fund 1% of annual turnover   | 620.00    | 492.00    | 567.00    | 620.00    | 826.00    | 740.00    | 754.80    | 762.35     | 769.97     | 847.74     | 856.22     | 864.78     | 8,720.85   |
| Staff Cost   | 10,638.00 | 10,638.00 | 10,638.00 | 10,638.00 | 10,638.00 | 10,638.00 | 10,638.00 | 10,638.00  | 10,638.00  | 10,638.00  | 10,638.00  | 10,638.00  | 127,656.00 |
| Staff Medical Bills  | 2,610.00  | 2,610.00  | 2,610.00  | 5,610.00  | 5,610.00  | 5,610.00  | 5,610.00  | 5,610.00   | 5,610.00   | 5,610.00   | 5,610.00   | 5,610.00   | 58,320.00  |
| Pallet Builders  | 7,234.00  | 7,234.00  | 7,234.00  | 7,234.00  | 7,234.00  | 7,234.00  | 7,234.00  | 7,234.00   | 7,234.00   | 7,234.00   | 7,234.00   | 7,234.00   | 86,808.00  |
| Hygiene Cleaners out source  | 940.00    | 940.00    | 940.00    | 940.00    | 940.00    | 940.00    | 940.00    | 940.00     | 940.00     | 940.00     | 940.00     | 940.00     | 11,280.00  |
| Security Services out source   | 2,760.00  | 2,760.00  | 2,760.00  | 2,760.00  | 2,760.00  | 2,760.00  | 2,760.00  | 2,760.00   | 2,760.00   | 2,760.00   | 2,760.00   | 2,760.00   | 33,120.00  |
| Maintenance Cost   | 1,500.00  | 1,500.00  | 1,500.00  | 1,500.00  | 1,500.00  | 1,500.00  | 1,500.00  | 1,500.00   | 1,500.00   | 1,500.00   | 1,500.00   | 1,500.00   | 18,000.00  |
| Communications   | 300.00    | 300.00    | 300.00    | 300.00    | 300.00    | 300.00    | 300.00    | 300.00     | 300.00     | 300.00     | 300.00     | 300.00     | 3,600.00   |
| Water and Sanitation   | 500.00    | 500.00    | 500.00    | 500.00    | 500.00    | 500.00    | 500.00    | 500.00     | 500.00     | 500.00     | 500.00     | 500.00     | 6,000.00   |
| Sanitation   | 500.00    | 500.00    | 500.00    | 500.00    | 500.00    | 500.00    | 500.00    | 500.00     | 500.00     | 500.00     | 500.00     | 500.00     | 6,000.00   |
| Energy Cost  | 3,400.00  | 3,400.00  | 3,400.00  | 3,400.00  | 3,400.00  | 3,400.00  | 3,400.00  | 3,400.00   | 3,400.00   | 3,400.00   | 3,400.00   | 3,400.00   | 40,800.00  |
| Stationery   | 200.00    | 200.00    | 200.00    | 200.00    | 200.00    | 200.00    | 200.00    | 200.00     | 200.00     | 200.00     | 200.00     | 200.00     | 2,400.00   |
| Vehicle Running  | 500.00    | 500.00    | 500.00    | 500.00    | 500.00    | 500.00    | 500.00    | 500.00     | 500.00     | 500.00     | 500.00     | 500.00     | 6,000.00   |
| Insurance  | 200.00    | 200.00    | 200.00    | 200.00    | 200.00    | 200.00    | 200.00    | 200.00     | 200.00     | 200.00     | 200.00     | 200.00     | 2,400.00   |
| Bank Charges   | 100.00    | 100.00    | 100.00    | 100.00    | 100.00    | 100.00    | 100.00    | 100.00     | 100.00     | 100.00     | 100.00     | 100.00     | 1,200.00   |
| Professional Fees  | 5,500.00  | 5,500.00  | 5,500.00  | 5,500.00  | 5,500.00  | 5,500.00  | 5,500.00  | 5,500.00   | 5,500.00   | 5,500.00   | 5,500.00   | 5,500.00   | 66,000.00  |
| Staff Medical Bills  | 300.00    | 300.00    | 300.00    | 300.00    | 300.00    | 300.00    | 300.00    | 300.00     | 300.00     | 300.00     | 300.00     | 300.00     | 3,600.00   |
| Training & Development   | 500.00    | 500.00    | 500.00    | 500.00    | 500.00    | 500.00    | 500.00    | 500.00     | 500.00     | 500.00     | 500.00     | 500.00     | 6,000.00   |
| Transportation   | 250.00    | 250.00    | 250.00    | 250.00    | 250.00    | 250.00    | 250.00    | 250.00     | 250.00     | 250.00     | 250.00     | 250.00     | 3,000.00   |
| Registration & Permits   | 100.00    | 100.00    | 100.00    | 100.00    | 100.00    | 100.00    | 100.00    | 100.00     | 100.00     | 100.00     | 100.00     | 100.00     | 1,200.00   |
| Rent Expenses  | 1,600.00  | 1,600.00  | 1,600.00  | 1,600.00  | 1,600.00  | 1,600.00  | 1,600.00  | 1,600.00   | 1,600.00   | 1,600.00   | 1,600.00   | 1,600.00   | 19,200.00  |
| Tota Cash Outflows   | 49,552.00 | 47,504.00 | 48,704.00 | 52,552.00 | 55,848.00 | 54,472.00 | 54,708.80 | 54,829.57  | 54,951.54  | 56,195.82  | 56,331.46  | 56,468.45  | 642,117.64 |
| Net Cash Inflows   | 12,448.00 | 1,696.00  | 7,996.00  | 9,448.00  | 26,752.00 | 19,528.00 | 20,771.20 | 21,405.23  | 22,045.60  | 28,578.04  | 29,290.14  | 30,009.36  | 229,967.59 |
|  | 12,448.00 | 14,144.00 | 22,140.00 | 31,588.00 | 58,340.00 | 77,868.00 | 98,639.20 | 120,044.43 | 142,090.04 | 170,668.08 | 199,958.22 | 229,967.59 |            |
| Projected Amount of Cargo Handled (Tons)   |           |           |           |           |           |           |           |            |            |            |            |            |            |
| General Cargo  | 450.00    | 416.67    | 333.33    | 200.00    | 86.67     | 466.67    | 476.00    | 480.76     | 485.57     | 534.61     | 539.96     | 545.36     | 5,015.58   |
| Perishable Cargo   | 166.67    | 106.67    | 416.67    | 566.67    | 866.67    | 433.33    | 442.00    | 446.42     | 450.88     | 496.42     | 501.39     | 506.40     | 5,400.18   |
| Note: General cargo volumes may be overstated because all cargo shipments by air charter are classified as general cargo, without regard to the perishability of the products shipped. |           |           |           |           |           |           |           |            |            |            |            |            |            |
| General cargo handling charges per kg. (US\$)  | 0.087     | 0.072     | 0.063     | 0.075     | 0.288     | 0.045     | 0.045     | 0.045      | 0.045      | 0.045      | 0.045      | 0.045      | 0.058      |
| Perishable cargo handling charges per kg. (US\$)   | 0.027     | 0.033     | 0.032     | 0.042     | 0.033     | 0.060     | 0.060     | 0.060      | 0.060      | 0.060      | 0.060      | 0.060      | 0.050      |

**ANNEX 2.**  
**CONSULTANT'S WORK PLAN**

## **WORK PLAN**

### **KIA Perishable Cargo Center Final Evaluation Report**

The consultant will review the actual financial and operating results of the KIA Perishable Cargo Center (PCC) and compare the results with the original business plan for the PCC. The consultant will also determine the principal causes for any differences between the actual and expected results, and will identify which, if any, of the main assumptions were invalid

Specifically, the work of the consultant will include interviews with the following key informants:

#### **MiDA Staff**

- ♦ Mr. Matthew Armah, Chief Operating Officer
- ♦ Ms. Abigail Abandoh-Sam, Director, Monitoring and Evaluation

#### **PCC Staff**

- ♦ Mr. Kwadwo Okong-Frepong, Operations Manager

#### **Air Ghana Staff**

- ♦ Mr. Michael Maguire, Managing Director
- ♦ Mr. Rob Killick, Business Development Manager

In addition, the consultant will attempt to obtain the following information from the PCC staff, and from the Ghana Airports Authority with the assistance of the PCC and Air Ghana:

- a) The original business plan including major assumptions and financial projections for the PCC
- b) Monthly financial and operating data for the period of time since the PCC began commercial operations. This information would include financial statements and throughput (tons) broken down to the extent possible by market and by shipper.
- c) Through the good offices of the PCC and Air Ghana, obtain information from the Ghana Airports Authority on the amount (tons) of fresh horticulture exports and imports registered as air cargo by KIA airport for the time period since the PCC began commercial operations. These data will help to determine the proportion of the available horticultural shipping business that is handled by the PCC.

This work will be carried out in Ghana from approximately September 1 to September 5, 2014.

The required output will be a report that describes how the actual activity and performance of the PCC has differed from the original plan and what factors led to those changes, including documenting any major assumptions that turned out to be incorrect. This report will also include the information related to the KIA project contained in the previous consultant's report on Post-Compact Assessment of Post-Harvest and Irrigation Investments.

The main task to be performed by the consultant will be to compare the actual situation under which the PCC operates, with its original business plan. In addition, the consultant will analyze available financial data provided by the PCC that will guide the findings and conclusions of the analysis.

The proposed report outline is the following:

Cover Page

Acronyms

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The draft report is scheduled to be submitted by the consultant to NORC on October 15, 2014. The final draft report is scheduled to be submitted by NORC to MCC on October 17, 2014.

## **Interview Guides - KIA Perishable Cargo Center**

### **A. Interviews with MiDA staff**

1. How long have you worked at MiDA? Were you involved with the PCC since its beginning?
2. What was your role in the development of the PCC?
3. What was the general situation in Ghana at the time, regarding the exports of pineapple and other fresh fruit?
4. Can you please describe the background and setting of the program? What was to be accomplished? What problems had to be overcome?
5. How did the program evolve? What was the sequence of events? Who was involved?
6. Can you please provide the details of the program? How was the program designed? Was it provided through a grant to Air Ghana? If so, what were its terms and conditions?
7. What was the general plan for business operations by the PCC?
8. From your perspective, how well has the PCC performed? Do you believe that the initial expectations for the PCC have been met?
9. Do you know of any major, unanticipated problems that have been encountered by the PCC management?
10. What in your view were the most important lessons learned from the PCC investment?
11. Any other comments?

The consultant will also request that MiDA provide the following information:

- a) A copy of the Grant Agreement between MiDA and Air Ghana for the PCC investment.
- b) Annexes to the 2010 KIA Viability Statement Report (Adviesburo Verhoef B.V., VEK Adviesgroep B.V., and AES Limited, *Viability Statement Kotoka International Airport Perishable Cargo Centre*, January 2010), as follows: On page 30, section 7 - APPENDICES, of this report there is a reference to i) the Investment Cost Schedule, ii) the Annual Profit and Loss Statement, iii) the Cash Flow Statement, and iv) the Amortization of Annual Depreciation Amount
- c) A copy of the KIA background study that was carried out on behalf of MiDA by ACDI/VOCA in January 2010

### **B. Interviews with PCC staff**

The consultant will ask the following questions of the PCC staff members who are interviewed:

1. How long have you been involved with the PCC? Did you participate in the conceptual development of the center? If so, what was your role?

2. Can you please describe the background and setting of the PCC investment? What was to be accomplished? What problems and issues had to be addressed and overcome?
3. What is the current administrative structure of the PCC (organizational chart)?
4. What is the legal structure of the PCC? What is its business category (LLC, JSC, or other.)?
5. What was the general plan for business operations by the PCC? What business services was the PCC designed to provide?
6. From your perspective, how well has the PCC performed? Do you believe that the initial expectations for the PCC have been met?
7. What are the major problems and challenges that the PCC has faced since it began operating?
8. What were the main assumptions underlying the operations of the PCC that have proven to be invalid?
9. What are the main factors, external as well as internal, that have affected the performance of the PCC?
10. Has the PCC achieved financial breakeven? How do you determine the breakeven point?
11. Who are the PCC's major clients (airlines, exporters, and importers)?
12. What are the current, major threats to PCC operations?
13. Based on your experience thus far, what, if anything should have been done differently?
14. Do you wish to make any other observations?

In addition, the PCC staff will be requested to provide the following information:

- ♦ A copy of the initial investment analysis, business plan or feasibility study for the PCC
- ♦ Monthly financial reports since the PCC began commercial operations
- ♦ Monthly operating reports including volume of imports, exports, and products handled by the PCC

### **C. Interviews with Air Ghana staff**

The Air Ghana management team will be asked to respond to similar questions as the PCC staff. In addition, the consultant will request the following information from Air Ghana:

Can you please provide information on the amount (tons) of fresh horticulture exports and imports registered as air cargo by KIA airport for the time period since the PCC began commercial operations? These data will help to determine the proportion of the available horticultural shipping business that is handled by the PCC.

### **ANNEX 3. WORK CALENDAR**

| Consultants' Work Schedule for Phase 1: Review MCC's Investments in Irrigation, PCC, and SPEG Loans |      |     |          |  |         |                           |                                |
|---|------|-----|----------|--|---------|---------------------------|--------------------------------|
| Month 2014  | Date | Day | Location | Activity   | Time    | Contact                   | Tel.                           |
| August  | 30   | Sat | Travel   | International consultant Travels Home-New York-Accra   |         |                           |                                |
| August  | 31   | Sun | Accra    | International consultant arrives Accra   |         |                           |                                |
| September   | 1    | Mon | Accra    | Meet with MIDA staff re. PCC, irrigation scheme status, and SPEG loan status                   | 9:00 AM | Matthew/Abigail           | 0202010201;<br>0202010408      |
| September   | 2    | Tue | Accra    | Consultant analyzes PCC and Air Ghana data   |         |                           |                                |
| September   | 2    | Tue | Accra    | Meet with PCC staff; obtain financial and operating data                                       | 1:00pm  | Micheal Yegoya            | 024 4 20 27 21                 |
| September   | 3    | Wed | Accra    | Meet with Air Ghana staff; obtain air cargo export data for refrigerated cargo                 | 9:00am  | Rob Killick               | 0540115790                     |
| September   | 4    | Th  | Accra    | Meets with Blue Skies  | 9:00am  | Mr Ablor                  | 0244333699                     |
| September   | 4    | Th  | Accra    | Meets with EDAIF officials; obtain loan repayment data   | 3:30pm  | Mrs. Sarah Arhin          | 0501322899;<br>0244 97 35 21   |
| September   | 5    | Fri | Accra    | Meet with ACDI/VOCA for Overview including Southern Horticultural Zone                         | 10:00am | Kwasi Korboe              | 0244895760                     |
| September   | 6    | Sat | Accra    | International consultant, engineer and facilitator plan for irrigation visits                  | 12:00pm | Nana Ama; Collins         |                                |
| September   | 7    | Sun | Travel   | Int. consultant and local engineer travel Accra - Tamale                                       |         |                           |                                |
| September   | 8    | Mon | Tamale   | Visit Bontanga irrigation scheme; meet with scheme officials; Facilitator travels Accra-Tamale | 9:00am  | Mr. Stephen Adegle        | 0245 87 0325;<br>0202 419 8180 |
| September   | 9    | Tue | Tamale   | Visit Bontanga irrigation scheme; visit anchor farm  | 9:00am  | Steiner Kolnes/ Awal Adam | 0200 313 133;<br>0243 062 276  |
| September   | 10   | Wed | Tamale   | Conduct Bontanga focus group discussions with scheme farmers, chaired by facilitator           | 9:00am  | Mr. Stephen Adegle        | 0245 87 0325;<br>0202 419 8181 |
| September   | 11   | Th  | Tamale   | Visit Bontanga irrigation scheme; develop irrigation monitoring procedures                     | 9:00am  | Mr. Stephen Adegle        | 0245 87 0325;<br>0202 419 8182 |
| September   | 12   | Fri | Tamale   | Visit Golinga irrigation scheme; meet with scheme officials                                    | 9:00am  | Ibrahim Luvlyraba         | 0249 22 68 98                  |
| September   | 13   | Sat | Tamale   | Conduct Golinga focus group discussions with scheme farmers, chaired by facilitator            | 9:00am  | Ibrahim Luvlyraba         | 0249 22 68 99                  |
| September   | 14   | Sun | Tamale   | Facilitator travels Tamale-Accra   |         |                           |                                |
| September   | 15   | Mon | Tamale   | Visit Golinga irrigation scheme; develop irrigation monitoring procedures                      | 9:00am  | Ibrahim Luvlyraba         | 0249 22 68 99                  |
| September   | 16   | Tue | Travel   | Consultant and engineer travel Tamale - Accra; plan Torgorme irrigation visit with Facilitator | 2:00pm  | Nana Ama; Collins         |                                |



| Consultants' Work Schedule for Phase 1: Review MCC's Investments in Irrigation, PCC, and SPEG Loans |      |     |          |  |         |                    |                              |
|---|------|-----|----------|--|---------|--------------------|------------------------------|
| Month 2014  | Date | Day | Location | Activity   | Time    | Contact            | Tel.                         |
| September   | 17   | Wed | Torgorme | Visit Torgorme irrigation scheme; meet and visit anchor farm                                       | 10.00am | Mr. Jagdish Patel  | 0549 940 606                 |
| September   | 18   | Th  | Torgorme | Visit Torgorme irrigation scheme; meet with scheme officials                                       | 9.00am  | Sammy Akargbor     | 0208 132 484                 |
| September   | 19   | Fri | Torgorme | Visit Torgorme irrigation scheme; develop monitoring procedures; Facilitator prepares focus groups | 9.00am  | Sammy Akargbor     | 0208 132 484                 |
| September   | 20   | Sat | Torgorme | Conduct Torgorme focus group discussions with scheme farmers, chaired by facilitator               | 9.00am  | Sammy Akargbor     | 0208 132 484                 |
| September   | 21   | Sun | Accra    |  |         |                    |                              |
| September   | 22   | Mon | Torgorme | Visit Torgorme irrigation scheme; develop irrigaton monitoring procedures                          | 9.00am  | Sammy Akargbor     | 0208 132 484                 |
| September   | 23   | Tue | Accra    | Consultant follow-up meeting with MiDA staff for project information and background briefing       | 9.00am  | Matthew /Abigail   | 020 2010201;<br>020 201 0408 |
| September   | 24   | Wed | Accra    | Consultant and Facilitator meet with SPEG officials; obtain loan repayment status                  | 9.00am  | Mr. Stephen Mintah | 0244 23 78 05                |
| September   | 25   | Th  | Accra    | Consultant and Facilitator meet with SPEG officials; obtain loan repayment status                  |         |                    |                              |
| September   | 26   | Fri | Accra    | Consultant analyze SPEG and EDAIF data   |         |                    |                              |
| September   | 27   | Sat | Accra    | Analyze SPEG data ; international consultant travels Accra-New York-W/DC                           |         |                    |                              |
| September   | 28   | Sun | Travel   | International consultant arrives W/DC  |         |                    |                              |
| September   | 29   | Mon | W/DC     | Meeting with NORC senior officials and MCC staff: debriefing and background review of SPEG loans   |         |                    |                              |
| October   | 6    | Mon | Away     | Consultant writes draft report on SPEG loans   |         |                    |                              |
| October   | 7    | Tue | Travel   | Consultant writes draft report on SPEG loans   |         |                    |                              |
| October   | 8    | Wed | Home     | Consultant travels home  |         |                    |                              |
| October   | 9    | Th  | Home     | Consultant submits draft report on SPEG loans to NORC  |         |                    |                              |
| October   | 10   | Fri | Home     | Consultant writes draft report on Perishable Cargo Center  |         |                    |                              |
| October   | 13   | Mon | Home     | Consultant writes draft report on Perishable Cargo Center  |         |                    |                              |
| October   | 14   | Tue | Home     | Consultant writes draft report on Perishable Cargo Center  |         |                    |                              |
| October   | 15   | Wed | Home     | Consultant submits draft report on Perishable Cargo Center to NORC                                 |         |                    |                              |
| October   | 17   | Fri | Home     | NORC submits final reports on SPEG loans and Perishable Cargo Center to MCC                        |         |                    |                              |

| Consultants' Work Schedule for Phase 1: Review MCC's Investments in Irrigation, PCC, and SPEG Loans |      |     |          |   |      |         |      |
|---|------|-----|----------|---|------|---------|------|
| Month 2014  | Date | Day | Location | Activity  | Time | Contact | Tel. |
| October   | 21   | Tue | Home     | Consultant writes draft report: Interim Assessment of Irrigation Systems          |      |         |      |
| October   | 22   | Wed | Home     | Consultant writes draft report: Interim Assessment of Irrigation Systems          |      |         |      |
| October   | 23   | Th  | Home     | Consultant writes draft report: Interim Assessment of Irrigation Systems          |      |         |      |
| October   | 24   | Fri | Home     | Consultant submits draft report: Interim Assessment of Irrigation Systems to NORC |      |         |      |
| November  | 3    | Mon | Home     | NORC submits report: Interim Assessment of Irrigation Systems to MCC              |      |         |      |

## **ANNEX 4. MEETINGS**

| People Interviewed by the Consultant                           |   |  |
|--|---|--|
| People met, and titles   | Address   | Telephone, Fax, E-mail contact   |
| <b>Millennium Development Authority (MiDA)</b>                 |   |  |
| Ms. Abigail Abandoh-Sam<br>Director, Monitoring and Evaluation | 4th Floor, Heritage Tower, PMB MB 56,<br>Stadium Post Office, 6th Avenue, Ridge, Ministries, Accra, Ghana | <a href="mailto:AAbandoh-Sam@mida.gov.gh">AAbandoh-Sam@mida.gov.gh</a><br>Cell +233 (0) 202-010408<br>Mobile +233 (0) 2160 66624 Ext. 108  |
| Mr. Matthew Armah<br>Previous Chief Operating Officer          | 4th Floor, Heritage Tower, PMB MB 56,<br>Stadium Post Office, 6th Avenue, Ridge, Ministries, Accra, Ghana | <a href="mailto:Marmah@mida.gov.gh">Marmah@mida.gov.gh</a> ; <a href="http://www.mida.gov.gh">www.mida.gov.gh</a><br>Mobile +233 (0) 20 201 0401<br>Tel +233 (0) 21 666534 ; +233-(0) 21 666 619 |
| <b>Air Ghana Perishable Cargo (AGPC) Centre, Ltd</b>           |   |  |
| Mr. Michael Maguire<br>Managing Director                       | Block 12, KIA Cargo Village.<br>PO Box 9892, Kotoka International Airport, Accra, Ghana                   | <a href="mailto:Mike@airghana.com">Mike@airghana.com</a> ; <a href="http://www.airghana.com">www.airghana.com</a><br>Tel +233 (0) 302 766 251<br>Mobile +233 (0) 244 202 721                     |
| Mr. Rob Killick<br>Business Development Manager                | Block 12, KIA Cargo Village.<br>PO Box 9892, Kotoka International Airport, Accra, Ghana                   | <a href="mailto:rob@airghana.com">rob@airghana.com</a> ; <a href="http://www.airghana.com">www.airghana.com</a><br>Tel +233 (0) 302 766 251<br>Mobile +233 (0) 242 187 777                       |

## **ANNEX 5. STAKEHOLDER COMMENTS**

NORC solicited comments on this report from Mr. Michael Maguire, Managing Director of the Air Ghana Perishable Cargo (AGPC) Centre, Ltd both through email (on February 20, 2015) and in an in-person meeting in Accra (on February 27, 2015). However, we did not receive any comments. As such, none are included in this report.