



## Developing an organized commodity exchange in Ghana: Challenges and economic prospects

Mohammed Iddrisu Ngmenipuo <sup>a\*</sup>, Osman Issah <sup>b</sup>

<sup>a</sup> Wa Polytechnic Business School

<sup>b</sup> University for Development Studies School of Business and Law

\*Corresponding author's e-mail: [ngmenisumba@hotmail.com](mailto:ngmenisumba@hotmail.com)

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### ABSTRACT

We have examined challenges and economic prospects of establishing an organized Commodity Exchange in Ghana. We find that such a market will result in reduction in post-harvest losses through price stability, improvement in commodity price risk and credit risk management, provision of a transparent and competitive price discovery mechanism, reduction in transaction and marketing costs, and avoidance of making the mistakes of others. However, we also identify the challenges that should be resolved such as lack of laws and regulations specifically pertaining to the commodity exchange; inadequate financial support; lack of trading infrastructure; inadequate volume; liquidity problem; smallholder farms; lack of understanding of trading instruments; and government/political interference to this end. Overall policy implications suggest inadequate infrastructure and capacity building of market participants should be enhanced.

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### 1.0 Introduction

Ghana Since the late 1980s, when the Ministry of Finance and Economic Planning first mooted the idea, there have been discussions on the possibilities for creating a commodity exchange in Ghana. There were three different private-sector driven initiatives, and a number of studies were conducted. A first exchange venture, the Accra Commodity Exchange, was incorporated in 1995 by a group of entrepreneurs linked to the grain sector; but they failed to get others to support the initiative. In 2008, a private promoter announced that he was launching the West African Commodity Exchange, with its headquarters in Accra. He sought investments of US\$500 million to start the initiative. Unsurprisingly, nothing more was heard from this initiative.

The most persistent project the Commodity Clearinghouse (CCH), to introduce an exchange oriented at banks which offered the trade in commodity-backed warrants (warehouse receipts). Through the exchange, banks and other financial institutions could provide financing using repurchase agreements, with the warrants guaranteeing the transaction (Aning, 2007). Work on building such an exchange started in 1996 and intensified after a USAID-sponsored workshop on the "Ghana Futures Exchange" held in 1999. In September 2002 soon thereafter, CCH was given a provisional license by the Bank of Ghana to develop a commodity clearinghouse scheme that would offer trade in warehouse warrants.

CCH submitted its proposals in 2004, and the Government of Ghana decided the proposed trading scheme could be better regulated by the Securities and Exchange Commission. The Government also included a "regulated

warehouse receipt system", to anchor the delivery system. The exchange project was included in the 2004 budget to solicit development partners' support. But while interest of banks and commodity traders in the project became quite strong, regulatory issues hindered progress, and the critical mass for its launch was never reached. CCH decided there will be a need for an effective delivery system (a warehouse receipt system) before an exchange can work. They therefore decided to set up a subsidiary company to explore a money market-traded repo system based on a regulated warehouse receipt system that can guarantee delivery of the underlying and also help aggregate commodities into standardized storage systems.

The large number of workshops organized around the above activities strengthened the awareness of commodity exchange issues; and towards the end of the 2000s the official attitude towards the idea of setting up an exchange improved. Both the Ministry of Agriculture and the Ministry of Finance became interested in having a commodity exchange for "everything but cocoa". In 2008, the World Bank provided funding, and further studies were undertaken, including studies on the legal and regulatory framework for a viable exchange and warehouse receipt system. These studies conclude that it was feasible to establish a Ghana Commodity Exchange (GCX) and warehouse receipt system (Onumah, 2010). In the short run, the exchange can offer spot trading facilities, as well as trade in commodity repos (i.e., repurchase instruments backed by warehouse receipts) and transport-related instruments. A futures market will be developed afterwards. It was intended that the exchange eventually becomes an integral part of a regional or pan-African network. In April 2012, work on a draft legal and regulatory framework was completed.

Press reports in early 2012 referred to plans of the Ministry of Trade and Industry and the Securities and Exchange Commission to jointly establish the GCX "by December 2012". This expectation was based on the premise that funds will be available from development partners and the Ethiopia Commodities Exchange will be contracted to undertake a turnkey project delivery of an exchange in Ghana. However, there was no support from the development partners for such a venture led by the government, and the initiative stalled.

On the other hand, work to introduce commodity warrants, which can lay the basis for the development of a private-sector led exchange, progressed. The focus for piloting the CCH strategy, mentioned earlier, had shifted to commodity financing and aggregation through a regulated warehouse receipt and warrantage system. The commodity asset-backed warrant scheme was designed in consonance with the local demand profiles of both the commodity trade financing requirements and the financial investment, market yield and distribution curves. It aimed to move agriculture from the current atomistic, non-industrial production and storage centres into accredited warehouses and silos, in standardized lots, graded; shelf-life certificated, insured with no loss guarantees, and financed sight unseen. In 2012, CCH arranged lines of credit for repo contracts totaled about US\$16 million to finance grains, coffee, and sheanuts from local banks. The first repo was on the basis of the first issued regulated warehouse receipts of the Ghana Grains Council, to the tune of cedi equivalence of US\$1.2 million of white maize in early 2013. In addition to this novel contract, CCH has a repo trade book value of about 8,000 metric tonnes of white maize and about 5,000 metric tonnes of sheanuts. The repo system for grains makes use of a manual/electronic warehouse receipt system developed and operated by the Ghana Grains Council, which also licenses and supervises the warehouses involved.

This emerging warehouse receipt system is expected to support the development of the larger exchange through a progressive market development. The exchange will first trade regulated warehouse receipts (repos). The repo process will eventually develop its own secondary market, with forward trading of physicals via the repos, then the trading of the repos (through commodity backed warrants) and related regulated services on a cash exchange. To facilitate this, CCH was hooked into the Ghana Inter-bank Payment and Settlement System of the Bank of Ghana. Like all market instruments in Ghana and other developing markets, it takes time to build credibility, which can support volumes of trade, which then create its own secondary markets by bringing along other institutional investors into the market.

CCH is pioneering the trading of repos in the money market. It is expected that the exchange that will eventually emerge from this process will be a completely independent private stakeholder led project based on both the CCH's business model and the Grains Council warehouse receipt system.

The development of an exchange in Ghana is not expected to follow the patterns of development in other African countries, where the governments become the owner of the exchange and map out its development pathway, with the private sector just coming in as users/members. Farm production dynamics, post-harvest economics, history of failures of public institutions, traditional and industrial market demands, financing requirements, etc., would dictate that government only provides the necessary support for the development of such an exchange by stakeholder private sector interests. The massive growth of the Ghana Grains Council over a short period of its establishment, with membership extending to the leading banks and financial institutions, insurance companies, commodity aggregators, warehousemen, processors and traders, etc., point to the inevitability of this process (AfDB, 2013).

With Ghana's population estimated at over 24 million, about 50 percent of which live in urban areas. The country's rapid rate of urbanization, which is estimated at 3.5 percent per annum (GSS, 2013), creates market potential for industrial processing of agricultural produce including the major staple grains and root crops. Though agriculture is Ghana's most important economic sector, employing over half the population, smallholder farm productivity is low due to the following issues: reliance on rain-fed agriculture, low level of mechanization in production and processing, high post-harvest losses, weak finance for agriculture, poor extension services, and market linkages.

However, this potential is yet to be significantly exploited as a result of bottlenecks in the agricultural value chains. Ghana has enjoyed a long period of political stability, particularly since 1992 when constitutional rule was instituted. Its media is relatively free and respect for the independence of the judiciary has been growing since 1992. These conditions have contributed to make Ghana an attractive location for investment in the West African region. However, the commodity sectors have not been able to attract the required volumes of investment and the country remains well-endowed with natural resources but poor and heavily dependent on international financial and technical assistance. The Ghanaian economy has been experiencing accelerated growth in the last decade, rising from 5.2 percent in 2003 and reaching 6.3 percent in 2007 (Revised GDP estimates for 2013 showed a growth of 7.1 percent over the 2012 final estimates of 8.8 percent, (GSS, 2014). Though this sustained GDP growth rate is historically high and impressive by Sub-Saharan African standards; and agriculture remains the dominant sector (representing close to 40 percent of GDP), its performance will impact on the achievement of the country's accelerated growth objectives.

Ghana has a diverse and competitive financial sector comprising 22 registered universal banks, 137 rural and community banks, and 58 Non-bank Financial Institutions (NBFI) operating in the country as of December 31, 2013 (available: <http://www.bog.gov.gh/index>). However, credit to the commodity-related sectors, especially the agriculture sector, remains very low largely because banks perceive the sector as highly risky. The cost of borrowing is also high, with average nominal base lending rates offered in 2014 by the commercial banks averaging 24 percent. Most medium-scale enterprises in the commodity sector obtain credit from NBFIs at interest rates of between 8 and 10 percent per month (i.e. 96 to 120 percent per annum).

Ghana is primarily a commodity-dependent country. Merchandise exports are dominated by primary commodities, including cocoa beans, gold and other minerals and timber (and now crude oil). The share of processed products (usually classified under "non-traditional exports") in total exports is completely dwarfed by primary commodity exports, though it has risen from 17.9 percent in 1997 to 22.4 percent in 2008. Growth in the export of processed products is partly due to increasing domestic processing of cocoa beans into cocoa paste and cocoa butter, which is exported.

Raising farm productivity will require not only adoption of improved production technology such as planting high-yielding varieties as well as improved access to farm extension and finance but also measures to modernize and improve efficiency in the country's agricultural marketing systems. The Agriculture sector doubled its growth rate of 2.3 percent in 2012 to 5.2 percent in 2013. This was mainly on account of growth in the Crop subsector (5.9%), Livestock subsector (5.3%) and the Fishing subsector (5.8%) (MOFEP, 2014).

The considerable time and related cost in assembling small volumes of produce from widely dispersed smallholder farmers, uncertainty about available supplies and poor contract enforcement tend to increase transaction costs in the agricultural trade in Ghana. Lack of formal grading standards makes it difficult for impersonal trade to occur, thereby limiting farmers' marketing options to few traders and weakening their bargaining position. Within the trade, farmers, traders and processors are fully exposed to price risks with little or no hedging opportunities. The uncertainty created discourages investment in productivity enhancement by farmers. It acts as a disincentive to traders and processors in undertaking investments likely to lead to improved efficiency in the trade. Most of the trade in agricultural commodities in regional markets such as Burkina Faso and Togo is informal and face similar constraints as those in the domestic trade. (AfDB, 2013).

Recent research has established that the uncertainty generated from commodity price fluctuations hampers growth and is associated with increases in poverty. Inability to manage uncertainty makes it difficult for farmers to plan their crops, allocate their resources, obtain credit for inputs, and even simply recover costs. It also weakens the ability of governments to maintain a conducive and stable environment for domestic business and to implement policies and programs to reduce poverty (Varangis, 2003).

"Given that commodity prices are generally volatile, producers in poorer countries face individual price and possibly income risk, while the country as a whole might face export earnings risk, which in turn might affect growth. One possible solution offered has been to encourage the establishment and use of commodity futures markets as a mechanism for spreading these risks." (Morgan, 2000, p. 1).

Price volatility is perhaps the most pressing issue facing producers of primary commodities. While these producers are not exclusively in least developed countries (LDCs) (see Sapsford and Morgan, 1994) the impact of volatility on producers then is much greater than it is for those in developed market economies (DMEs). Of particular relevance here is the degree to which some nations rely very heavily on one or two commodities for their export earnings, a position that leaves their macroeconomic finances very vulnerable to shocks in the prices of commodities. For example, beginning from the last quarter 2013, Ghana's main export commodities (cocoa and gold) suffered significant decline in prices in the world leading decline in revenue thereby causing a rapid depreciation of her currency and other related macroeconomic challenges. Thus, while commodity market problems are not exclusively LDC problems, they are more likely to have a major impact those economies than in DMEs (Morgan, 2000).

The objective of the paper is to critically review the literature on commodity exchanges and assess the economic prospects and challenges of the commodity exchange to be established in Ghana by: (1) reviewing the relevant literature; (2) examining the pre-conditions for the establishment of a commodity exchange, and (3) examining Ghana's level of readiness to establish an exchange and draw conclusions from them.

The study has relied completely on secondary sources. The sources of data are mainly from the internet sources. Information Bulletin and United Nations Council for Trade and Development (UNCTAD) and the African Development Bank (AfDB). The method followed throughout this paper is predominantly qualitative and descriptive in nature. To the best of our knowledge, at the time of writing, this is the first study to assess the challenges and economic prospect of an organized commodity exchange in Ghana. The rest of the paper is organized into literature review, discussion of results, and conclusion.

## 2.0 Literature review

Proceedings of the "Ghana Futures Exchange" workshop in November 1999, sponsored by SIGMA One Corporation of the USAID, it was concluded that there is a need to build the foundation for the development of commodity and financial futures exchange in Ghana. The building block was to take into consideration the realities of the commodity and financial market profiles and structures, and lay a foundation that will be able to sustain the development of the system.

The only commercially viable way to manage commodity price risk is to transfer price risk to a market actor who is willing to manage the risk either by: (1) being prepared and be able to absorb the risk financially, or (2) having access to mechanisms which will allow the transfer of the risk to another market actor.

Many years ago, concerns about commodity price fluctuations led to economic interventions by national governments. These programmes were born out of political will showing governments' commitment to protect producers from price risk. The goal of such interventions had generally been to insulate producers and consumers from market price fluctuations through price controls or subsidies. Many countries pursued price stabilization policies particularly in agriculture. Such policies took the form of institutional arrangements such as physical buffer stock schemes, establishment of stabilization funds, etc. The National Food Buffer Stock Company (NAFCO) was set up in 2010, to address the problem of post-harvest losses, ensure food security and protect farmers from unfavorable prices during bumper harvest. This became necessary as Ghana experiences post-harvest losses annually estimated between 25 and 30 percent of total agricultural produce for all staple food crops including maize, rice, cassava, yams, sweet potatoes, sorghum, millet and pulses such as cowpeas, soya beans, groundnuts and beans. Historically, international buffer stock mechanisms are widely judged to have had limited success in reducing the volatility of prices. They have been more effective in moderating downward price movements than price surges. In the case of a price surge, a buffer stock agency can only release in the market what it has previously bought, and once its stock is exhausted there are no further means to curb price increases. Therefore, over time such interventions have proven to be unsustainable financially. Although government may have the political will alright, it has become clear that most governments simply do not have the financial ability to absorb the financial impact of price volatility. At an international level, the stabilization components of international commodity agreements also proved to be unsustainable and are no longer in force (Dana, 2005). The conclusive lesson of such policy interventions is that price risk variability is a reality of liberalized markets, and attempts to manage it without regard to the market are unsustainable.

### 2.01 Spot, futures and other commodity exchanges

A commodity exchange is an organized marketplace where buyers and sellers come together to trade commodity related contracts following rules set by the exchange. There is a wide variety of ways in which the market can be organized.



The world's largest commodity exchanges are futures markets, trading futures and option contracts that are meant as risk management tools rather than tools to buy or sell the underlying commodities. In emerging markets, however, commodity exchanges can play a useful role for physical trade, including in the financing of commodity inventories. By providing a transparent, disciplined marketplace they can reduce the discovery costs of physical trade and the counterparty risks in commodity transactions.

The purpose of a commodity exchange is to provide an organized marketplace in which members can freely buy and sell various commodities in which they have an interest. The exchange itself does not operate for profit. It merely provides the facilities and ground rules for its members to trade in commodity futures and for non-members also to trade by dealing through a member broker and paying a brokerage commission.

Commodity or Futures exchanges are clearinghouses that act as intermediaries. They ensure performance by buying contracts from sellers and selling the contracts to buyers, keeping buyers and sellers anonymous to one another. If one party in a contract fails to perform, the clearinghouse provides insurance by honoring the contract. Open contracts at the close of trading are matched, buyers to sellers, by the clearinghouse so that deliveries can be made.

As open markets where large numbers of potential buyers and sellers compete for the best prices, futures markets allow companies to discover and establish competitive prices. The conditions that prevail in the futures market, probable more than in any other organized market; brings it closer to a perfect market. There are larger buyers and sellers who compete on the basis of readily available and relatively cheap information. Commodity futures contracts are homogeneous in nature and there is free entry and exit except that entrants need to take adequate financial responsibility. There is usually minimal government intervention, but there is effective exchange-self regulation thereby forestalling manipulation and unfair practices. Futures contract prices are determined in a perfectly competitive environment and thus, making the market very efficient.

## 2.02 Warehouse receipt system (WRS) and commodity exchange (CEX)

Understanding the fundamentals of WRSs and CEXs is important when deciding if one or both are critical for the development of a specific agriculture sector. WRSs and CEXs are built on a number of building blocks essential for either system to function sustainably: standardized grading and weights, standardized storage facilities, professional storage management, suitable insurance products, enforceable contracts and market intelligence.

A Warehouse Receipt System (WRS) is usually a building block for a Commodity Exchange (CEX). Warehouse receipts are paper or electronic documents of title which stipulate the commodity, quality grade, location and ownership of the commodity deposited in the warehouse. The receipts can be transferable or non-transferable. Transferable warehouse receipts allow whoever has access to the title to transfer its ownership to someone else. A non-transferable title must go through a particular process often controlled by a regulator to transfer ownership. Warehouse receipts are generally issued by regulator- certified warehouses, and their issuance, handling, liens, and cancellation are managed by systems overseen by the regulator. The receipts can be used in a commodity exchange, enabling buyers and sellers to conduct transactions using the receipts to represent the physical goods, which can remain in warehouses and are moved only after the transaction is completed. Its negotiable receipts are collateral security against which banks make loans to the owners of the commodity. Since the warehouse receipt makes it possible for the owner of goods to borrow readily, it contributes directly to reduction in marketing costs. More business can therefore be done on the owner's capital.

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, as is the case in many countries. Over time and with rigorous enforcement, the receipt will gain credibility as a respected tradable instrument and make buying and selling more efficient. Because buyers need not take physical delivery of stock in order to trade, stocks may trade several times before they leave the storage site.

In summarizing the services performed by warehouses in the cotton trade, Alonzo B. Cox, former agricultural economist in the Division of Cotton Marketing of the federal Bureau of Agricultural Economics, says: ...the considerations which determine the value of warehouse receipts are: (a) the structure and location of the warehouse; (b) the facts set forth on the receipts; (c) the kind and amount of supervision received from disinterested parties; (c) the net free assets of the company; (d) the size and nature of the bond furnished; (e) the kind and amount of insurance carried on the cotton in the warehouse; and (f) the integrity and standing of the officials responsible for the operation for the warehouse.".. (U. S. Department of Agriculture, pp. 23 & 24).

## 2.03 Commodities adaptable to futures trading

Why are some commodities the subject of futures trading on organized exchanges, whereas no such markets have been established for trading in other commodities of equal importance? In examining the reasons why

some commodities have futures markets and others do not, we must first center attention on the nature of the commodity itself.

#### Units must be homogeneous

It is a condition precedent for all futures trading that units of the commodity be interchangeable. A commodity, the units of which are not readily homogeneous is an impossible one for futures trading.

#### The commodity must be susceptible of standardization of grades

If the units of a commodity are homogeneous, it follows as a corollary that the commodity must be susceptible of division into standard grades. If, standards can be established so that by inspection and classification the commodity may be divided into a definite number of well-defined, uniform grades, readily identified by the trade throughout the world, the units of each grade become homogeneous, and such grades are suitable for futures trading.

#### Supply and demand must be large

As a matter of fact, most commodities which are the subject of the futures trading enjoy a world-wide demand, although in widely different degrees. The minimum requirement in this respect may best be summarized by stating that the supply and demand should be large enough to assure that the futures exchange will function as a continuous and orderly market for the interplay of normal factors of supply and demand and not merely as an arena for contending speculators.

#### The supply must flow naturally to market

Not only must a supply of a commodity be large, but its flow to world markets must also be substantially free and unhampered by artificial restraint, whether by governmental or private agencies. An impossible condition would exist, if organized futures trading were attempted in a market where the supply or price of the commodity is under effective control and could be increased or diminished at the will of any government, group, cartel, corporation, or individual. The market would then function, not as an efficient price-making machine, but merely as an adjunct to the arbitrary will of the controller of the supply or price of the commodity.

#### Supply and demand must be uncertain

Uncertainty of supply and demand is prerequisite for a commodity to be the subject of futures trading. If supply and demand are both certain, prices are capable of ready adjustment without the intervention of any organized market machinery.

When supply and demand are large, and both uncertain and subject to wide fluctuations from season to season or from year to year, a condition exists where the relationship between the forces of supply and demand on free markets is constantly changing. This interplay of uncertain economic forces produces the constant fluctuations in price which must exist in any successful futures market.

#### The commodity must not be perishable

The futures contract may call for a delivery of units of the commodity many months into the future. Consequently, the commodity must be capable of being stored at all times and for considerable periods to meet requirements of the market in times of scarcity. A commodity subject to rapid deterioration does not meet this requirement. The commodity should lend itself to the warehouse's economic function of providing time utility.

### 2.04 Market participants in a commodity exchange

The main role of the exchange is to allow two important groups: Commercial Commodity Producers, and Commercial Commodity Consumers, to minimize the potential of adverse future commodity price movements on their respective businesses down the road. Most of them are manufacturers, producers, dealers, processors, speculators, arbitrageurs, and manipulators. They use an exchange because it provides a fast, efficient, low cost marketing for commodities, worldwide price information; and a way to limit the risk of losing money due to price changes. Investors use an exchange to make profit from price changes in commodities or to protect themselves from losses caused by fluctuations in the value of certain kinds of investments; and the trader is the one who buys and sells a commodity. In addition to members of the exchange, brokers who represent the traders and in exchange receive a commission for their services are among the major users of the commodity exchange market place.

### 2.05 Economic functions of the commodity exchange

A general description of the economic functions of the exchange at this stage will be an important indication of the advantages which producer; distributor, and consumer groups obtain from its existence. Baer and Saxon (1949). "The economic functions of commodity exchanges may be summarized broadly under five heads:

### The insurance function

- The exchange provides liquidity and relative price stability through a broad and continuous market, made possible because of large funds of speculative capital not otherwise available.
- The machinery of the exchange establishes a means of protection (for those who desire it) against adverse price changes through a process as hedging an insurance device that is available to all producers, traders, and converters.
- The machinery of the exchange clearing house furnishes to all buyers and sellers of exchange contracts a sure method of guaranteeing that both deliveries at contract time and payment therefore at contract prices will be made regardless of changes in market prices after the contract is and regardless of the insolvency of either contracting party at time of delivery under the contract.

### The finance function

- A continuous market and the ready transferability of standardized commodities by means of negotiable warehouse receipts give the commodity a high degree of liquidity.
- Liquidity of the commodity is an encouragement to more liberal loans by bankers and is a safeguard to them.
- Ability to finance commodities readily and to insure against adverse price changes or defaults on contracts enables producers, dealers, and manufacturers to operate successfully on smaller profit margins to the benefit of the consumer.

### The price registration function

- Joinder of markets by telegraph, telephone, radio, and cable, *internet* [italics mine] focuses all price influences on the commodity exchange; all (domestic and foreign) futures markets in the same commodity are thus linked together as one broad world market.
- Presence of a large volume of risk-bearing speculation ensures that every influence bearing upon prices will be given careful consideration and weight.
- Interpretation of news by producers, dealers, manufacturers, and speculators assures a degree of anticipation of future trends and events that would not otherwise be possible.

### The publicity and information function

- Exchanges gather from all available sources and make public in an unbiased manner statistics of present and potential supply, transportation, current consumption, and potential demand which are useful in estimating price trends and changes.
- Daily publication throughout the world of the record of volume and prices of all exchange transactions in contracts for future delivery informs all interested parties, not only of present prices, but also of the future trends (in exchanges where futures are traded).
- On the basis of widespread publicity of all futures quotations, dealers, producers, and manufacturers are enabled to make their purchases and sales with a higher degree of certainty and confidence.

### The regulatory function

- Exchanges gear large speculative funds of capital into their insurance machinery and regulate speculation so as to prevent abuses and provide for its conduct along orderly lines in the public interest.
- Exchanges develop uniform or "basis" contracts which, with their standards of inspection, weighing, and grading, contribute to the certainty, efficiency, and uniformity of practices in each trade.
- Exchanges establish and enforce, usually through compulsory arbitration procedures, rules and regulations governing the settlement of all disputes arising out of transactions on the exchanges, thus providing quick, cheap, and efficient settlements by experts, without the need for recourse to the courts; they establish codes to maintain the ethical conduct of business by their members and enforce these through their own sanctions and penalties." (pp. 30 & 31).

## 2.05 Pre-conditions for establishing commodity exchanges

On established commodity futures exchanges, the trade in financial risk management tools is made possible by generally high levels of market liquidity coming from a diverse group of market actors.

### Producers, consumers, and processors

Most of these actors participate on the exchange through trade houses or brokerage firms. In some markets, such as soft commodities, consumers and processors are much more active than producers, because market access is not always available for producers, many of whom are in developing countries. All of these actors use the exchange instruments for the purposes of hedging price risk which is a component of their physical trading.

### Trade houses

Although this activity has been consolidating over the past several years, there are a number of international, multi-commodity trade houses using the exchanges to manage physical and financial exposure of trading operations worldwide. Generally trade houses will focus on a category of commodities, such as metals, soft commodities, or grains.

### Brokerage houses

These are financial institutions, also called commission houses, which act as market intermediaries and make profits based on fixed commissions. Most brokerage houses are active on more than one exchange. This business is based on relationships with other market participants such as producers, consumers, processors, funds and investors. International banks with commodity lending portfolios may also have a commodity brokerage division which is designed to both mitigate the risk of the lending and earn profits from market-making activity.

### Managed funds and institutional investors

The expansion of market capital seeking opportunities for return on a diverse portfolio of risk has contributed to a high level of "fund" business in the commodity exchanges. Funds are generally run by professional money managers. Institutional investors can be pension and insurance funds, which consider commodity futures markets as a risk-diversifying alternative to other investments. Both fund managers and institutional investors follow technical trading signals to guide their activity in the market, and do not focus on fundamentals as much as other actors. Since they are often following similar technical signals, they can go in and out of the market at the same time, and in large volumes. In many markets, this activity has contributed to the increase in price volatility. This strong commercial interest on all sides of the trade, from physical buyers and sellers to speculative interest from financial stakeholders, is a very important pre-condition for the establishment of a commodity exchange, particularly one that will be able to offer risk management products.

Other pre-conditions for the development of commodity exchanges (either physical or financial) include<sup>1</sup>:

1. Supply and demand for the commodity concerned has to be large, with numerous market participants who consider the commodity to be an important component of their operations.
2. The commodity traded must be well standardized, with grades widely accepted by commercial parties, and with independent entities able to evaluate grades. Exchange trade is easier if a commodity is storable. Pricing must be left to market forces. This means that there should be little likelihood of manipulation by private interests or government entities. Standardization of contract terms facilitates clearing in several ways. First, standardized contracts can be netted, thereby extinguishing offsetting positions in identical contracts. Second, standardization can contribute to liquidity by concentrating trading activity in a smaller number of instruments. This can facilitate the hedging and replacement of defaulted positions in the event of a default.
3. The exchange should be supported by major commercial interests. This does not just mean that many companies should use the market for hedging but also that they are willing to use the exchange price as reference for their physical trading.
4. Well-functioning and accessible services and infrastructure are necessary, such as good access roads, availability of transport companies, weight bridges, quality control services, an efficient administration, warehousing, and telecommunications (if the warehouses or the transport companies are controlled by only a few companies and not available for public usage, they are of little use from the exchange's point of view).
5. Judicious government support is required, including a willingness to adopt suitable new regulation/legislation and appropriate oversight over trade on the exchange.
6. Free market prices must be volatile enough to create large price risks.
7. Producers should feel the exchange is good for them. This requires an educational effort by the exchange, and good public relations.
8. There should be enough potential interest from the speculative community.

When assessing the feasibility of developing a robust commodity exchange, governments and donors must discern whether or not existing market conditions are supportive of an exchange (Sitko & Jayne, 2011). These conditions exist in many countries including Ghana, and where absent, they can be created quite easily at least, from a purely technical perspective provided there are commercial interests and political will and support (Belozertsev, Rutten & Hollinger, 2011).

## 2.06 Overview of commodity exchanges in Africa

While Africa was late in entering the modern commodity exchange space (1994, after a gap of several decades), there is now no longer any lack of exchange initiatives. A count of African exchange initiatives shows that there

<sup>1</sup> Rod Gravelet-Blondin, General Manager of Agricultural Products, SAFEX (a division of Johannesburg Stock Exchange).



are, or have been, exchange initiatives of some sort in 28 African countries. In more than half of the countries, there is already an active exchange, or the path towards an exchange has moved into the planning and development stage, often supported at the highest level of government.

Two exchanges have reached reasonable volumes, in futures trade (SAFEX in South Africa) or spot trading (Ethiopia) – trading respectively over 210 million tons (mostly grains) and almost 600 thousand tons (mostly coffee) in 2012. GBOT in Mauritius is trying to become an offshore destination for global exchange trade. ACE in Malawi is developing from a small volume of trade to a more ambitious reach, trying to build a regional market on the back of warehouse receipts; something that Nigeria's ASCE exchange, which is struggling to show any kind of volume, can for the time being only strive for in the future. UCE in Uganda and ZAMACE in Zambia are trying to build trade on the basis of electronic warehouse receipt systems. Some exchanges ventures – in Kenya and Morocco – only provide market information, although they may aspire to facilitate transactions in future. There are some one-off exchanges which are more like trade fairs, organized to bring buyers and sellers together in one place (in Burkina Faso, Mali and Niger). There are also ambitious pan-African plans (Bourse Africa) or regional ones (in the ECOWAS and East Africa regions), as explained in subsequent paragraphs. All this activity makes Africa the world's current frontier for commodity exchange development, attracting the interest of some large international commodity exchange groups – the Chicago Mercantile Exchange, the world's largest commodity exchange, is increasingly engaged with South Africa's SAFEX; India's Financial Technologies group, which has in its midst the world's second largest commodity exchange, MCX, has two commodity exchange projects in the continent; NASDAQ/OMX, a major exchange and exchange technology group, is part of another regional initiative. The exchanges that are operational or have seen significant investments towards becoming operational vary widely in their intended scope of actions. Contract enforcement, warehouse receipts and clearing are now within the scope of most. However, only a minority has the ambition to move towards futures trading. As discussed further down, this may be a mistake, condemning the exchange to trying to survive at a low level of activity.

Furthermore, Africa's policy makers to have expressed the interest in a pan-African exchange to encourage regional trade, over the past ten years there have been a number of ambitious pan-African initiatives. The first being Pan-African Commodities and Derivatives Exchange (PACDEX), work on which started in the early 2000s. PACDEX envisaged a franchising model (Adendorff, 2007). Despite considerable work, the initiative, which relied on active support of African governments did not garner sufficient momentum and was disbanded.

At sub-regional level, regional organizations in both West and East Africa, are considering the creation of regional exchanges. The ECOWAS CAADP plan, adopted by its member states in January 2005, foresees a number of actions to develop regional markets for agricultural products. A feasibility study was done by UEMOA in 2010. This feasibility study and its recommendations are in several ways quite peculiar. They suggest that governments should take the lead in creating and managing an exchange. International experiences of how an exchange can be developed are largely ignored. A number of other national exchanges have developed in sub-Saharan Africa. There are more failed commodity exchange initiatives in Africa than those that are still operational, and most of those who succeed are struggling to survive; and yet, there are many more new initiatives, including Ghana. The major operational commodity exchanges are in Malawi and Nigeria, and while they are currently loss-making, both have ambitious plans.

In summary, there are more national exchange initiatives in all of Africa's sub-regions. In several countries, these initiatives are prominent, and driven by government agencies – this is the case of Ghana, Kenya, Tanzania and Zimbabwe; and one can also include a new exchange initiative in Malawi, promoted by the state-owned tobacco company, in this group. In Morocco and Egypt, there are private sector plans, with much less clarity on how the plans will be implemented – indeed, with little indication that these plans are moving forward.

Finally, according to Ian Goggin (2007), African markets exhibit the following characteristics: (a) poor communication; (b) lack of transparency; (c) no enforceable contracts/dispute resolution mechanisms; (d) very conservative approach; (e) lack of understanding of market fundamentals; (f) unsophisticated and underdeveloped markets; (g) very little reliable data on trade flows; (h) much of the trade is informal; (i) no quality standards, quality control or transparency as a result; and (j) lack of identifiable or available markets.

Rashid, Winter-Nelson, and Garcia (2010) also identify four important obstacles to the development of commodity exchanges in Africa: the small size of domestic commodity markets, weak physical and communication infrastructure, a lack of legal and regulatory environments, and the likelihood of policy interventions.

## 2.07 Range of instruments from international experience

“Commodity exchanges are organizational entities which allow those active in the production, trade, processing and consumption of physical commodities to reduce transaction costs both in a static manner, as they provide

discipline and act as a source of market information, and in a dynamic manner, as those active in the commodity sector will have both the tools and the incentives to improve the way they operate.

This main rationale, i.e., reducing transaction costs, is the key element for understanding commodity exchanges and for identifying the kinds of exchange that would be most suited for the particular conditions of a country or a commodity sector. In some cases, the major potential for reducing transaction costs may lie in organizing a physical marketplace, where buyers and sellers can be sure of finding a ready market. For example, one of the factors that led to the creation of the Chicago Board of Trade (CBOT), in the mid-nineteenth century, was that farmers coming to Chicago at times found no buyers and had to dump their unsold cereals in Lake Michigan, adjoining the city. In other cases, high transaction costs may be the result of a disorganized market, without standard definitions for commodities and without standard contracts. In yet other cases, the problem may be one of access to finance, or the high costs of protecting against price risks. Commodity exchanges are not rigid mechanisms, only able to provide a means to, say, manage price risks. In many cases, if properly organized, they can be the best possible way to reduce a whole array of other problems, including problems with finding buyers or sellers, quality problems, difficulties in obtaining credit and counterparty risks.

A commodity exchange can play many different roles, and which roles it needs to play will depend on specific conditions. Indeed, an exchange that does not meet the specific needs of its market has little or no chance of survival. This underlines the fact that copying existing models, however successful they may be, is not a recipe for success. Much can be learnt from the existing exchanges, from their history, their successes and failures, but they do not provide a blueprint for new exchange initiatives.

A commodity exchange, by its very nature, earns its revenue by allowing people to do things that they could not do before or by enabling them to do what they want to do more efficiently. The greater the inefficiencies in the market, the greater the benefits that an exchange will bring; but also, the greater will be the barriers that an exchange will face. By providing new tools, new efficiencies, an exchange acts as a catalyst for change, for converting an "old style" economy into a modern one. An exchange is not merely a different platform for doing what would be done anyway. Rather, it is a powerful change agent.

An exchange is not limited to offering trade in forward or futures contracts. In an inefficient market, the many other valuable services that it can offer include, in particular:

1. facilitate physical trade by guaranteeing parts of a commodity chain and supervising warehousing or inspection functions;
2. provide a trading forum for buyers and sellers;
3. provide guarantees on the logistics of trade; and
4. facilitate directly the financing for transactions, in particular by trading WHRs as underlying elements for financing deals (as part of repo transactions.". Quoted from: (Belozertsev, Rutten & Hollinger, 2011, p. 67, para. 2-3).

### 3.0 Discussions

#### 3.01 Challenges for establishing a commodity exchange in Ghana

##### Laws and regulations specifically pertaining to commodity exchange

Governments can play a fundamental role in providing the necessary legal and regulatory conditions for commodity markets to thrive. Conversely in the absence of appropriate legal frameworks, commodity markets will struggle to develop (Sitko & Jayne, 2011, Paul 2011).

An exchange is a self-regulatory organization, and as long as it involves only a limited number of expert users, can operate quite well even in the absence of a broader regulatory framework (AfDB 2013). CEX has an in-house arbitration tribunal with licensed arbitrators to assure the speedy and professional resolution of any commercial disputes that may arise. "The SEC has initiated a process to commission a study on the regulatory framework which will define the legal framework for the operation of the proposed exchange as well as for licensing warehouses and operators issuing transferable and tradable warehouse receipts." (Onumah, 2010, p.26). Despite this, Ghana has to make a law specific to commodity exchanges (e.g., a Commodity Exchange Act). Our view is that, Ghana could adopt the Ethiopian Commodity Exchange operating model shown below in figure 01.

##### Inadequate financial support

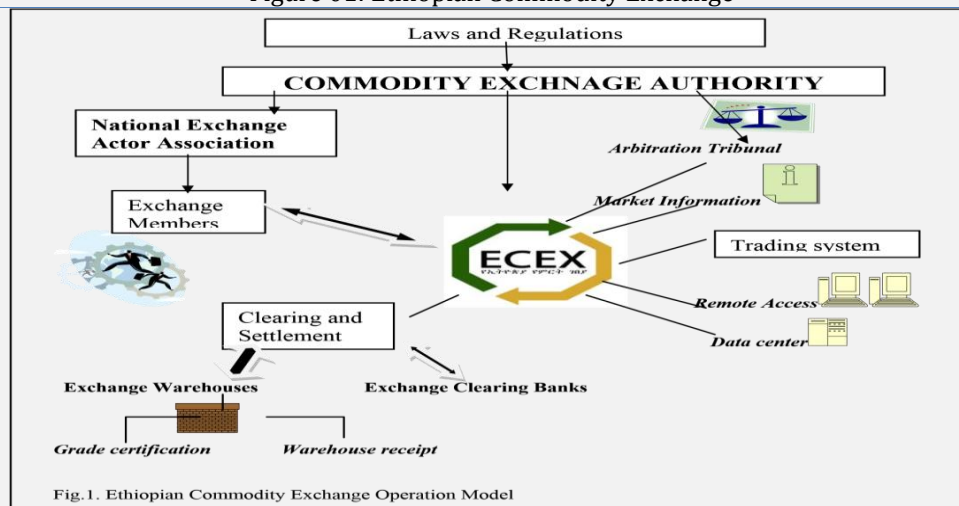
No budgetary provision was made for it in the 2014 budget. Ghana's Minister of Food and Agricultural, announces that legislative processes are underway to have private investors take over the NAFCO as government had no money to pump into it. The statement says the privatization by the ministry and Parliament

will give Ghana an independent and sovereign food supply, adding that, with the private support it will mean the big players have the big money and can provide the most support, which means the most control.

In reaction to the announcement, a statement signed by the Chairperson of Food Sovereignty Ghana (FSG), an NGO, and copied to Ghana News Agency on Wednesday said FSG saw the move from National Buffer Stock Company (NBSC) as a commodity exchange yet to be another move by government against Ghanaian farmers. It called on government not to privatize the NBSC, as it would be like putting our buffer stock in hands of speculators, is like putting Count Dracula in charge of a Blood Bank, the statement added (GNA February 7, 2014).

There is a need to educate market participants of the operations, and instruments used by the exchange. Government of Ghana and donors can explore the possibility of technical and financial assistance to support the required capacity building programmes.

Figure 01: Ethiopian Commodity Exchange



Source: Issac Paul, An assessment of the opportunities and challenges of the Ethiopian Commodity Exchange

### Lack of trading infrastructure

Those developing WRSS and CEXs often lack the needed ICT background to clearly identify all software needs and issues. This has resulted in spiraling software development costs and delays in start dates. Price transparency is a side benefit of an exchange—it is not a reason to establish an exchange. One strong role for ICT is to transmit this information—once available—rapidly and efficiently either directly or indirectly through a market information service. Without appropriate technology participants from the developed markets who are usually volume movers cannot participate. “The leading commodity exchanges in India – among the fastest growing in the past decades – defined themselves as technology companies. In Africa, exchange initiatives that used little technology have tended to fail – perhaps not because of their level of technology, but because this was indicative of an overall lack of funds to properly develop an exchange. (AfDB 2013, p. 29). Power failure, bad road network and transportation bottlenecks, are problems inherent in the Ghanaian economy. The need to have a redundant network infrastructure is obvious, but can the Ghana Commodity Exchange attain that on its own? While the existing IT infrastructure in Ghana is considered adequate for the development of the exchange, it is acknowledged that improving market information systems will be necessary to ensure that market players are able to take informed decisions on the basis of reliable information (Onumah, 2010). On July 24, 2014, a downtime at the Nigerian Stock Exchange prevented equity trading (Channels TV, 2014).

There is a need for moving locally-produced commodities from the current small-holder, atomistic, non-industrial production storage centres into accredited warehouses and silos, in standardized lots, graded, shelf-life certificated, and insured with no loss guarantees, to be financed ‘sight unseen’ (Aning, 2007). Therefore, government needs to make huge investment in rural infrastructural development.

### Inadequate volume

Future markets meet a vital need in the marketing of farmers' crops function efficiently as a hedging medium, it requires constant volume to permit its use for hedging or price insurance by either producers or consuming interests. Commodity exchanges only generate “transparent” prices if sufficiently traded volumes of each commodity are passing through the exchange on a regular basis to generate such prices. Large scale consumers such as millers or processors are not common in Ghana and the West African sub-region to drive the volume necessary for the exchange to function efficiently. “Achieving sufficient market size, both in terms of volume of

trade and number of participants, is a fundamental precondition for any commodity exchange to function effectively.” (Nicholas, Sitko & Jayne, 2011, p. 3). It is generally difficult for African exchanges to find reliable delivery partners. Even if there are well-managed warehouses in the country, they may well be used for proprietary trading and storage by their owners, who may not be keen to start offering a warehousing service to third parties (AfDB 2013). Sufficient market size helps to reduce the risk of market manipulation and collusion among market actors; and commodity exchanges either grow quickly into heavily traded institutions or they fail according as they attain sufficient volume or not.

#### Liquidity problem

Unless markets can ensure liquidity, potential market participants will be reluctant to trade for fear of being unable to liquidate their positions except at substantial cost. This generates a classic “chicken and egg” problem. Further, if two or more exchanges compete for the same business, traders will generally opt for the exchange with the highest liquidity and hence the lowest spread. Exchanges compete for liquidity and it is difficult for an entrant to attract liquidity from a successful incumbent’s contracts. This generates “first mover advantage”. Taken to an extreme, it can imply the principle “one product, one contract”.

In the case that a developing country exchange introduces a contract which competes with a contract on a developed country exchange, hedgers will compare the costs and benefits of hedging with the new contract relative to the existing contract. Market liquidity is a major determinant of the cost of hedging – the less liquid the market, the higher the likely spread and the more expensive it may be to close out a position. The new contract will have lower liquidity than the existing contract, at least initially, implying that choice of the new contract will raise costs. Against this, the new contract will be more appropriate, in terms either of product specification or of delivery location, for local and regional hedgers and so will have lower basis risk. Hedging with the new contract will therefore be associated with both higher costs and higher potential benefits than use of the existing contract. The balance between these two factors will determine whether the contract is attractive.

#### Smallholder farms

Most farmers in Ghana have small holdings and the volume of production will not provide volume of a reasonable size to making trading effective. There may be the need to revive the farmer cooperatives or encourage farmers to form new producer groups or associations. There is also the need to invest in the formation/strengthening of viable producer association for smallholder farmers. “The atomized structure of Ghana’s agricultural production system makes it difficult for smallholder farmers to directly utilize the WRS and exchange as individuals” (Onumah, 2010, p. 27). “Collaboration with NGOs such as Technoserve, ADRA, Catholic Relief Services and Concern International, which have a long history of promoting farmer groups, can therefore help in strengthening the capacity of farmer organisations and improving access by smallholder farmers. This represents another opportunity for donor support in promoting a viable exchange in Ghana” (Onumah, 2010, p. 27).

#### Lack of understanding of trading instruments

Price risk management techniques have the potential to improve the functioning of the agricultural supply chain in developing economies. Many countries still lack expertise on market-based approaches to managing risk. Improved access to risk management instruments is necessary, and this in turn needs to be more appropriate to developing country requirements.

#### Government/political interference

Non-transparent government intervention in markets (buying, selling, price setting, export bans, etc.) as experienced in most of eastern Africa apart from Uganda, disrupts the natural market response, bringing about unpredictable price spikes and dips. According to Nicholas et al., (2011). “The Zambian government frequently imposes trade bans, changes in import tariff rates, and the release and/or accumulation of stocks at prices very different from the market, all of which have major effects on market prices. This gives rise to concerns in the agricultural sector about asymmetric information regarding the government’s intentions in commodity markets.” (p. 4). This increases the risk of participating in the market, reduces the number of players in the market and ultimately reduces investment in and the usefulness of market institutions such as WRSs and CEXs. Exchanges are usually self-regulated. The role of the government should be to set out the minimum requirements under which it is willing to license an exchange; then license all applicants that meet these requirements; and then work together with the various promoters in a positive vein to help create the conditions for success (including a full set of regulations). It could be a minority shareholder in an exchange, but should not have a controlling stake (AfDB 2013).

### 3.02 Economic prospects

The establishment of a Commodities and Warehouse Receipt System will help to modernize agriculture and other commodity sectors of the economy. It will particularly enhance Ghana’s competitiveness in commodity



trade, reduce transaction costs in the marketing of agricultural and other commodities thereby improving incentives for producers and other players in the value chain. Other benefit include, but not limited to the following:

1. Reduce post-harvest losses through price stability. Price stability depends largely on the ability of producers and suppliers to respond quickly to price changes. Does the exchange stabilize prices? It has come to be accepted as almost axiomatic by writers on commodity exchanges that the machinery of the exchange tends to make prices more stable or at least to minimize their fluctuation. Breadth of the market that is, the existence of a large number of buyers and sellers is a condition which operates against sudden and violent upward or price swings. However, [Rashid, et al. \(2010\)](#) argue that by their nature commodity exchanges cannot guarantee that prices will remain within a range that is acceptable to policy makers. Although vibrant exchanges can help to minimize the risk of price variability over time, this does not necessarily equate to price stabilization. As such, there is a strong likelihood that governments will continue to intervene in cereal markets even when commodity exchanges are operating efficiently. If the government's intervention is large, it can destroy market confidence and undermine the development of an exchange.
2. Improve price risk management and therefore enhance investment in the entire value chain in agriculture and other commodity sectors in Ghana. The exchange will develop a network of warehouses into which sellers can make delivery. It will also develop a market information system that allows buyers to know the prices at these delivery points. This makes it possible for buyers to procure commodities even in places where they have not previously been active.
3. Reduce counter-party and other risks in agriculture in Ghana. An exchange provides a mechanism for increasing market liquidity enabling transfer of price risk and creates trust, order, and integrity in the market, [\(Eleni, Ian Goggin, 2005\)](#) (as cited in [Paul, 2011, p. 6](#)).
4. It is also envisaged that the project will assist government to realize its goals of accelerating rural development, employment creation, economic growth and poverty reduction in the country. Grain warehouse receipts programs will provide both storage and a source of reliable financing for grain producers. With that, farmers will no longer be forced to sell at the end of harvest season when prices are usually low, they can sell when prices are higher and borrow against those sales to make further investments in their farm enterprises.
5. Provide a transparent and competitive price discovery mechanism. The operations of the exchange trading floor, and WRS can be good institution, which can assist smallholder farmers- (collateral to access cash), provide grading mechanisms, storage, better markets (good grades), food security (storage), higher prices (seasonality as a result of storage). "In South Africa, the warehouse receipt system developed by SAFEX has led to bank lending of equivalent of close to a billion of US dollars annually. In India, the collateral management companies set up by the two leading commodity exchanges have enabled equivalent of billions of dollars of new agricultural finance, by banks who previously were wary of such lending." [\(AfDB 2013, p. 11\)](#).
6. Reduction in transaction costs. According to [AfDB \(2013\)](#), while there is little exchange experience in Africa yet, an analysis of ECX indicates that the expected reduction of transaction costs indeed materialized: "The comparison of available data before and after the ECEX indicates that transaction costs have declined in terms of (i) the average number of intermediaries each trader used (buying agents, brokers, and selling agents) along with the role of ethnicity and religion, (ii) average number of people consulted and involved to make a transaction per market day, (iii) methods/means of verification employed for sesame quality assurance, and (iv) time required per transaction." [\(Meijerink et al, 2010\)](#). "Similarly, marketing costs have declined by about 57% as compared to the situation before the start of the ECX." (p.11). "An exchange reduces transaction costs by facilitating contact between buyers and sellers and enables centralized grading of products ensuring that contracts are enforceable." [\(Paul, 2011, p.6\)](#).
7. Opportunity to learn from the experiences of others. Coming late, Ghana has an opportunity to learn from the successes stories like South Africa, and Ethiopia. There is much to be learned from careful examination of a failure as well.

#### 4.0 Conclusion and policy implications

Ghana had a long dream of establishing a Commodity Exchange. Feasibility studies concluded that it is feasible to establish a Ghana Commodity Exchange (GCX) and warehouse receipt system [\(Onumah, 2010\)](#). However, to reap the full benefits of an organized commodity exchange, Ghana would have a number of challenges to address. History is replete with stories of failed commodity exchanges in Africa (notably, Egypt's cotton exchange which collapsed after 100 years of operation) and the others who are still struggling for survival. Properly organized Ghana can achieve the following benefits: Reduce post-harvest losses through price stability, improvement in commodity price risk and credit risk management, Provide a transparent and competitive price discovery mechanism, reduce transaction and marketing costs, and avoid making the mistakes of others (hence, has a better chance of success than others). Governments and donors can play an important role to facilitate the



development of commodity exchanges and, in especially risk management instruments, by creating an enabling policy, legal and regulatory environment.

Government, donors and other decision makers must develop the physical infrastructure such as roads in the rural and farming areas, encourage investments in warehouse facilities, ICT infrastructure, improve power supply; and then promote the use of warehouse receipts system. Furthermore, they should carry out capacity building for all market participants. The goal is to help producer organizations, traders, and lenders to better understand price risks and instruments to manage them. The ability to use risk management techniques is critical to all actors engaged in commodity trade and a key component of overall business capacity. Governments and policy makers also need to know about the choices, policies and instruments that will facilitate better risk management at the commercial level.

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