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FEED THE FUTURE GHANA AGRICULTURE POLICY SUPPORT PROJECT (APSP)

Evaluation of the Ghana Commodity Exchange (GCX) and Warehouse Receipt System (WRS) – Identifying the Building Blocks for Commodity Trading in Ghana

July 2015

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Contract No. 641-C-14-00001

This research is made possible by the generous support of the American people through the United States Agency for International Development (USAID). The opinions expressed herein are those of the authors and do not necessarily reflect the views of the U.S. Agency for International Development.

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ACRONYMS

APSP	Agriculture Policy Support Project
CBT	Chicago Board of Trade
CCP	Central Counter Party
CME	Chicago Mercantile Exchange
CSD	Central Securities Depository
DVP	Delivery-Versus-Payment
EBITDA	Earnings Before Interest Tax Depreciation and Amortization
ECE	Ethiopian Commodity Exchange
ETB	Ethiopian Birr (Curreny)
GCB	Ghana Commercial Bank
GCX	Ghana Commodity Exchange
GDP	Gross Domestic Product
GHS	Ghana Cedi
GoG	Government of Ghana
GSA	Ghana Standards Authority
GSE	Ghana Stock Exchange
ICE	Inter-Continental Exchange
IFC	International Financial Corporation
IFRS	International Financial Reporting Standards
JSE	Johannesburg Stock Exchange
LSE	London Stock Exchange
M&E	Monitoring and Evaluation
MOTI	Ministry of Trade and Industry
NDF	Non-Deliverable-Forward
NAFCO	National Food Buffer Stock Company
NRI	National Resource Institute
NYMEX	New York Mercantile Exchange
OTC	Over-The-Counter
SEC	Securities and Exchange Commission
SIL	Securities Industry Law
UNDP	United Nations Development Programme
WR	Warehouse Receipt
WRS	Warehouse Receipt Systems
ZAR	South African Rand (Currency)

EXECUTIVE SUMMARY

The agriculture sector of Ghana, which produces a variety of food crops (maize, rice, and soya bean) and industrial crops (cocoa, coffee, rubber, shea nut, oil palm), is the single most important economic sector of the nation. It employs more than half the population on both formal and informal basis and accounts for about 30% of GDP. However, the sector is unfortunately characterized by high levels of post-harvest losses, lacks a credible trading platform, and poor access to affordable finance. A commodity exchange in general has the potential to enhance the profitability of farms by reducing intermediation costs and improve financing to farmers by facilitating risk management and establishing transparent value and title of commodities. Many commentators have also suggested that an exchange will draw production to cash crops and expand the market.

Commodity exchange is not new to Ghana. The Ghana Food Distribution Corporation (GFDC) piloted a public warehousing scheme in the 1990s with financing from the Agricultural Development Bank (ADB), which owned warehouses across the country for the storage of agricultural commodities. The Ghana Buffer Stock Company (NAFCO) has been established by GoG to intervene to improve commodity market prices in Ghana. Of late, a new private sector initiative in warehouse receipt system in maize has been started and promoted by the Ghana Grains Council (GGC) with seven certified warehouses that have issued warehouse receipts with financing by the Stanbic Bank Ghana Limited and others. USAID has provided support to the warehouse receipt program through the ADVANCE I and II projects.

Ghana stands to gain tremendously if conditions exist for the establishment of a feasible exchange in the country. Commodity exchanges provide centralized marketplaces for sellers and buyers. They enable producers and buyers to discover and lock in prices well ahead of harvests and consumption - thus achieving medium-term price stability. They also attract speculators or financial operators who provide financing and liquidity, especially to smallholder farmers.

The Government of Ghana (GoG) has made efforts in the past to establish a commodity exchange since the 1990s as a mechanism to improve agriculture and to further grow the agricultural sector. The most recent attempts started from the year 2000. These involved:

- USAID/Ghana (as part of the Financial Sector Strategic Plan (FINSSP)
- Study by SEC on GCX and WRS sponsored under the World Bank-sponsored Economic Management and Capacity Building Project
- Drafts of Commodity Exchange Regulations, 2014, and Warehouse Receipts Regulations, 2014, under the auspices of the UNDP and the Ministry of Trade and Industries.
- Eleni LLC's Road Map to establish the GCX and its associated WRS
- Establishment of the GCX Project Office at the MOTI with UNDP financial support
- Stakeholder workshops and consultations
- A study tour or visit by key stakeholders to the Ethiopian Commodities Exchange.

In March 2014, MOTI requested financial support from the USAID/Ghana to implement the proposed GCX. The support was requested for the following areas: i) to build the regulatory capacity of Securities and Exchange Commission (SEC) and the Ghana Standards Authority (GSA);

ii) to build Monitoring and Evaluation (M&E) capacity to monitor and evaluate progress of the initiative, and; iii) to build capacity of farmers to link up with and participate in the commodity exchange.

Implementation of the recommendations of the previous studies and the road map have stalled because of unresolved pertinent issues like: lack of coordination between institutions that should be involved; insufficient convincing information about its viability; and uncertain political will. In this context, it has not been possible for the USAID to respond to the MOTI's request for financial support.

In October 2014 representatives of USAID/Ghana, the USAID embedded advisers at MOTI, MoF, and MOFA and the USAID/Ghana's FtF projects ADVANCE II and the Agriculture Policy Support Project met to discuss the issue of the GCX and assess USAID's potential support to this initiative. It was agreed at this meeting that the APSP should commission a scoping study to review progress so far made by GoG in its effort at establishing a GCX and to provide recommendations for a potential USAID/Ghana involvement in supporting this initiative.

Although certain key elements are not yet in place, a Warehouse Receipt System being the most significant, the GCX was launched in July 2015. As of this report, the GCX has not been launched in the sense that trading has commenced, and trading is not anticipated until well into 2016.

There is a threefold purpose for the current GCX evaluation assignment, namely:

a. Conduct a scoping study to document steps so far taken by the GoG towards the establishment of the GCX;
b. Identify the problems to be overcome to make it feasible;
c. Identify and evaluate the status of the GCX efforts in terms of international best practices, experience, standards, and road map/recommendations for successful establishment of the GCX; and;
d. Provide recommendations to USAID on how best it can support the initiative of the GCX, if deemed feasible.

Participants have mooted a regional exchange; however, this exposes farmers and others to currency risk and capital controls, therefore a domestic exchange will better serve risk management. However, as preconditions to such an exchange, Ghana will need clear objectives, appropriate regulation, effective systems (especially Warehouse Receipts), suitable contracts, domestic capacity, and market demand.

Although the exchange has already been launched but no trading has commenced, it is imperative to develop the foundational systems and regulations before commodities are traded transparently and effectivily. The exchange should principally be a private sector initiative in order to focus on reliable contributing systems, efficiency and serve market demand.

In particular, Ghana should first perfect a Warehouse Receipt System to provide confidence in title, metrology, quality and delivery, as well as to provide instruments to trade and for efficient

trading and settlement. There is a need to fast-track the completion or promulgation of the two draft regulations for the GCX and WRS. There is the need to help build the capacity of identified regulators – SEC and GSA and it is recommended that they may delegate some powers and responsibilities to entities deemed competent if need be.

The GGC appears to be on track to be a capable self-regulating independent entity. There is a strong and compelling need for more serious and collaborative stakeholder involvement, education, training, and sensitization.

We hereby also recommend that the WRS and eventually the GCX focus their energy on spot transactions but anticipate futures trading, to broaden and deepen the trading platform and enhance their sustainability. This will allow the system to demonstrate a track record of dependable spot trading with recognized price discovery as a fundamental pre-condition to futures at a later date. The Central Securities Depository and the GSE are well-resourced to play their roles in trading and settlement. The GCX and the WRS can be started together. However, it may be advisable to start and strengthen the WRS for about a year before starting the GCX.

Even though it might not be acceptable to some market participants, a partial mandate from time to time for transactions above a certain volume or by government sponsored entities for some commodities could be considered. This mandate could apply to specific selected major participants i.e. government institutions, World Food Program, and the like.

We recommend:

1. Support primarily the implementation of a Warehouse Receipt system that ensures clear title, reliable transfer and guaranteed delivery.
2. Assist the GoG in developing and putting into place the necessary institutional, regulatory and technical systems towards a sustainable commodity exchange, as identified in the present report.
3. Support required by the MoTI for capacity building or development for the intended regulators as the time nears for the exchange to go live.
4. Some of the financial institutions also need capacity building. A selected few could initially be brought on board and their success stories would rope in some of the initial skeptics.

It is our hope that the report provides a coherent, concise, and well-thought out set of recommendations to adequately guide USAID/Ghana regarding an appropriate support for the establishment of the WRS and eventually of the GCX.

1. INTRODUCTION AND BACKGROUND

Historically, agricultural sector has been the single most important economic sector of Ghana. In total (including cocoa, timber, forestry, and other economic trees), it is estimated that the agriculture sector employs more than half the adult working population on a formal and informal basis. The country produces a variety of food crops (maize, rice, and soya bean) and industrial crops (cocoa, coffee, rubber, shea nut, oil palm, etc.). Currently, agriculture accounts for about 30% of Ghana's annual GDP. When the agricultural sector's definition is broadened to include the cocoa industry, forestry and logging, and fishing, it generates over one third of Ghana's annual national output. Agriculture and livestock are the mainstays of the primary sector of the economy: the sub-sector produced 66% of the primary sector's output; however, it is responsible for almost 90% of the sector's growth. The cocoa production and marketing sector's contribution to the primary sector's growth increased during the past decade in response to increasing investment. The sub-sector has undergone several reforms in recent years to incentivize productivity gains and prevent smuggling by assuring farmers a larger proportion of international prices for their produce.

Despite the expansion in cocoa production, the broad agriculture sector's contribution to national output has decreased moderately since 1993 when it generated 41% of Ghana's gross domestic product (GDP) to 37% in 2008. This takes place while the industrial and services sectors expanded. Both of the latter two sectors' contributions to GDP increased by two percentage points to 33% over the same period. Despite its immense contributions to Ghana's economic development and GDP, over the decades, the agricultural sector has however been characterized by high levels of post-harvest losses, lack of a credible trading platform, limited access to affordable finance, and mainly subsistence level smallholder farmers. The agriculture and livestock sector (the agricultural sector's narrow definition) produces about one-quarter of Ghana's GDP.

Agriculture has strong relationship with the other sectors of an economy. As an economy develops and diversifies, the primary agricultural sector loses weight in terms of GDP but develops strong linkages with the rest of the economy. Agriculture exhibits very strong backward and forward linkages within and outside of the sector. Agriculture also supports and promotes the development of rural areas and hence the quality of rural life. Finally, the sector exhibits strong multiplier effects with other economic sectors.

Since the late 1990s, there has been a proposal for Ghana to establish a Commodity Exchange for the agricultural sector. A commodity exchange provides a centralized marketplace where producers and buyers trade in the relevant commodities. Well-functioning Commodity exchanges provide price discovery and stability as well as financial operators who inject liquidity into the agricultural sector. The establishment of competitive pricing system and the reduction of risk facing both the agricultural consumers and producers have been identified as some of the key benefits of such an exchange. This will result in the growth of agriculture and national socioeconomic development.

Commodity exchanges provide valuable market information to all the operators resulting in reduced operating costs and transaction risks. In addition, they improve farmers' access to

markets thereby enhancing their income. They also encourage and attract financial institutions to invest in the agricultural value chain. Commodity exchanges provide essential risk management tools that contribute to agricultural price stability. Successful commodity exchanges have contributed immensely towards agricultural growth and development of many nations.

Since 2001, a number of initiatives have been instituted by the Government of Ghana and some of its supportive development partners towards the establishment of the commodity exchange as a mechanism to improve the marketing of agricultural products and to grow the sector. Such initiatives have been funded by the USAID, under the Financial Sector Strategic Plan (FINSSP), the World Bank, UNDP, and other relevant development partners. A number of important and relevant workshops and stakeholder consultations have been held. A road map, proposed to be launched in 2015 was developed by Eleni LLC for the Ghana Commodity Exchange and its associated Warehouse Receipt System.

In March 2014, MOTI requested for support from USAID to implement the Ghana Commodities Exchange (GCX). The support requested is in three areas:

a. to build the regulatory capacity of Ghana's Securities and Exchange Commission (SEC) and the Ghana Standards Authority (GSA);
b. to build M&E capacity of the regulatory players or entities to monitor and evaluate progress of the initiative; and
c. to build the capacity of the relevant farmers to link up with and participate in the commodity exchange.

1.1 Current Agriculture Practices in Ghana

Despite efforts by the various Governments, since independence, to transform Ghana from an agricultural nation to an industrialized with agriculture as the backbone to industrialization, Ghana still remains essentially a subsistence level (small holder farmers) agricultural nation. Over 60% of the population lives in rural areas and about 56% are employed in mainly smallholder agriculture.

Over the last three decades, various governments of Ghana declared commitment to poverty reduction through keen focus on agricultural, agribusiness, rural development, and SME development. The Government of Ghana's 2010-2013 Ghana Shared Growth and Development Agenda (GSGDA) and Food and Agriculture Sector Development Policy (FASDEP II) for 20092015 and The Medium-Term Agriculture Sector Investment Plan (METASIP) for 2011-2015 are most recent or current indicators. This policy recognizes the importance of supporting agriculture through value chain development. As Eleni observed (2013), the establishment of a vibrant and viable Commodity Exchange in Ghana is definitely a key foundation to promote investment in the agricultural supply chain and to create a transparent, efficient, and reliable marketing structures and systems.

Currently in Ghana there are serious problems regarding agriculture operations. These include poor transportation, storage, and communications infrastructure; lack of access to market

information and expertise; limited access to financing and lack of collateral; and high transaction costs.

Serious issues that need to be addressed in Ghana's agricultural sector relates to the important role of market "queens" in the supply chain of key commodities, the lack of a nationally consistent system of unit-based weighing, measuring and grading of commodity goods; pervasive lack of trust between market actors, the lack of adequate storage and warehousing solutions for agricultural commodities, and the lack of affordable finance for small players.

In Ghana, a unique feature is the role of "market queens" in the agricultural market chain. The market queens operate almost exclusively within the informal agriculture market sector and wield incredible amounts of power that can alter the course of the availability, price, and delivery of many staple commodity goods in Ghana such as maize, sorghum, fresh vegetables, cassava and rice. Brokerage, in the formal sense, does not exist in Ghana. Rather, the market queens, especially in grain commodities, act as informal brokerage houses in that they liaise between traders and farmers, provide credit or loans both upstream and downstream of the market chain, and earn a commission per sack traded between matched buyers and sellers.

The lack of a nationally consistent system for the weighing and standardizing of the quality of produce is another serious pervasive problem in Ghana's agricultural sector, particularly amongst aggregators and farm-gate producers. Generally, most actors do not assess the quality of their produce or weigh their commodities before sale. Different qualities of produce are normally mixed and sold by volume (bag size and type) not by standardized weight or quality. There is very little use of standardized weights and measures in the trading of agricultural goods. Focus is nearly always on volume, which is related to bag size.

The few storage and warehousing facilities currently in Ghana are woefully inadequate and not equitably or strategically located – thereby denying the small-scale farmers access. In general, storage of produce is rudimentary, and leaves produce exposed to unconducive climatic conditions and environmental factors leading to high levels of degradation and loss. This denies the smallholder farmers the opportunity to maximize their benefits from proper storage and marketing management.

The GCX is indeed strategically intended to address the above deficiencies in the present system of agricultural practices in Ghana.

1.2 Purpose of the Evaluation

As discussed in the TOR for the engagement the purpose of this evaluation engagement is threefold:

- To conduct a scoping study to document steps so far taken by the Government of Ghana towards the establishment of the commodity exchange and what challenges need to be overcome to make it feasible.

- Identify the status of Ghana's commodity exchange efforts in terms of international experience, standards and road map for successful establishment of a commodity exchange
- To provide recommendations to USAID on how best it can support the initiative of the GCX.

1.3 Scope of Work

The assignment was conducted using four main approaches as spelt out in the TOR. The study validated the feasibility study done, conducted desk research, held meetings and discussions with relevant stakeholders, and performed certain technical tasks.

The focus during the assignment has been on the following:

Inception Meeting. The inception meeting was held to confirm the understanding of the assignment. This meeting took place on Tuesday, 3rd March 2015, in the offices of the Agriculture Policy Support Project (APSP) of the USAID. A report on the meeting was widely distributed.

Validation of the Feasibility Study. We have reviewed the feasibility study already undertaken to assess if it has taken into consideration all of the major pre-conditions that are necessary for the establishment of a financially, economically, and technically feasible and sustainable commodity exchange and warehousing receipt system in line with international best practices.

Stakeholder Meetings/Discussions. Face to face meetings and discussions were held with several relevant stakeholders who have been involved in the efforts towards the establishment of the Ghana Commodity Exchange and the Warehouse Receipt System at various points since the early 1990s to date. See Annex 1 for dates and specific details on the meetings with stakeholders.

Key issues discussed in meeting with stakeholders. In general, the following issues were discussed during the above meetings:

- Background information on the proposed GCX and Warehouse Receipts System (WRS) to date.
- The status of the projects to date.
- The private financial partners and their commitments to date.
- The Government's role and commitment to the project to date.
- The development of two regulations in 2014 for the GCX and WRS.
- Visits made, and workshops attended (local and foreign) by the GCX project team in relation to the project with lessons learnt by the team.
- Meetings and discussions held between stakeholders and Eleni LLC.
- Operations of GGC to date and the issue of the African Connection default.
- The political will of the government as reflected in the 2013 and 2014 national budgets and the President's State of the Nation Address of 2014.
- Capacity building required for SEC, GSA, and other probable relevant regulatory bodies in order to properly position them to play their roles as regulators.

- Advisability of a regional versus domestic commodity exchange.
- Out-sourcing of some relevant functions and operations of the GCX and WRS
- A critical assessment of the two elements involved - GCX and WRS
- The type of ownership and operation of the warehouses
- The preparedness of the Government of Ghana and the private partners under the project to commence trading in the next year in line with their own roadmap.
- The preparedness of the private partners to start and fund the projects – firm financial commitment.
- The economic and financial justifications of the Projects.
- The readiness of the other non-financial collaborators and actors to support the projects.
- Adequacy of volumes of products.
- The role of middlemen/women, market queens, and aggregators in the commodity value chain.
- Possible roles of the Ghana Securities Depository, GSA, and the GGC in the projects. - Needed sensitization and training of the farmers and traders in the value chain - Development of Spot, Futures, and Forwards markets in Ghana relative to the GCX. - Sequencing of the GCX and WRS.

Key takeaways from meetings. The following are important elements to understand the process leading to the establishment of the GCX:

- Consultants met with members of the Technical Committee for the Ghana Commodity Exchange, who have been actively involved in the efforts at establishing the exchange right from the onset. It should be noted that they knowledgeable of all the issues involved.
- According to the Technical Committee, the Ghana Commodity Exchange is ready to be rolled out by the end of 2015.
- Members of the committee revealed a number of private sector financial institutions, which are ready to come on board as investors.
- Final Draft Regulations for both the Ghana Commodities Exchange and the Warehouse Receipt System have been since February 2014 ready to go to Parliament.
- These Regulations will be riding on the back of the Securities Industry Law (SIL) Amendments, currently before the Cabinet. This amendment would require or empower the SEC to regulate the WRS and the GCX.
- Consultants were informed that the ownership structure has been concluded between the government of Ghana (GoG), other private financial partners, and a technical partner.

Desk Research. The consultants based on documents provided by APSP conducted an extensive desk research. In addition, the consultants accessed several other reports and documents on the experience of other countries that have made attempts and, in some cases, successfully established commodities exchanges and warehouse receipt systems.

See Annex II for the referenced material used for conducting the present assessment.

1.4 Methodology

The consultants used the survey method to gather data for the consultancy engagement using the following outline:

a. *Evaluation Questions:* The methodology adopted utilized interviews wherein the consultants asked direct and relevant questions of the respondents based on their presumed knowledge and familiarity with the project.

b. *Indicators*
    1. Government's political will and release of its equity investment funding
    2. Commitment of the private sector financial partners to the project
    3. Level of operation of the entities (i.e. GGC, NFS, etc.)

c. *Methods of Data Collection and Analysis:* The following methods were used, where appropriate, to collect relevant information:
    1. Face to Face interviews with relevant stakeholders – Individuals and institutions
    2. Questionnaire
    3. Web-based Search
    4. Collecting relevant material form institutions and officers

d. *Sampling:* The purposive sampling method, was used whereby only relevant actors and parties were selected based upon the consultant's knowledge of their involvement – direct or indirect.

e. *Preliminary Findings:*
    1. The Government has the political will and seems to be interested in the project
    2. Government plans to launch the exchange by the end of 2015
    3. GGC appears ready to undertake the warehousing and receipting system
    4. There is no indication that the necessary ICT for the exchange is in place or is being currently developed. The need for such a platform is very well understood and appreciated by all.
    5. Information gathered revealed that plans are in advanced stages for commissioning a foreign consultant to develop it.

f. *Limitations to the Evaluation:* Difficulty in scheduling meetings and in getting access to some officials (especially the Ministry of Food and Agriculture). In the end we were directed to meet with the National Food Buffer Stock Company and ADVANCE. A renowned Ghanaian in commodity exchange is currently working in Rwanda. All attempts to reach him proved futile.

1.5 Work Plan

The assignment officially started on 27th February 2015. It is expected to take 20-man days (160 hours). It is also expected to be completed over an 8-week period ending on 30th April 2015.

1.6 Expected Output

The Consultants are expected to prepare a report that will address the following:

a. The background to the project and its current status;
b. Assess the feasibility of the Ghana Commodities Exchange (GCX) based on the previous studies and the Consultants' knowledge of similar exchanges;
c. Identify recommendations on possible interventions by USAID/Ghana that will assist the GoG in developing and putting into place the necessary institutional, regulatory and technical systems towards a sustainable commodity exchange.

2. REGIONAL VERSUS DOMESTIC EXCHANGES

There are two ways that commodity exchanges are operated, i.e. domestic or regional. The choice is fundamentally philosophical and contextual. An elaborate discussion is in order for education purposes and full disclosure.

There are three strong arguments against relying on a regional exchange or offshore trading for Ghana. First, Ghanaian farmers would be at risk of capital controls imposed in the host country of another exchange. Second, traders would be at risk of capital controls imposed in Ghana. Third, trading elsewhere would expose Ghanaian farmers, many of who are small and medium enterprises, to currency risk. All of these risks are exponentially compounded in the case of offshore derivatives where contracts span a period of time.

If a farmer in Ghana sells his maize on an exchange outside Ghana, the proceeds of the sale become subject to the local jurisdiction. If at that time the offshore central bank (say Nigeria for example) forbids sales of its host currency (the most common type of capital control), that is the currency of exchange for the trade, the farmer holds a blocked asset. Unless the farmer has a use for some product of the offshore jurisdiction that has some barter value in Ghana, his proceeds are of little value to him. If the commodity sale represents a large part of his harvest, and it likely would be all of it, the farmer may face serious financial problems or even bankruptcy.

Where a buyer looks to buy on a regional exchange domiciled elsewhere, he risks capital controls either in Ghana or the host jurisdiction. Most well-managed exchanges require some form of pre-deposit, if not explicitly then through a bank guarantee. With foreign exchange controls in Ghana, the buyer could or may not meet the trading criteria at an offshore exchange. He could not fulfill the trade itself if he cannot sell GHS for the currency used on the exchange. A seller would have similar problems if he wants to enter a derivatives contract. That is because a well-run derivatives exchange would require margin against a position, as well as potentially daily incremental margin if the contract moves against the farmer. Capital controls in Ghana would make this impossible or at least administratively difficult. The continuously weakening or depreciation of the Ghana cedi would play havoc on the Ghanaian farmer or trader in this context.

Even without capital controls, offshore trading carries currency risk. There is not enough liquidity in GHS to use it as a means of exchange outside of Ghana. Therefore, an offshore exchange will

most likely only accept, and pay, in its home currency or perhaps a global currency. Further, an exchange could be a systemically important institution and if not, its clearinghouse probably will be. Therefore, regulators are likely to discourage positions in currencies not economically available at or to the host central bank. This means that Ghanaian farmers, using an offshore exchange, will be buying and selling currencies, even in the spot market. It would be unwise and impractical for small and medium scale farmers to operate in the currency markets. Furthermore, we are told by the Ministry of Finance and Economic Planning that some currency forwards contracts have been entered into by banks for corporate customers but that there is very little liquidity in that market. Therefore, hedging of currency risk is essentially not generally available to SMEs and only intermittently available to even large traders in Ghana.

The currency risk is exacerbated for derivatives trading, even if intended as a commodity hedge. If a farmer wants to enter a commodity derivative, it would be denominated in another currency, leaving him exposed to exchange rate risk over an uncomfortable period of time. Most commodity derivatives entered as hedges will span a growing season, usually three and possibly six months. For African currencies, that is a very long time and a serious risk that small farmers will not have the expertise or tools to manage. This may however offer an opportunity to the exchange to introduce currency derivatives at a later date.

It will however be in the best interest of the market and farmers, especially, to allow for crossborder arbitrage. If commodities are trading higher in another market (after adjusting for transport and other relevant differences), we want farmers to benefit from better prices. It is not necessary for every farmer to use offshore exchanges in order to transmit those prices however. In view of the risks described above, we want to permit offshore trading but not rely on it, and not leave farmers with risky offshore trading as their only option. By liberating the market, only a few or even one trader can transmit prices via arbitrage. If the price of maize in say Lagos is 10% higher than in Accra (after adjusting for transport cost) a trader who is a member of both exchanges can buy in Accra and simultaneously sell in Lagos. If done in sufficient quantities, this will cause prices to clear, that is, the price in Accra will rise and that in Lagos will decline until convergence is achieved. Even a single trader could affect this result. However, the strategy should be available to all (assuming they can meet the membership criteria of both exchanges). The arbitrageur(s) could be from Ghana, Nigeria, or any other third country.

The above then supports the argument for a market structure where Ghana has a domestic commodity exchange, trading in GHS, but that is open to any trader (foreign or domestic) who can meet the basic membership laws, rules and requirements.

3. PRE-CONDITIONS FOR STARTING A SUCCESSFUL COMMODITY EXCHANGE

Given the unpredictable economic and financial environments in many developing nations, especially in Africa, and the international nature of starting and operating commodity exchanges and warehouse receipt systems operate, it is important that all the necessary pre-conditions are satisfied, to a very high extent, before any commodity exchange begins trading in any of these nations, like in Ghana.

3.1 Conditions as established by Relevant Research

Experts in the industry and research institutions such as Ian Goggin, USAID COMPETE, and Michigan State University, have developed comprehensive and coherent sets of conditions that must be satisfied before commodity exchanges are started in African nations. In all, at least ten integrated pre-conditions have been identified. The specific conditions identified by the above experts are:

i. Clear objectives
ii. Good governance structure and systems
iii. Strong industry or stakeholder buy-in iv. Enabling environment and infrastructure (self-regulation for flexibility and government interference and market interventions)
v. Well-designed trading and clearing systems
vi. Clear rules with consistent enforcement
vii. accurate contracts
viii. Extensive and continuous education and training of all stakeholders ix. Relevancy and adaptability
x. Large volumes of commodities traded (quality and quantity).

The essence of the above pre-conditions is to ensure that the exchange is truly open and organized to ensure that ownership, titles to standardized quantities of specific quality commodities are traded by members or registered brokers at specified spot prices or futures and forward market basis.

Ensuring that all the pre-conditions are satisfied guarantees reduced cost of operation for all in the value chain - from producers and traders (intermediaries) to processors and finally the consumers. In Africa, with so much uncertainty, a properly established and managed commodity exchange would ensure that farmers or producers are linked to the relevant markets to create price discovery in the most transparent market place. It would also ensure that there is vibrancy, efficiency, and credibility.

In addition, such an exchange, when supported by a credible warehouse certification and receipting system ensures and enhances market access, volume, product quality, liquidity, credibility, high patronage, and sustainability of the system as a whole. In effect, these lead to economic development for all stakeholders and the nation as a whole.

In conclusion, the pre-conditions for the development of a commodity exchange, simply rests on the real willingness of the politicians, a sound legal framework, sound infrastructure, and a real interest from the exporters, traders and producers.

The authors concluded that:

- *"It is not necessary for all of the above factors to be in place before donor organizations can meaningfully support the development of agricultural commodity exchanges. The important point is to conceive of support for commodity exchanges holistically, recognizing that all commodity exchanges operate within a system, and that support for overcoming weak aspects of the grain marketing system will be needed as part of a comprehensive program to support the development of agricultural commodity exchanges.*
- *Development partners can play a catalytic role in supporting the development of agricultural commodity exchanges as long as there is sufficient commitment, first from actors in the financial and commodity sectors, and secondly from governments to ensure stable and predictable commodity marketing and trade policies.*
- *Development partners could assess, on case-by-case basis, the degree to which this commitment exists. In the more favorable countries, donors could provide interim support for the basic "nuts and bolts" strengthening of the grain marketing system (e.g., warehouse certification services, collateral management and settlement services, contract dispute resolution processes, investments in transportation infrastructure), while also nurturing the status of the six conditions specified above."*

3.2 Status of the Pre-conditions in Ghana

The following summarizes the status of Ghana's progress towards an efficient commodity trading scheme:

GHANA COMMODITY EXCHANGE	
PRE-CONDITIONS FOR START OF COMMODITY EXCHANGE	
ASSESSMENT OF GHANA'S PREPAREDNESS	
PRE-CONDITION	**ASSESSMENT**
Clear objective	Government's objective is clear – economic growth
Enabling policy and infrastructure	Consistent government policies on agriculture, no commodity exchange legislation WRS is not yet capable to support volume trading or efficient settlement
Good trading systems and efficient clearing	Systems are to be developed but must be robust, flexible, reliable and trusted
Clear rules and consistent surveillance for integrity	Government regulation not yet in place
Correct contracts (products)	Informal only; not sufficient to support exchange trading; market demand is not determinable since system is not yet operating
Constant education	Inadequate sensitization, education and publicity at the moment (as to warehouse receipts and exchange trading)
Committed staff	Staff yet to be engaged; must be knowledgeable and committed to international best practice
Adaptable and relevant (transparent price discovery)	Recent history indicates a good record of learning from mistakes
Several pre-conditions are not satisfied as of now. Planning is starting to satisfy those pre-conditions	

4. CHALLENGES/BEST PRACTICES IN COMMODITY TRADING SYSTEMS

In any system, there are always unanticipated and unavoidable problems and challenges as well as there are best practices that have been developed and perfected. A summary of the relevant challenges/best practices follows.

4.1 Commodity Exchanges

Pricing: There is the likelihood of inefficient price discovery mechanism. The farmers may produce and sell their crops at prices based more on how desperate they are for cash at the time and may therefore not play a role in determining the price of the crops being traded. This may be true even if the crops are subject to premium in the international market.

Correct Contract:

- In an efficient system, farmers will know whom they are selling to and there would be formal delivery contracts. In this environment, the exchange will help ensure quality of the produce, especially if it is intended for the international market.
- Achieving a very high level of honesty, integrity, and fair dealing.
- Traders or intermediaries have been and are making good margins currently with the inefficient aggregation system, which are only likely to decline in the short run with the warehousing system.

Traceability /Quality: In the envisaged Ghana commodity exchange system, traceability could be a problem due to the small-scale nature of most farmers and farms. This may also be a problem if there is no differentiation and sampling of products.

Volume: The market and the volumes of the produce being targeted in Ghana may not create the required economies of scale and liquidity envisaged in the short term (2 to 3 years).

Infrastructure:

- Ghana's agricultural infrastructure is generally seen as poor. Currently, storage structures in certain cases need to be upgraded to meet acceptable standards.
- The consistency of legislation and government policies relating to agriculture, finance, trade, and other macro-economic issues.
- Infrastructural issues i.e. roads, warehousing, machinery and equipment, etc.
- The need to establish the infrastructure and systems needed to promote quality products and warehouses to improve cleaning, drying, and storing of products and to enable the producers to aggregate products for the warehousing purposes.
- Required investment in warehouses, plant and equipment, at suitable locations for the convenience of the smallholder farmers and traders.

Market Support:

- The readiness of the market - from the perspective of the farmers and the traders

- The readiness of the various actors i.e. government, private sector participants or investors, the banks, insurance companies, producers, traders, and processors, where necessary for the kick-off.
- The preparedness of the intermediaries and aggregators to come on board.
- The extent to which the farmers are prepared to get on board in the absence of the intermediaries and aggregators.
- A regular and vibrant market to gain current pricing information and to facilitate trading or exchange of the products.

Education/communication: Access to real time pricing, volume, and value information.

Policy/Rules/governance:
- Government being fully on board and prepared to provide the appropriate environment that will ensure the efficient functioning of the exchange and the warehouse receipt system.
- Governance and the relationship between the individual private sector participants or investors.

*Trust***:** The ease and candour with which information, messages, and other relevant issues are transmitted to the farmers in the rural areas.

4.2 Warehouse Receipt System

Essential factors needed for a trusted, viable, and vibrant commercial warehouse receipt systems include:

*Public confidence***:** Public confidence in the warehouse systems and receipts to exude safety and security.

*Trust***:**
- The authenticity of the receipt and the certainty of warehouse withdrawal request being honored with precisely what is recorded on the receipt.
- Building this trust in an environment and industry of nearly complete mistrust and distrust requiring a strong commitment to honesty and integrity by all.

*Trained and Committed staff***:** Issues of quality and accurate weighing depends on the quality of the testing and laboratory staff and accuracy of the scales to be used for weighing.

Market Support and other services:
- Pricing information needed by all – producers, traders, bankers, insurers
- Bank financing issues – to ensure that the banks will be the first priority and titled to the proceeds to satisfy the debt in the event of a default.
- In Ghana there are thinly capitalized traders some of who must obtain contracts before getting financing.

- There are excessive delays by banks in processing loan applications that in effect negate the need for the loan.
- There are several tradable commodity-producing areas not currently served with warehouses or adequately maintained infrastructure, like good roads, railway systems for bulk haulage, electricity, etc.
- Given the usually conservative and over cautious financial system in Ghana, the novelty of these commodity-trading mechanisms may prevent adequate number of financial institutions from coming on board at the beginning.

Marketability: Liquidity of commodities, with willing buyers purchasing the commodity under receipt and enabling producers and bankers alike to liquidate their stocks as needed.

Volumes:
- Farmer aggregation – small farmers will need to pull together or aggregate their produce to achieve higher volumes and higher cash prices, than from the small traders.
- In the absence of trading volumes, it is doubtful as to the extent of real preparedness of Ghana in establishing a Commodity Exchange.

Tackling on these challenges and implementing the above-identified best practices are indeed paramount to the success of these commodity-trading mechanisms. The absence of these best practices could retard the systematic and sound development or commencement of trading on the GCX and WRS in Ghana.

5. WAREHOUSE RECEIPT SYSTEM (WRS)

A warehouse receipt is a document issued by a licensed warehouse operator certifying the quality and quantity of a specified commodity placed by a named depositor into a secured storage environment. Receipts are either negotiable or non-negotiable and serve as both trading and financing instruments.

The WRS is an important tool for increased flexibility in marketing decisions and financing for farm operations. It is a certificate of legal ownership of a commodity stored in a specific location and is of specified quality and condition. It enables buyers to buy without the need for physical inspection. It also enables goods to be sold multiple times before actual physical movement. They are not an isolated service or function; rather they derive service based on a well-functioning and transparent transaction system. They require a stronger commercial focus.

5.1 Overall Impacts of the WRS

In general, warehouse receipt systems can:

- Improve farm income and smooth domestic prices by providing an instrument to farmers to spread sales of their produce throughout the crop year
- Mobilize credit to agriculture by creating a secured collateral for banks or financial institutions

- Help to create cash and forward markets and thereby enhance price discovery and contract completion
- Provide a way to gradually reduce the role of government in agricultural commercialization
- Combine with price hedging instruments to predetermine the cost of future purchases or sales.

For all the above impacts from the WRS, there is a need for viable storage industry, an appropriate legal environment and regime, performance guarantees, professional inspection and active licensing, and vigorous monitoring and evaluation.

5.2 Reasons for failure of WRSs

The following have been identified as the important reasons for the failure of smooth operations of many WRSs:

- Lack of a coherent, national, transparent, and volume-driven commercial market for the commodities.
- Lack of uniform standards or grades for quality determination.
- Limited commercial confidence in and demand for the WRS.
- Little support from the financial sector to adopt the WRS as a financial product or credible financing tool.
- Lack of Agricultural Credit Act or legislation, which increases the reluctance of the financial sector to participate.
- Mandating a focus or depending on smallholder participation, which could not bring on board the volumes needed to shift towards greater transparency and market-driven mechanism.
- Excessive focus on financing to the neglect of trading.
- Limited buy-in from the financial sector.
- Excessive donor orientation of directly and exclusively focusing on smallholder warehouse receipting for purely poverty alleviation but not the larger agricultural market development focus.
- Poor management and service delivery by the operators leading to government interventions, which may compromise the independent position of the system.
- Constraints that may be in the system include:
  i. Multitude of market imperfections, which stifle growth in the wider agricultural sector.
  ii. Instability, which creates short-term time horizon for return on investment. iii. Poor market information or intelligence. iv. Limited data or trade flows. v. Large informal sector.
  vi. Poorly defined industry wide quality standards. vii. Poor communication systems and structures. viii. Low levels of trust and transparency. ix. Limited enforceable or dispute resolution mechanisms.
  x. High transactions costs associated with the risk of quality variations.
  xi. High cost of physical movements of goods.

5.3 Conditions for a successful WRS

A warehouse receipting system by itself does not create an orderly commodity market. The WRS is rather a product of an orderly commodity market. The warehouses must be seen as truly public facilities for farmers and traders to deposit and store crops in the safest and trusted possible environment. A successful WRS depends on the following:

- Creating incentives for transparent and volumes-based commodity trade; this is needed for 'sight-unseen' commodity trade
- Focusing initially and first on establishing the credibility of the receipts based on utmost trust; and ensuring and promoting the importance of the warehouse receipt system for smallholder and emergent farmer inclusion for trade confidence.
- Warehouses operate well as private registered and licensed companies which provides physically secure storage facilities.
- It must also have well-trained and professional staff. For the needed trust and confidence in the WRS, the regulators must ensure that the operators and their staff are adequately trained.
- Facilities must be secured and properly insured.
- The warehouse must provide sound and credible operating, storage, and documentation procedures
- The warehouse needs to provide robust certification, oversight, and inspection capacities;
- The system must maintain credible database of all documents
- The system should be able to authorize all withdrawals from the warehouse
- The system should provide a trading platform for sale of the underlying commodities.

5.4 Observations from the establishment of Warehouse Receipts System

The following are some of the observations involving the establishment of warehouse receipts systems in selected nations, which can—if overcome successfully—serve as best practices for emulation by Ghana:

- Most pilot projects to establish warehouse receipts system started while the legal frameworks were still in the process of being developed. These projects relied initially on contractual arrangements between farmers, banks, and warehouse operators.
- Pilot projects, at least in the early stages, very much relied on already established relations between banks, warehouse operators, processors, and farmers. The credit-worthiness of the warehouses and the farmers is crucial. The success of the system depends on whether the banks trust the system enough to lend to it using the receipts as collateral.
- In some countries, the establishment of a warehouse receipts system attracted foreign banks and contributed to the lowering of interest costs to finance agricultural inventories.
- Banks usually advance around 60% of the value of the collateral.
- In systems that opt for a two-part warehouse receipt, the banks usually require both parts of the receipt – title and pledge.
- In most countries, government agencies have good knowledge regarding the inspection of physical warehouse structures i.e. building, machinery, equipment etc. However, there is generally a lack of skills to perform financial inspections and in making sure that the

warehouses keep the appropriate records, such as accounting books, internal controls, receipts, disbursements, etc. In some countries, foreign inspectors and consultants assisted in the initial warehouse inspections.

- Performance guarantees are still an unresolved issue in most projects to establish a warehouse receipts system. Local insurance companies are often sceptical and not ready to issue insurance bonds against negligence and fraud by the warehouse operators. Lack of resources and unresolved issues related to the legal or institutional arrangements have constrained the development of indemnity funds.
- Training and awareness raising, and creation are extremely important. Pilot projects provide for extensive educational seminars for farmers, warehouse operators, banks, insurance companies, and government agencies.
- Government policies play a crucial role in ensuring the success of warehouse receipts systems (economic, fiscal, legislation, agricultural, trade, foreign exchange etc).
- High government support prices and state purchases reduce the profitability and incentives to store commodities. High real interest rates also have similar effects.
- In some countries, the establishment of a warehouse receipts system was centered on a local bank that chose warehouses to provide financing for. Thus, the banks played the role of the warehouse inspector and licenser, at least in the initial stages.
- In other nations, the warehouse receipt system was established using a 'task force' approach, in these cases, all relevant parties (warehousing companies, banks, government agencies, farmers, insurance companies, traders, etc.) were involved from the beginning to establish a system with a broader acceptance.

5.5 Lesson Learnt from these Experiences

A review of the WRS in many parts of Africa and other comparable developing nations revealed the following lessons (positive and negative) worthy of attention by Ghana:

- Systems not linked to strong and transparent commodity markets.
- Concentration on enhancing the involvement of the smallholders in the WRS without first establishing the credibility of the system within the agricultural and financial industries for needed viability.
- WRS are not often derived from a transparent trading system that fosters high volumes of transactions.
- Need to increase or develop trading efficiency.
- Need for volume-based trade with long-term outlook.
- Need to focus on both the smallholder and the commercial industry segments as a long- term plan
- The high transaction costs involved in smallholder ventures and commodity exchanges.
- Greater price discovery is an immediate and profound benefit to the system.
- Bulk crops can be defined by acceptable standards, storage safety, and traded when needed.
- Warehouse receipts are not currently recognized by law as valid document of first title or ownership on a particular commodity. Therefore, financial institutions are hesitant to lend against them.

- Attempts to change the mindset of all financial sector players is often counter-productive as opposed to working closely with two or more of the more innovative banks and insurance companies and using competitive pressure to effect change over time.
- A warehouse receipting system can be a more robust and sustainable function if it is built around an existing marketing system, and not just considered as a financing option.

5.6 Benefits of an Efficient WRS for economic and social development

A well-operating WRS provides significant benefits to the commodity market, the farmers, small traders, smallholders, and the nation:

- To the markets, the benefits include increased efficiency, confidence in dealing with the lower end of the commodity market, aggregation of crops in secure and accessible sites, and reduction of transaction costs of trading smallholder crops.
- To the farmer and small trader, WRS results in reduced post-harvest losses, enabling crops to become commercial through quality and quantity certification; rewards quality and reduces unnecessary discounting; and allows access to and participation in the commodity exchange.

Most donors—who are justifiably concerned with poverty reduction and income enhancement for the poor—are very much concerned about the benefits of the system for smallholder farmers which could be summarized to the following:

- Provision of transparency of operations and price discovery
- Removal of all position-takers between the farmer or trader and the end market
- Provision of the best possible market price under prevailing market conditions
- Substantial mitigation of transaction risks, empowering the farmer to evolve or progress from a price-taker to a price-setter; and,
- Creation of the opportunity to access credit from the financial institutions.

5.7 Way forward towards an Efficient WRS in Ghana

The following are "must do" undertakings:

- Building confidence in the entire agricultural market to provide incentives to store crop and reduce seasonal unexpected and wide price fluctuations
- Incorporating warehouse receipts into law – Agricultural Credit Act; and
- Need for Agricultural Marketing Act to provide a statutory muscle to oversee a vibrant commodities storage industry.
- With market confidence in the receipts and legal backing, financial institutions would adopt the warehouse receipts as secure collateral, and major domestic buyers would be encouraged to use the warehouse receipts to buy and store the commodities.

6. REGULATIONS

6.1 Ghana Commodity Exchange

Considerable effort has been made towards the development of a legal framework for the commodity exchange in Ghana. A February 2012 Progress Report on the Development of a Legal and Regulatory Framework for the Establishment of a Commodities Exchange and Warehouse Receipt System in Ghana by a Team led by Wlodzimier Jozef Rembisz revealed the following:

- A significant portion of the (current) amended Ghana Securities Industry Law (SIL) as it relates to the establishment of an exchange, licensing, conducting of securities business, reporting requirements, and trading in securities would equally apply to the proposed GCX and relate to a WRS. The only proviso is that the SIL makes provisions for a commodities exchange and recognizes commodities as securities and warehouse receipts as tradable negotiable instruments.
- The current amended SIL must be amended further to provide for the establishment of a commodities exchange, which was neither envisaged when the SIL was promulgated in 1993 nor in the year 2000 when Act 590 was passed into law to amend the SIL.
- The enactment of the GCX Regulations will create an orderly, transparent, and efficient marketing system for Ghana's key agricultural commodities to promote agricultural investment and enhance productivities. The passage of this will create the requisite legal framework for the establishment of a Commodity Exchange in Ghana.

In view of the above, the SIL (as amended in 2000) is currently in the process of being further amended to incorporate the above and specific contents for the regulation of the WRS and the GCX have been formulated but not passed yet. From the consultant's technical perspective, the drafted regulations seem to cover the necessary and essential issues that must be addressed by legislation dealing with the exchange and the WRS. In essence, they seem to be in line with international best practices. It should be expected that the final draft should not interfere with the smooth and free running of the exchange and WRS.

6.2 Warehouse Receipt System

According to the draft regulations, the enactment of the Warehousing Receipts Regulations will lead to the following outcomes:

- Increased credit to agriculture by creating secure collateral for the farmer, processor, and trader.
- Smoothened market prices by facilitating sales throughout the year rather than just after harvest.
- Reduced risks in the agricultural market
- Improved food security and credit access in rural areas
- Lower post-harvest losses due to better storage conditions, and:
- Lower transaction costs by guaranteeing quantity and quality, among other things.

Specifically, the 2014 Draft Warehouse Receipt Regulations will provide the legal framework required for the regulation of warehouses; licensing criteria for the warehouses, warehouse

operators, and warehouse receipt systems; and issues relating to liabilities of parties in a warehouse receipt system. The above provisions also seem to cover the necessary and essential issues that must be addressed by legislation dealing with the WRS. They also seem to be in line with international best practice.

As examined by the consultants, the 2014 Draft Regulations include the most important elements that will contribute to the well-functioning of the WRS as indicated in Section 5 above.

7. OWNERSHIP STRUCTURE

A commodity exchange is a serious business. To be successful, it needs to be efficient and attract reasonable trading volume. Excessive government involvement will lead to building an edifice that is highly visible but is not structured to optimize commercial prospects. In fact, many countries have announced and even begun commodity exchanges without attracting any volume. However, because of the high fixed cost involved in operating commodity exchanges, this is not a sustainable strategy.

7.1 Considerations on a private corporate structure

A corporate structure with private shareholders will ensure a sound commercial approach to the market. In particular, in order to protect their investments, shareholders will agitate for the lowest cost, lowest risk business model, and for products and services that will serve the market and therefore attract customers. Consistent with that approach, the exchange should seek to outsource processes wherever possible. This will reduce the upfront costs of the exchange and facilitate speed to market for its services, both of which will reduce risk to the investment.

The GCX should be organized as a profit-making corporation owned by shareholders. Some government ownership is supportable as there are both microeconomic and macroeconomic benefits to the nation from a commodity exchange. In particular, the likelihood that the security of a sound warehouse receipt system and predictable commodity prices will attract finance to the agricultural sector is an economic benefit that is not captured by the profit motive of an exchange.

7.2 Inquiries into the Ownership structure for the GCX

Our discussions with the GCX Project Office are consistent with a mostly private sector structure. GCX has received investment commitments from a broad group of banks, funds, international organizations, foreign exchange operators, and the government of Ghana. Commitments total $15 million, of which the government represents about 10%. No one shareholder would have control or even a blocking minority. We understand the group includes Ghana Commercial Bank, EcoBank, Eleni, and IFC. This is a very sensible structure.

We enquired about any conditions precedent to the consortium completing its investment, and gathered that essentially, there are three:

- First, the exchange must be incorporated as GCX or under any other preferred name.
- Second, the draft regulations on the Commodity Exchange and the Warehouse Receipts System must be passed by parliament.
- Third, the "technical partner" close on its investment. The technical partner is Eleni, an Ethiopian-based consultancy that is owned by the entrepreneur who founded the Ethiopia - Commodity Exchange.

We also investigated about the role and rights of Eleni. We were told that Eleni shall have no special powers other than to make recommendations and will be no different than any minority shareholder. However, the requirement of the other shareholders that Eleni be invested raises a question about its role. If Eleni is to have no greater role than any other minority shareholder, what specifically is its investment, as opposed to any other minority investor, a condition precedent to funding? At a minimum, we suggest that any related party payments should require approval of a special committee of the board to be established to research such relationships and consider third party alternatives.

7.3 Recommended Ownership Structure

Based on the aforementioned-considerations, it is suggested therefore that GCX be owned by a broad group of private shareholders with the Government of Ghana in a very small (about 10%) minority shareholding position.

No individual shareholder should be allowed a controlling position, at least in the early years, to ensure that the exchange serves the entire market and is not seen as a captive of any large trading house.

Below is a table reflecting the anticipated ownership structure of the proposed GCX. It is important to note that the named investors have at this stage indicated their commitment to invest. They have signed onto a letter of intent.

EQUITY INVESTOR	**PERCENTAGE**
Government of Ghana	10%
Ecobank Ghana Limited	85%
GCB Bank Limited	
International Finance Corporation	
8 Miles Fund	
Eleni (Mauritius) Limited	
Investor (TBD)	
High Net-Worth Investor (TBD)	
Employee Equity Pool	5%
TOTAL	**100%**

8. TRADING PLATFORM AND SETTLEMENT

8.1 Trading Platform

Historically, commodity exchanges, as with other exchanges, began with "open outcry" trading. Because electronic trading is inexpensive at the margin, and does not require a physical presence, it is more likely to attract more interest and therefore volume. A commodity exchange in Ghana has a greater chance of success to draw sellers and traders if it can be accessed remotely without the time and physical commitment of traders and broker staff.

Most exchanges purchase trading systems and configure them to local law, regulations, and market conditions. These systems range in price depending on features and scalability. Across the business model, GCX can lower its required breakeven level of trading volume by outsourcing as many processes as possible. Order matching and pre-trading systems could readily be outsourced to the Ghana Stock Exchange (GSE). However, any electronic system and the GSE in particular, will require that the commodities first be de-materialized. This means that a reliable Warehouse Receipts system is an **absolute pre-condition** to utilize a modern trading platform in Ghana.

8.2 Clearing and settlement

The integrity of the market and its continued operation are particularly tied to clearing and settlement. If there is failure to settle a trade, then one party may have lost a valuable asset, both parties may find themselves still holding the wrong asset and both parties may be uncertain about their positions. This will quickly cause an exodus from the market and the exchange may collapse.

The most secure form of settlement is Delivery Versus Payment (DVP), where each party to a trade hands over its consideration simultaneously. In the spot market, once that has happened, the trade is settled and neither party nor the exchange has any risk. If the market trades e-WRS this can be achieved with security and efficiency.

Defaulting on a trade can have a significant cost and carries heavy sanctions, usually including prohibition from trading in or expulsion from the exchange. If the warehouse receipt exists in book entry form and digitally, and is issued by a reliable party, then settlement becomes no different than a share purchase or sale. In that case, DVP is conducted electronically and instantaneously with very little risk.

Another systemic protection against trade defaults is pre-trade authorization. This can also be done nearly instantaneously in an electronic system. Basically, the exchange's pre-trade system queries its records to determine if the trader has the assets to complete the trade. Similarly, the selling member may have its product segregated to guarantee the trade (that is an electronic lien is placed on his/her warehouse receipt at the depository).

With highly integrated software systems, the exchange, settlement center, clearing members, and even customers can execute trades, settle, see results, and withdraw assets quickly and with confidence. The investment for such systems represents an upfront major or big fixed cost. A way to achieve economies of scale without volume in the short term is to outsource certain

processes. Many exchanges outsource settlement as it is a specialized function requiring special capabilities and competencies. In addition, a settlement center usually requires a banking license because it sometimes holds customers' deposits and makes payments. This feature is a barrier to entry and an added regulatory burden.

One option for the GCX is to outsource pre-trade authorization and order-matching to the GSE. GSE has an operating system to provide these services for fixed-income and equity trading that is scalable. In addition, GCX could outsource clearing and settlement to the Central Securities Depository (CSD), which has a developed settlement system to provide T+3 settlement. CSD utilizes a Millennium IT system for clearing and settlement. Johannesburg Stock Exchange (which includes futures), London Stock Exchange, and ICAP also use this system.

In discussions with the GCX Project Office, we heard conflicting indications about these processes. Some have agreed that outsourcing is the intended route. Others have suggested that the GCX could either purchase or even build its own integrated depository, trading, and settlement systems. Outsourcing offers the benefit of quicker market entry, known and tested systems, and lower breakeven point

In order to attract both buyers and sellers to the market, the physical infrastructure needs to parallel their business models. That is the warehouses need to be at transportation hubs that approximately suit the needs of both farmers and shippers. In the physical domain, this minimizes the time and inefficiency for delivery. It also benefits virtual or electronic trading as it is easier to deposit commodities and create negotiable warehouse receipts.

9. THE CASE FOR FUTURES

9.1 Futures contracts (Derivatives)

Ghana can add futures contracts (derivatives) to its commodity exchange with only a relatively modest incremental or additional cost. Many of the systems used for spot trading could also be applicable to futures trading. The principal difference is that a futures contract spans a period of time during which a party must perform a substantial financial transaction. This introduces credit risk or counterparty risk, which in a well-designed spot market, essentially does not exist.
Derivatives are a classic example of a financial market response to a set of problems in the real economy. They constitute an important and constructive business tools to improve the predictability of many economic events, manage risks, and safeguard investments. Risk and uncertainty are disincentives to business expansion and investment. However, they are rife in the volatility of currencies, commodities, interest rates, and many other revenue and cost components. If that volatility can be controlled or muted, economic expansion, job creation, and increased investment can be encouraged. This should attract more financing to the Ghanaian agricultural sector as lenders are able to offset risk directly by buying a future on their collateral or indirectly by requiring their borrowers to do so.

The size and breadth of the market, combined with media attention during and after the 2008 global financial crisis, gave the impression that derivatives are complex and risky. However, while

some are structurally complicated, they are typically straightforward. It is a contract between two parties the value of which is related to, or derives from, another specified asset.

If the underlying asset is a physical asset, such as oil or wheat, considerable detail must be established on an exact description, including quantity, quality, location, and delivery terms. Where the underlying is an intangible asset, such as currency or equity shares, the delivery mechanism is much simpler, usually electronic. If actual delivery is not intended or is restricted, then a derivative can be structured as Non-Deliverable Forward (NDF) and the parties settle the difference between spot market and strike price at expiry in an agreed currency, not in the underlying asset.

Where derivatives are meant as hedges, the concept is that the derivative has the opposite risk of the existing business risk. The fact that derivatives, whether used as an investment or for speculation, are volatile does not discount their role in managing risk. In order to encourage the market and offer greater liquidity for those that are hedging, it is useful to have the widest possible participation. Therefore, neither speculators nor foreign traders should be barred from participating in the market, except for reasons of credit quality or market concentration, which are applicable to all traders.

Speculators and foreign traders, especially, can provide the very useful function of arbitrage. If the price of maize is higher elsewhere, adjusted for transportation and other relevant differences, then foreign traders or large domestic traders, can buy in the Ghana market and sell in the foreign market. They will do so in volume until the price, net of transportation differences, converges.

9.2 Risk management

There is a natural tension between attracting market volume and risk management. In order to provide for best price discovery and liquidity (the availability nearly continuously of a bid and offer) a market would benefit from the broadest possible participation. However, to ensure that trades are completed fairly and settled as intended, rules are necessary.

The first line of defense in risk management is access to the exchange. Members must meet certain net worth requirements depending on their role in the market. Trading members may be required to execute their trades through a broker or clearing member, who in turn guarantees their side of the trade. The best protection for an exchange is to match orders and quickly settle the trade by delivery or payment. This ensures that the exchange's role as intermediary is as short as possible. Hence, clearing and settlement become central to the integrity of an exchange.

In its attempt to establish a commodity exchange and warehouse receipting system, Ghana has an opportunity to benefit from some of the mistakes in and by other countries and design a market structure that mitigates the principal systemic risks of derivatives. It is not possible or desirable to eliminate risks of the derivative contracts themselves as they are designed to transfer risk which implies that some investors avoid risks while others take on or assume risks. The aim is to have a viable functioning market which is sound and does not threaten the broader economy

and which actually increases economic activity by enhancing predictability, trust, and transparency.

This can be accomplished by requiring a central counterparty (CCP) to establish and maintain a higher standard of credit risk-taking as well as allowing ease of market regulation. Once a trade is agreed between contracting parties, the CCP becomes the buyer to every seller, and the seller to every buyer. The CCP is always hedged, except in case of default, because when it takes the long position in a future with one side of a trade, it simultaneously takes the short position with the other side. From the perspective of the investor, the counterparty risk is mitigated as the CCP has a known level of capital, a strategy dedicated to stability and credit requirements of its own. The counterparty risk is not eliminated but it is rather controlled and isolated.

A stable functioning market will also benefit from a requirement that derivatives must be exchange-traded, unless an exception has been granted in advance. Exchange trading provides both the essential data to set collateral requirements and the exit mechanism for the offsetting position. Exchange rules would exclude the defaulting counterparty from further trading.

While the CCP benefits from exchange trading, the exchange also gains from the CCP. A derivative is far less transferable when such a sale requires reconsideration of the counterparty. Ordinarily, such a transfer would therefore require the permission of both sides. With a CCP, the sale of a derivative does not necessarily entail a change of counterparty. This makes the investment much more liquid and encourages trading and greater liquidity.

The requirement of exchange trading also incorporates into the market the exchange rules. These should only emphasize the integrity of the market and not act to quell the inclusion of speculation. It is in the interest of the Ghanaian farmers and the market to have maximum liquidity in commodity derivatives. This will provide the best pricing and encourage investment and financing in the agricultural sector.

Some derivatives contracts are structured as non-deliverable forwards (NDF) or futures. Under such a contract, the seller does not actually deliver the underlying asset on which the derivative is based but instead pays the amount of the gain (market price less strike price), if any, to the buyer. This element must be a necessary part of the agreed contract structure up front. This feature is most common where the specific delivery is not intended or where there are restrictions on the underlying asset. Commodity export restrictions or currency sale restrictions would be examples. A contract may be structured as NDF on natural gas or grain if, for example a buyer wanted to hedge future costs of gas or grain based on the most liquid market but then buy natural gas or grain in another market because of location advantage.
Once a derivative is designed and documented in the form of a contract, it can be traded in the secondary market. Trading can be done either over-the-counter (OTC) or on an exchange. The same is true for primary issuance. Exchange trading requires a considerable amount of standardization of the contract terms in order that the contracts are fungible to encourage volume. If an asset can be defined in a way that makes it consistent and available in volume, then exchange trading becomes feasible. If the price fluctuates, then trading becomes desirable both to the farmer (for hedging) and to the investor (for speculation).

With financial innovation, the types of risks that can be offset using derivatives has expanded considerably. This reduces the overall risk of an enterprise, industry, or economy. Derivatives have broadened far beyond the original wheat contract to other agricultural commodities, coal, steel, oil and gas, currencies, interest rates, equities and equity indexes, and credit risk.

Use of derivatives can be a stabilizing influence on a business or an economy. While derivatives had very much the opposite effect in the 2008 global financial crisis, that is in part because of the structure of the derivatives market and the default of a large market participant. Those risks can be mitigated through careful market structure and regulation.

If the members and their clients are financially sound, there is no reason to limit their activities except as to concentration of exposure. As a lender, the CCP has an appropriate role in limiting the total net positions of any one counterparty. However, there is no reason to limit speculation per se. It is in the interest of Ghana, its farmers, and the market to have maximum liquidity in derivatives. It will provide the best pricing and encourage investment in the underlying assets which eventually will include government securities and equities.

9.3 Standard Contract Terms

To allow exchange trading, it will be necessary for derivatives contracts to be somewhat standardized. That is not a particularly limiting requirement in that any underlying asset that can be delivered can sustain a derivative. Each contract should represent a given notional amount. For example, a wheat contract might incorporate 5,000 bushels which is the standard CBOT futures contract. For physicals items, it is necessary to define the quality and establish a process for judging the quality. Delivery terms must also be specified, usually with a central physical delivery point where there is storage availability. Even in the case of intangibles, the underlying asset must be explicit. For example, the closing price of Ghana Commercial Bank (GCB) on GSE on a specified future date such as 30th September 2015 may be used.

The vast majority of derivative contracts can and should be structured along standard terms in order to provide for the liquidity, trading rules, and transparency of exchange trading. However, there will be uncommon situations where unique terms are called for, such as a future on a commodity for which there is no liquid spot market, small volume commodities, or those without standard accepted quality or grading. Innovation of structures and new underlying assets should not be discouraged. This will sometimes call for over-the-counter (OTC) trading. The regulator should be authorized to permit OTC contracts only on an exceptional basis with prior approval and with demonstration that the contract cannot be suited to exchange trading. OTC derivatives could be further discouraged by denying them access to the CCP and with a higher margin requirement. Both are justified on economic grounds; the CCP needs exchange trading to monitor value and the lack of exchange trading makes margin levels just an estimate.

10. CONFIRMING FEASIBILITY OF GHANA COMMODITY EXCHANGE

10.1 Searching for Suitable Comparisons

Commodity exchanges typically have high fixed costs (staff and infrastructure) and low variable costs (the incremental cost of an individual trade). As such they have great economies of scale and their success is very sensitive to trading volumes. Further, the level of prices for the underlying commodities is not as important to the exchange as the volatility of those prices. For this reason, and to serve the agricultural industry, it makes sense for Ghana to offer futures (and other derivatives) as well as spot trading.

There are very few comparable markets to look to in analyzing the Ghanaian opportunity. The largest and most successful market in Africa is in South Africa where the Johannesburg Stock Exchange (JSE) has a commodity market. However, that market is for derivatives only and their segment reporting aggregates agricultural commodities (maize, wheat, and soy beans) with oil and metals. Commodity trading accounts for less than 2% of JSE revenue. Still for the most recent fiscal year, JSE collected ZAR 48.8 million (equivalent to USD 4.2 million) from commodities trading. This is not trading volume but just the fee income to the exchange from that sector.

The Mercantile Exchange of Madagascar could potentially offer comparable data, but it does no public reporting (unlike JSE, which is a public company). Nigeria has announced the Nigeria Commodity Exchange but has been inactive since that time. Uganda has also announced an initiative without results.

The Ethiopia Commodity Exchange probably offers the best comparable for an agricultural frontier market. For the most recent fiscal year, the ECE reported total trading of ETB (Ethiopian Birr) 26.2 billion (US$1.3 billion (ETB20.34 to US$1), this in its sixth year of trading. It is important to note that this figure represents trading volume and not revenue to the exchange.

From that volume, it earned revenues of ETB 327 million (UD$ 16 million), 1.23% of trading volume and reported costs of ETB 222 million (US$11 million), this cost represents 0.85% of trading volume. This is from spot trading alone. As ECE may not, and likely does not, report under IFRS accounting standards, the net amount of ETB 105 million (US$5.2 million), representing 0.38% of trading volume, would probably equate to EBITDA. This suggests an EBITDA margin of 32%. The principal difference between EBITDA and net income or pre-tax income is depreciation, which can be substantial for an infrastructure company.

To make this data useful in forecasting demand in Ghana, we analyzed it in the perspective of agricultural production. For the most recent reporting year, the Central Statistical Agency of Ethiopia reports agricultural production of ETB 230.8 billion (US$11.35 billion). This means that ECE trading volume represents 11.4% of production, and exchange revenue represents 0.14% of production. This implies that if ECE had 100% market share, its intermediation costs would be 1.23% (derived from dividing 100 by 11.4 and multiplying by 0.14%). That is quite efficient for a small market and contrasts with the National Resources Institute finding that in Ghana, "distribution margins – between farm gate and wholesale/retail prices – tend to be very wide."

For comparison the Chicago Mercantile Exchange (CME), the leading global commodity exchange, had 2013 revenues of USD 2.9 billion, representing 0.61% of US agricultural production. CME has more than 100% market share because it offers both spot and derivatives trading, but its intermediation costs are still extremely efficient. For comparison, CME reports EBITDA margins of 66%, partly due to its dominant market share.

The principal benefit of an exchange is to transfer more of the value chain in agriculture to the farmers and away from inefficient intermediaries. This attracts more investment into productive farms and other yield improving supplies, technologies, and infrastructure. Even those producers that do not sell on the exchange will benefit from the transparency of price setting. Farmers that sell off the exchange can point to widely disseminated price discovery when negotiating private trades. This represents the strongest case for a commodity exchange in Ghana.

10.2 Critical Mass

Because of the high fixed cost of a commodity exchange it can sometimes take years to reach volumes and revenues to cover those costs or achieve critical mass. For example, the Ghana Stock Exchange operated for five years before it became profitable.

The Natural Resource Institute in its report for the Securities and Exchange Commission developed a forecast of revenue and expenses, as well as the needed capital investment for an exchange. They estimated that the fixed operating cost of the exchange would be just over $2.1 million upon achieving scale. On this basis they believe breakeven would be achieved in the third year. On a worst-case basis, they forecast $2.5 million in revenue in year 5.

However, it should be noted that in both NRI cases approximately 1/3rd of forecast revenue is from warehouse receipt fees, a business line that may accrue to others, such as the GGC. They state that breakeven occurs when 9% of the formal agricultural market is exchange traded. For comparison, the Ethiopia Commodity Exchange has approximately 11% market share, with the subsidy of mandatory exchange trading for coffee. NRI indicates that an exchange would require $9 million in up-front capital and total capitalization of $11 million.

The Ministry of Trade and Industry also completed a forecast for a GCX capital budget. That report indicates total capital expenditures of $8.8 million; however, that is for upfront costs only. The total capitalization under their model would have to be higher to cover losses incurred prior to breakeven.

Compare the NRI operating budget of approximately $2 million to the actual costs in the Ethiopia case. As described above, the total expense in the most recent year at ECE was ETB 222 million, which equates to approximately $10.8 million. With such a cost structure, an exchange in Ghana would need to achieve nearly a 50% market share in order to break even. To put this in perspective, NRI estimates the total formal commodity market at $745 million. They predict trading volume (the value of the commodities as opposed to the fee income from that trading) in the third year of $80.9 million or 11% market share. A forecast by Eleni in August 2013 expected third year trading volumes on the exchange of $696 million.

Extrapolating the actual Ethiopia data to Ghana appears on the face of it to be promising. According to the Ghana Statistical Service in 2014, Ghana had agricultural production of GHS 21.6 billion (US$6.35 billion). The Ethiopia comparable indicates that an exchange in Ghana could target trading volume of GHS 2.46 billion (US$725 million) – 11.46% of total agricultural production and revenue from trading fees of GHS 30.3 million (US$8.9 million). However, as cocoa must be sold to the Ghana Cocoa Board, it is essentially not a traded commodity for the sake of the GCX. Adjusting the market to exclude cocoa implies a total market of GHS 16.9 billion (US$4.97billion), trading volumes of GHS 1.9 billion (US$558 million) and exchange revenue of GHS 23.7 million (US$6.97 million) - all based on ECE comparable.

10.3 Mandate Trading

A very important distinction is that Ethiopian law mandates exchange trading in certain commodities, including coffee. Best practice for derivatives is moving toward standard contracts and mandatory exchange trading, a lesson from the 2008 financial crisis. The economic case to support mandatory exchange trading for derivatives is sound and universal. It is based on the financial stability and market surveillance that stem from a central counterparty (CCP).

However, the case for mandatory exchange trading in the spot market is not as strong. The GCX Project Office reports that the draft SEC law includes a provision that allows the SEC, from time to time, to issue a partial mandate for commodities trading. Such a mandate might require all commodity trades above a certain tonnage to be exchange traded. This mandate could take the form of either a regulation or a guideline (which are binding under Ghana law).

We are not recommending such a mandate, but it might serve to demonstrate to participants the attractions of efficiency, quality, and price that would eventually draw volume to the exchange on market principles. Without some kind of mandatory trading the GCX is likely to struggle to attain the targets above. Knowledgeable market participants question how much trading would be drawn to an exchange, and even the GCX project office has predicted at least five years until breakeven. For comparison the GSE became profitable in approximately its fifth year.

However, in view of the above benefits of mandating it may be advisable for the GCX to utilize partial mandating in government institutional purchases, World Food Programs beyond a certain minimum volume of trading and Futures trading.

Due to lack of scale, margins at GCX are more likely to approach Ethiopia levels rather than CME. The Ethiopia comparable does not include derivatives, the addition of derivatives in Ghana would improve exchange revenues and margins, as well as providing a greater service to farmers.

We discuss the implications of this for profitability and sustainability under Ownership.

11. SITUATIONAL ANALYSIS

11.1 Activities undertaken towards the establishment of the GCX

Since 2009, when the Government of Ghana decided to facilitate the establishment of a Commodities Exchange for Ghana, several activities have been undertaken towards achieving this objective.

The following attests to these efforts:

a. A feasibility study was commissioned by the Securities and Exchange Commission (SEC) to determine whether Ghana was ready for a Commodities Exchange
b. Report of the feasibility study identify the gaps existing in making this a reality.
c. The report concluded that Ghana was indeed ready for the Exchange and identified areas where work was required to be done.
d. This included the promulgation of a legal framework and also amendment to certain laws to make this a reality.
e. The Government, under the Ministry of Trade and Industry, put together a National Technical Committee made up of key Government Agencies and the private sector represented by the Ghana Grains Council to review the Feasibility Report and also implement the finding of the Report.
f. The Technical Committee, with the assistance of the UNDP, facilitated the drafting of legal frameworks for both a Commodity Exchange and a Warehouse Receipts System.
g. Field trips, workshops, and seminars were attended by the staff of the Project Office (both local and International)
h. The Ministry of Trade and Industry, upon the advice of the Technical Committee signed a MoU with Eleni LLC, a company dedicated to establishing Commodity Exchanges in frontier markets.
i. As part of the MoU, Eleni LLC, as technical partners to the GCX Project, were mandated to conduct an assessment of the agricultural sector of Ghana and to recommend a roadmap tailored to meet Ghana's needs.
j. Eleni LLC was also mandated to assist in putting together a consortium of investors from private sector to invest in the GCX Project.
k. The Committee also adopted a Public Private Partnership model for the GCX with the Government of Ghana holding not more than 10% of the equity stake in the GCX.
l. The road map has been successfully completed and a consortium of investors are currently negotiating an Investment Agreement.
m. The group of investors have signed Letters of Intent indicating their commitment to investing in the Project.
n. The Government of Ghana has also demonstrated its commitment to the Project by deciding to disburse its equity stake ahead of the other investors to commence the design phase of the project in the second quarter of 2015.
o. Various stakeholder consultations have also been held with key and potential partner and potential users of the Commodity Exchange - including the Ghana Grains Council (and some of its membership), Wienco, some market queens, NAFCO, etc.

From the GoG's perspective on establishing the GCX, there are three phases or stages to be completed i.e. the design phase, the build phase, and the trading or operational phase:

- The design phase expected to commence in the second quarter of 2015. It will focus on recruitment of staff, putting together various regulatory and business manuals, holding high level discussions with policy makers and key stakeholders etc. It should be noted that the GCX Project Office has tendered out the recruitment of 13 managerial positions for an entity that has not even started yet trading.
- The build stage expected to follow within a four-months from the start of the design phase. During this phase technologies and strategic MoUs will be signed and other procurement activities will be undertaken. Training and capacity building for various actors will also be undertaken.
- Trading by the end of the year 2015, at the earliest.

11.2 Gaps and Expected Actions

Currently, gaps exist in many areas of the project. Attempts are however on-going to address them as and when they arise. In addition to the legislative issues, inadequate and poorly located warehouses, other specific gaps identified for the project for which support is being sought are the lack of capacity for the Regulators, and the continuous sensitization and training of farmers and other relevant stakeholders.

Some of the gaps that have not yet been addressed relate to the legislative instruments to be completed as stated below:

- Securities and Exchange Law (Amendment), 2014 – to incorporate the regulation of the GCX and WRS - is still in the drawing board with parliament.
- Draft Regulations – Ghana Commodities Exchange, 2014 – still with Cabinet - Draft Regulations – Warehouse Receipts System, 2014 – still with Cabinet

These three pieces of legislation may take time to finish. As of today, there is no credible estimate of how long it would take to complete these. This may not pose a problem since some nations have started these projects before the finalization of the enabling legislations. However, USAID might support the GoG to expedite the passage of this legislation, if it resolves to assist with the establishment of the GCX.

To address the issue of lack of capacity of regulators, support can be given through:

- Field trips, study tours, attachments, and other forms of collaboration or engagement with global institutions such as the US Commodity Trading Futures Commission (CFTC), Canadian Commodity Exchange, CBoT, CME, US SEC, etc.
- In-country training, as well as knowledge sharing with emerging commodity exchange regulators in countries like South Africa, India, Ethiopia, Turkey, Brazil, etc.

- Other support can be given to the regulators through engagement with the USDA-Kansas City Commodity Office (KCCO) and/or other institutions, as well as study tours and knowledge sharing with Warehouse Receipts Regulators in Eastern Europe, Indonesia, South Africa, Malawi, etc.

Some of the areas that the SEC will need technical assistance include:

- Development of manual for supervision
- Training Manual for staff
- Training of staff which should include risk identification and management, understanding commodities exchange products, trading of commodities, etc. - Development of derivative rules and regulations, and
- Attachment programs to countries with CSX and WRS.
- Specifically identified training for Management and key operational staff.

In addressing the issue of Farmer Capacity Building to link to the Commodity Exchange, effective tools should be developed and implemented such as:

- Poster programs at warehouses
- Participatory rural information kiosks
- Cooperatives and farmer unions or association level training or sensitization
- Rural road shows including theatre enactments
- Electronic media education, edutainment programs (TV and radio), etc.

12. NECCESARY NEXT STEPS FOR SPONSORS OF THE GCX

Although the GoG has finally launched the GCX on June 2015, these consultants believe that before the exchange can function properly, the Project Office Team must undertake the following actions:

a. *Finalization of the pending Legal and Regulatory Framework*
   i. Securities Industries Law (SIL)
   ii. Regulations for the GCX
   iii. Regulations for the WRS

b. *Establishment of the WRS (with the acquisition of the appropriate Information Technology)*.
The model adopted for Ghana is to establish both the GCX and the warehouse Receipt System in parallel. Thus, as soon as the design phase starts in May 2015, steps for the warehouse receipt system also commence with the building of new warehouses and signing agreements with existing warehouse operators to use their facilities, Facilities that need to be upgraded for the use of the GCX will be upgraded with the collaboration of the existing warehouse owners.

c. *Release of funds by Government and the Private sector investors.* We are informed that Government funds are currently going through the processes that should lead to disbursement in 2015. The other partners are committed to disbursing once agreements are signed. This is also expected by the GCX Project Office to be in 2015. However, we anticipate that this might be delayed by a few months as guarantees are yet to be signed.

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e. *Recruitment and setup of the offices*.
In order for the Exchange to commence trading by mid2016, recruitment of staff and training should commence by the third quarter of 2015.

f. *Capacity building for the various stakeholder.* An extremely important engagement is required in the area of capacity building, public sensitization, education and training for certification. The target audience is varied and includes farmers and farmer groups, rural traders, wholesale traders, brokers in major market towns, processors, exporters, policy makers, regulators, and service providers
The capacity building effort must be viewed as a continuous function and responsibility of the Exchange, the regulators and other stakeholders. A useful training approach should be adopted i.e. the train-the-trainer model.
Formal Capacity building to be conducted by the GCX and should commence by September 2015 and should be ongoing as needed. However, capacity building for Regulators should commenced immediately upon the design phase as planned as planned by the GCX project office.

g. *Establishment of the GCX (with the acquisition of the appropriate Information Technology).* Technologies need to be acquired during the build phase leading to proposed commencement of trading by mid-2016.

h. *The introduction of futures trading after commencement of spot trading.* The start of futures trading requires establishing the legal and regulatory basis, an integrated set of technology powered business operations, from quality warehousing to trading, market data, clearing and settlement to delivery.

13. RECOMMENDATIONS FOR ESTABLISHING SUSTAINABLE COMMODITY TRADING SYSTEMS

The following recommendations are offered to advice the way forward for the successful implementation of an effective system for commodity trading in Ghana, including primarily the WRS and its subsequent evolution into the GCX.

GHANA COMMODITY EXCHANGE AND WAREHOUSING RECEIPT SYSTEMs		
RECOMMENDATIONS		
MAIN ISSUE	**AREAS OF CONCERN**	**RESPONSIBILITY**

Develop a sound warehouse receipt system	A commodity exchange would be hampered by inefficiency without the dematerialization of its product. There are a whole range of problems or complications to be solved without a WRS.	SEC, GGC,
	The first is the very cumbersome problem of product delivery. The exchange would have to rely on third parties and traders to transport and deliver huge quantities of often perishable products. Physical delivery also fractures the modern settlement process. With an abstract form of title, a	GGC, SEC

	warehouse receipt, Delivery-Versus-Payment (DVP) can be affected on a computer server. In the case of physical delivery, the product and the payment exist in different dimensions. The delivery of a commodity must be reported to a clearinghouse by human intervention. This adds risk of human error or fraud. The time it takes for that confirmation also introduces risk to the trade. Further, the time it takes to both deliver and confirm delivery leaves the seller without payment for a period and exposed to price changes in the case of a failed trade.	
	Physical trading carries risks of quality, quantity and security. Prior to or upon delivery, the buyer must determine that the commodity is of the grade, purity, and condition suited to his requirements. Protection of the commodity is necessary while in the possession of either the seller or the buyer. During delivery, that responsibility is uncertain until final settlement. Quantity, quality, and security uncertainties all lead to hesitancy to pay market price and result in discounts and illiquidity. A properly designed Warehouse Receipt System manages all of these risks.	GGC and any other prospective Warehouse Operators or Mangers and regulatory authorities (SEC and GSA)
	Upon delivery to the warehouse, the commodity is tested for grade, purity, water content and weight or volume. Once a receipt is issued by the warehouse operator, he promises to deliver the stated commodity to the holder of the receipt. Further, the promise is supported by various protections up to a financial guarantee from an insurance company. This ensures standard of quality and quantity truly converts the product to a commodity. **The receipt itself dematerializes the product and facilitates exchange trading**. Particularly, in cases of book-entry, digital or "e-" receipts, the commodity can be traded DVP against an account, which is the modern form of cash.	GGC and any other prospective Warehouse Operators or Mangers and regulatory authorities (SEC and GSA)
	An exchange can never hope to achieve scale without a sound Warehouse Receipt System to represent title with a high degree of integrity. With a WRS, a commodity can be traded multiple times even per day and subdivided and aggregated in any permutations. For these reasons, an exchange requires a WRS in order to trade volume and to be seen as dependable.	
	An exchange is not a prerequisite for a WRS as it still offers value to the market. On its own, a WRS still allows farmers to time their sales to seasonal price fluctuations, facilitates financing by creating reliable title and protecting collateral, and offers quality and quantity assurance to buyers. However, a WRS is enhanced by an exchange because it highlights the value of the WR deposits relative to off-market prices, supports the values with liquidity, and provides an efficient sale of collateral for lenders.	GCX Project Office, FARMERS, BUYERS, LENDERS, FINANCIAL INSTITUTIONS

	We recommend that the USAID offers design and implementation support of a modern system of warehouse receipts. While GCX could sponsor its own system, it makes sense to at least consider taking advantage of the momentum behind the GGC system. At this writing, GGC has analyzed its past default and is developing a remediation plan. *If this plan is comprehensive enough, it should be supported as a pre-condition to a commodity exchange.*	USAID, MoTI, GGC, SEC
	Starting the WRS at least a year before the commencement of the GCX will not be out of place. This will ensure that the WRS is developed to the point that it wins the trust, confidence, and supports of the players in the market, especially the financial institutions and the farmers**.**	USAID, MoTI, GGC, SEC, GCX Project Office
Outsource certain exchange processes	While comparable data indicates promising trading volumes, probable actual exchange demand of the GCX is uncertain to determine. Various studies have indicated operating costs of an exchange, most of which are fixed, ranging from $2.5million to $10.8 million. Similarly, estimates of the capital needed to launch an exchange varied from $6 million to $15 million.	GCX Project Office, WAREHOUSE OPERATORS, GGC, COLLABORATORS

	Until trading volumes justify a full cost design, it is sensible to find ways to reduce costs and minimize risk.	
	An exchange can outsource many processes as described below and can probably *structure contracts on a per-transaction basis*. This would have the benefit of reducing operating costs in the early years and of making some, perhaps much, of its costs volume based. If volumes take off, this would likely have the long-term effects of reducing gross margins and profits, but these processes can be brought back in-house at that time.	FARMERS, SELLERS, BUYERS, SEC, GSA, FINANCIAL INSTITUTIONS
	Outsourcing will also reduce the up-front costs of buying or building some of the key systems. This will lower the initial investment needed to commence operation, which will be much more attractive to prospective investors during the organizational phase. This should enhance the exchange's ability to raise the capital needed to begin development.	GSE, CDS, GCX Project Office
	Outsourcing should also improve the exchange's speed to market. Negotiating and implementing an outsourced arrangement will be much faster than a design and build model. It may also be faster than purchasing systems off the shelf and configuring them.	GSE, CDS, GCX Project Office
	By outsourcing processes, the exchange will have the benefit of a lower breakeven level, lower up-front investment, and greater speed to market. This will enhance the sustainability of the exchange. *We recommend that USAID supports the exchange by lending its prestige to a transparent consideration of a commercial modern approach of outsourcing processes in the exchange's early years*. Good candidates for outsourcing include the trading platform, clearing and settlement, and warehouse receipt depository. In each case, there are Ghanaian domestic suppliers or service providers with both the expertise and scalability to perform those roles.	USAID, MOTI, MoF,

	Order-matching and pre-trading systems could readily be outsourced to the Ghana Stock Exchange (GSE). The GSE utilizes the Ultra Trade System from InfoTech, which offers ready scalability. GSE has been operating successfully for twenty-five years now. GSE's order-matching and risk management systems mean that it has virtually no failed trades. Furthermore, the GSE has been aggressive in updating its systems to anticipate market demands. It is currently developing an upgrade to add new services and features, among which is the capability for stock margin lending. This includes the ability to dynamically record liens and mark to market collateral. These capabilities would be a necessary component to taking and managing margin if futures are introduced into the GCX.	GSE, GCX Project Office,
	Many exchanges outsource settlement, as it is a specialized capability. In addition, a settlement center usually requires a banking license (because they sometimes hold customer deposits and make payments). This is a major barrier to entry and an added regulatory burden. GCX could outsource clearing and settlement to the Central Securities Depository (CSD), which has a developed settlement system to provide T+3 settlement. CSD utilizes a Millennium IT system for clearing and settlement. Johannesburg Stock Exchange (which includes futures), London Stock Exchange and ICAP also use this system. Securities are transferred on CSD and cash is settled via the Ghana Inter-bank Settlement system on a net basis. That clearinghouse can only be utilized for commodities that have been dematerialized via warehouse receipts. With all trading assets dematerialized, CSD has the capability to provide T+0 same day settlement and, perhaps, even continuous real time settlement.	BoG, CSD, GIBSS,
	Prospectively, the GCX could outsource the warehouse receipt depository to GGC. We say prospectively, because while GGC has a system in operation presently, a default in 2013 has led it to redesign most processes. Currently, it is considering bids for supporting IT systems and is drafting new rules for warehouse operators. Among the expected changes are clear separation of responsibilities to avoid conflicts of interest, mandatory 24/7-hour surveillance, contractual obligations in favor of WR holders, and financial guarantees of those obligations from investment grade issuers. A useful filter or precondition for whether GCX should consider GGC for this role is if lenders begin accepting GGC WRs as collateral for lending after the redesign. We anticipate that this will eventually be the case.	
Build capacity, but only when needed	Utilizing the exchange for trading and risk management, as well as running the exchange and regulation will require new skills. Familiarization, training, and education should be provided to all stakeholders. Per the GCX RoadMap, the target audience is varied and made up of farmers and farmer groups, rural traders, wholesale traders and brokers (market queens, aggregators etc.) in major market towns, processors, exporters, policy makers (local and national), regulators, service providers (banking, insurance, telecommunications, transportation, etc.)	GCX Project Office, SEC, GSA, ALL STAKEHOLDERS, MARKET QUEENS, AGGGREGATORS, POLICY MAKERS,

	Under the draft legal framework for Ghana's Commodity Exchange and Warehouse Receipts System, the Securities and Exchange Commission (SEC) has been mandated as the overall Regulator. Due to capacity constraints, the SEC is further mandated to delegate any of its functions that it deems necessary for regulatory purposes to other qualified bodies, such as the Ghana Standards Authority (GSA). *There is the need to build the regulatory capacity of these two (2) institutions* and any others that may be identified by the SEC as being capable of carrying out some of its regulatory functions.	GCX Project Office, SEC, GSA,
	The necessary support and capacity building that is required will include developing commodity exchange regulatory capability through engagement with institutions such as the US Commodity Trading Futures Commission (CFTC) and the US SEC through study tours, in-country training. Also, as knowledge sharing with emerging market commodity exchange regulators like the Forward Markets Commission in countries like India, Ethiopia, Turkey, or Brazil.	
	Support is also required to build the capacity of the Ghana Standards Authority (GSA) and possibly the Ministry of Food and Agriculture and Ghana Grains Council, to develop Warehouse Receipt System regulatory capability. This could be achieved by engagement with the USDA-Kansas City Commodity Office (KCCO) or other similar institutions, as well as study tours and knowledge sharing with Warehouse Receipts regulators in Eastern Europe, Indonesia, or South Africa.	GSA, MOFA, MoF, GGC, MoTI, GCX Project Office,
	We recommend that the USAID supports information sessions, acquisition of educational materials, and training sessions for the exchange stakeholders. However, we suggest this work be conditioned on remediating the Warehouse Receipt System as that is our precondition to an exchange in Ghana. Two important milestones for this are the GGC board approving new rules for member warehouse operators, and a new integrated IT system configured to issue, control, and extinguish receipts and record the obligations that support them.	GCX Project Office, MOFA, SEC, GSA, GGC, MoTI,

ANNEX I. Stakeholder Meetings/Discussions

DATE	INSTITUTION	CONTACT PERSON / INTERVIEWEE	ISSUES DISCUSSED	REMARKS
27th Feb 4th Mar 23rd Mar 23 Apr	MOTI Technical Committee GCX	Mr. Joe Tackie	GCX strategy	GGC WRs is now better but not perfect Have commitments for $15MM equity (conditioned on CX and WR regs, corporatization, investment by Eleni) Government favours process outsourcing GSA is capable of regulating warehouses Need capacity building at SEC
4th Mar 23rd Mar	Ghana Commodity Exchange Project Office	Mr. Robert D. Owoo	GCX strategy	Intend to build their own systems (candidates: Softribe, Axxon) Hope to get volume via "partial mandate" Thinks market sophistication for futures is 10 years away Need capacity building for farmers, GSA, SEC Planned sensitization programme for all stakeholders in the value chain
5th Mar	Ghana Grains Council	Dr. Godwin Ansah - CEO	Control systems African Connections history	Prior default: conflict of interest, collateral manager AWOL Fired Ecosafe, hired DMT Setting new warehouse rules and new MIS (expected to complete in 6 months) Currently, shopping for a $10MM bond supporting WR guarantees
10th Mar	Ministry of Finance	Dr. Sam Mensah Hon. Mona Quartey – Deputy Minister	Regulatory structure Demand	Currency forwards by banks are very thin volumes Consider SRO with SEC oversight
10th Mar	CCH Finance House Limited	Mr. Alexis Aning Major Rtd Ablorh Quarcoo.	History of African Connections	Conflict of interest in the African Connection case. CCH is the lender to African Connections. CCH should not be expected to pursue the Warehouse manager versus the regulator. If GGC completes the remediation, it will be accepted by the market. Thinks an exchange will attract more cash crop production and be virtuous circle
12th Mar	Ghana Standards Authority	Mrs. Elizabeth Adetola and Team	GCX regulation	See regulation and certification as a conflict of interest. Recommends GSA certifies but another party regulates Most warehouses are of such poor quality that they cannot support a standardized product in current state.
12th Mar	Private Enterprise Foundation	Nana Osei Bonsu	Market overview	Thinks WRS will need to operate for years prior to an exchange Current condition of storage facilities not satisfactory

12th Mar	Ministry of Food and Agriculture/ National Food Buffer Stock Company	Eric Zoes - CEO	Market structure	Warehouse capability not satisfactory NAFCO and LBCs can act as aggregators to reach GCX volumes
12th Mar	Ghana Stock Exchange	Mr. Ekow Afedzi- DMD	Risk management Trading systems Volume Profitability	GSE has robust systems including scalable Ultra-Trade by InfoTech Became profitable after 5 years Virtually no trade defaults experienced
12th Mar	Central Securities Depository	Mr. Stephen Tetteh - CEO	Settlement capabilities Risk management IT systems	Very efficient, including scalable Millenium Tech IT systems Capable of T+0 real time settlement Forward looking management (adding stock margin capability)
11th Mar	The Securities and Exchange Commission	Alexander Williams- DDG	GCX regulation	Draft CX regulations are satisfactory Likes GCX SRO overseen by SEC SEC currently has no capacity to regulate GCX Sees need for major capacity building at SEC and market participants.
11th Mar	UNDP	Mrs. Christie Ahenkorah	GCX history	Believes GGC WRs is scalable Points to slow growth of GSE
23rd Mar	ADVANCE	Kwesi Korboe	Role of MOFA	Good product candidates exist for the GCX MOFA can play major role Current systems need improvements Local exchange with access open to other nationals SEC and GSA can regulate Serious sensitization required across entire spectrum Need to require institutional buyers use GCX Best Ghanaian expert in industry now is in Rwanda

ANNEX II. Documents used for the Assessment

Documentation provided by APSP

a. Feasibility Studies Towards Establishment of Commodities Exchange in Ghana: Final Report, August, 2009, Natural Resources Institute.
b. Ghana Commodity Exchange: Roadmap 2013-2014, Eleni LLC.
c. Commodity Exchange Regulations, 2014, 10 February, 2014
d. Warehouse Receipts Regulations, 2014, 10 February 2014.

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