



# FEASIBILITY STUDY ON AFRICA COCOA EXCHANGE (AFCX)

### REPORT - PART 1 COMMODITY EXCHANGE MODEL OPTIONS

July 2023

Prepared for International Cocoa Organisation (ICCO) by Darhei Noam Ltd



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This document comprises the deliverable from Phase I of the study to explore the feasibility of an Africa Cocoa Exchange (AfCX). It may be read in conjunction with other documents that are appendixes to this report. This includes cocoa value chain reports for Côte d'Ivoire, Ghana, Nigeria and Cameroon, and a survey and analysis of African commodity exchanges.



## **Executive Summary**

#### Background

The International Cocoa Organization (ICCO) contracted Darhei Noam (UK) Limited to conduct a feasibility study to assess the technical feasibility and financial viability for the creation of an African Cocoa Exchange (AfCX) which will focus on the main cocoa-producing economies: Côte d'Ivoire, Ghana, Nigeria and Cameroon.

Commodity exchanges have been recognised within African policy frameworks as an inclusive but market-friendly and financially sustainable solution for imposing structure on the Continent's often fragmented agricultural value chains.

The role of an exchange is to create access for value chain actors, from the producer onwards, to a range of services including post-harvest handling and quality control, storage, finance, market access, price discovery and price risk management.

While policy emphasis has typically focused on driving productivity gain, quality upgrade, resilience and improved price realisation for smallholder producers, a commodity exchange can also generate positive impacts for the downstream agro-industries (i.e. processors, manufacturers and exporters).

By helping to improve the efficiency and sustainability of raw material aggregation, expand access to working capital, and make available price risk management instruments, a commodity exchange can help increase overall value addition, reduce volatility of supply, enhance compliance with end buyers' quality, traceability and sustainability requirements, and boost overall export competitiveness.

However, the flow of envisaged benefits does not automatically materialise from the establishment of a commodity exchange.

First, it is understood there are a range of prerequisites and complementary initiatives required to support a successful exchange (see Section 4).

Second, experience suggests that, while there are now some major commodity exchange success stories in Africa, there are also examples where an exchange has not yet managed to take root (see Section 6, as well as Annex II for a detailed analysis of Africa's operational commodity exchanges).

Getting the commodity exchange model right – which means selecting a model that adds value to the stakeholders in the targeted value chains – is the key success factor.

Analysis of African and global commodity exchange experience suggests there are many possible ways to structure a commodity exchange. Therefore, to perform a detailed feasibility analysis for the prospective AfCX, it has been first necessary to decide on the structure for the commodity exchange that is most likely to be effective in the context of African cocoa.



#### Stakeholder Workshop

Consequently, participatory discussion on the most effective commodity exchange structure to support inclusive and sustainable trade of African cocoa was the main subject for stakeholders representing different interests in the African cocoa value chains at the ICCO AfCX Phase I Stakeholder Workshop hosted by the Government of Ghana, under the auspices of the Cocobod, in Accra (Ghana) on 21-22 June, 2023.

The outcomes of this discussion, documented below, and in more detail in Section 9, create the specific framework for the performance of a 'deep dive' feasibility analysis and implementation planning exercise in Phase II of the Study.

The discussions in Accra hinged around:

- Building a detailed understanding of the cocoa value chain structures and sectoral regulations in the four focal countries (see Annex I); and
- Performing a participatory exercise in which stakeholders expressed a consensus view on the model around which AfCX should be structured.

#### Methodology

At the Stakeholder Workshop, seven commodity exchange model parameters were presented with a range of choices offered under each parameter. These seven model option parameters were presented as a sequence, with the choice made under the first parameters influencing the choice to be made under the subsequent parameters, as described below:

#### Model Option Parameter 1 – Market Linkage Type / Value Chain Insertion

Understanding the different links in the cocoa value chain from the producer to the end user or consumer, via different levels of intermediation and value addition, is essential for identifying the most appropriate model for inserting AfCX into the four national cocoa value chains.

Specifically, this understanding can help map which link(s) in the value chain the AfCX will serve, i.e. who would be the intended sellers and buyers participating in the exchange's contract markets.

Key questions include whether the exchange will reach back to the rural areas to support marketing by organised farmers of small-scale volume, or whether it will insert itself further along the value chain to facilitate the sale of bulked aggregated cocoa by intermediaries. Another key question is whether the exchange will facilitate domestic or international trade.

Multiple insertion points may be selected although experience suggests that the best approach would be to serve each one separately according to their specific needs which are likely to differ in key dimensions (e.g. delivery location, contract size, quality).

#### Model Option Parameter 2 – Exchange Delivery Warehouse Location Type

The option(s) selected under Model Option Parameter 1 subsequently influence the type of warehouse delivery locations and storage technologies that the exchange would use. Locations can include rural production locations (primary aggregation centres), rural centres (secondary aggregation centres), upcountry intermediate sites, or wholesale markets and port terminals. Aside from standard warehousing, alternative storage technologies may also be explored such as hermetically-sealed bags and 'cocoons'.

#### • Model Option Parameter 3 – Physical Trade, Price Risk Management, Finance or Combination

The option(s) selected under Model Option Parameters 1 and 2 – i.e. the selection of the value chain actors to be served and the delivery warehouses to be used – in turn influence the choice of instrument to be offered. This choice focuses on whether the exchange should facilitate physical trade, hedging, finance or a mix of all three, and specifically for which actors and at which locations. This depends on the needs of the actors along the value chain and how a commodity exchange can add value to their activities.

#### • Model Option Parameter 4 – Institutional Structure

The selections under Model Option Parameters 1, 2 and 3 influence a further set of choices concerning the institutional structure and the implementation and partnership arrangements.

The institutional structure for AfCX will be reflective of whether the exchange should be structured as a single regional hub, as four national standalone exchanges, or as a 'hub and spoke' model which combines aspects of both. This choice may be made separately for physical trade and for price risk management. However, it must take into account factors including alignment with the different value chain and regulatory structures prevalent in each market, the opportunities for actors to perform cross-border procurement or sales, and the benefits of consolidating regional bargaining power and enabling cross-border trade-flows.

#### Model Option Parameter 5 – Implementation and Partnership Model

This choice invites consideration of whether to implement AfCX as a new standalone institution and/or to implement AfCX through partnership with the established regional or global commodity exchanges. This choice again may be made separately for physical trade and for price risk management and may take into account factors such as institutional focus and prioritisation, set-up time and cost, the readiness of potential partner exchanges, and stakeholder preferences.

#### Model Option Parameter 6 – Cocoa Product Focus

This choice focuses on whether the raw cocoa beans, after drying and fermentation, would be the main object of trade, or whether sustainable cocoa (organic or certified), or processed cocoa products, would be preferred or complimentary, or a mix of these.

#### Model Option Parameter 7 – Overall Product and Asset Offering

Finally, the last of the choices invites consideration of whether to offer a wider set of products and assets beyond cocoa, all the while recognising the prioritisation of cocoa. This may include physical agricultural commodities that have synergy with cocoa (e.g. coffee), non-agricultural commodities such as oil and gas, or financial assets to mitigate the risks associated with cocoa trade, including exchange and interest rate volatility.

#### Workshop Outcomes

The key over-arching outcome of the Workshop was a general consensus across stakeholders on the model of commodity exchange for AfCX which will be subjected to 'deep dive' feasibility analysis and implementation planning during the Phase II of the Study.

An important secondary over-arching outcome of the Workshop was the establishment of relationships, buy-in and endorsement of the emerging consensus by the stakeholders to the AfCX concept, which lays the groundwork for positive engagement and consultation during Phase II and <u>expedited implementation of AfCX upon completion</u> of the feasibility study.

A third over-arching outcome of the Workshop was the agreement by stakeholders on the key problems to be solved by AfCX, and the key dangers that need to be addressed. Key problems to be solved cover access to finance, price discovery and negotiating power, more remunerative farmer incomes, improved access to storage, value addition, increased traceability (particularly linked to the incoming EU Deforestation Regulation), and addressing other environmental, social and governance (ESG) issues in cocoa. Key dangers include resistance from vested interests, barriers to regional integration, farmer capacitation constraints, quality deficiency and standards divergence, high transaction costs, market integrity and manipulation, price volatility, lack of political will, and alignment with existing regional exchanges.

#### The Emerging AfCX Vision

The specific conclusions on AfCX model selection – including the rationale for stakeholder choices – is set out in sections 9.2 and 9.3. The main strategic pillars that emerged from the deliberations are:

• Creation of a new regional commodity exchange and clearinghouse institution, AfCX, that facilitates physical trade, price risk management and value chain actor financing and payment solutions across African cocoa markets, linking on the one hand with emerging African cross-border trade enablers such as the African Continental Free Trade Area (AfCFTA) and the Pan-African Payment and Settlement System (PAPSS), and on the other, where applicable, with existing exchanges that provide efficient national entry points;

#### • Key objectives of AfCX:

• **strengthening of market access, price discovery and pricing power** for African cocoa-producing economies in global cocoa markets through consolidation of the region's negotiating power, *leveraging emerging opportunities for intra-regional trade*;

• harmonisation of standards and creation of markets for standard, organic and certified cocoa, linked where applicable to key sustainability schemes (e.g. Fairtrade, Rainforest Alliance) to drive remunerative income for producers, address key ESG challenges in the value chain, and converge on best practice for post-harvest quality control;

• **increased value addition to the raw commodity** within the African producing economies through enhancing aggregation efficiency, price discovery, price risk management and financing to boost economic returns, export market access and competitiveness;

• **inclusivity for smallholder producers in storage, finance and markets** through empowerment and professionalisation of farmer organisations, and development of farmer-inclusive infrastructure, financing and services, to nurture improved supply-responsiveness and investment that creates a win-win for all actors along the value chain;

• offering buyers an efficient alternative means of sourcing standard and sustainable cocoa across the region, by shortening the value chain, increasing traceability, and offloading some of the costs of running separate supply chains (e.g. storage, quality assurance, certification), to drive economies of scale and lower cost aggregation.

• **Physical trade** through AfCX will be facilitated through the creation of multiple markets across the region customized to serve the diverse flows in the cocoa value chain:

• from organised producers to onshore offtakers, for those producer organisations that are sufficiently organised and capacitated;

• **from large intermediaries**<sup>1</sup> **to onshore offtakers**<sup>2</sup> in situations in which producers are not sufficiently organised or capacitated, albeit with a view to supporting increased farmer-level organisation, capacitation and market participation over time, to the extent that sectoral regulation allows;

• **from organised producers of sustainable cocoa to international end buyers**, to enable those producers that invest in sustainability to reach the market willing to pay the price premium for organic and certified cocoa<sup>3</sup>; and

• from local processors of cocoa products, and sustainable cocoa products, to international end buyers, as part of a wider strategy to stimulate investment into value addition by existing or new players<sup>4</sup>.

<sup>2</sup> In the case of Ghana, potentially also to international end buyers.

<sup>&</sup>lt;sup>1</sup> i.e. Licensed Buying Agents (LBA) - Côte d'Ivoire, Nigeria, Cameroon; and Licensed Buying Companies (LBC) – Ghana;

<sup>&</sup>lt;sup>3</sup> Rather than currently where some sustainable cocoa producers and cooperatives are forced to sell their beans on the open market without receiving a sustainability premium.

<sup>&</sup>lt;sup>4</sup> As well as the traditional processors, this will include support for: farmer organisations and SMEs to move into cocoa processing to secure higher value from their participation in the chain; and processors of sustainable cocoa to reach the global ESG-conscious buyer segment ready to pay a premium to buy from FO/SME sustainable processors which better remunerate the farmer and encourage sustainable practices.

• Price risk management instruments<sup>5</sup> will be traded on AfCX to create price discovery and enable effective and affordable hedging, with coverage likely to include:

• Africa FOB cocoa and cocoa products, with the objective to create market access for the onshore value chain, increasing the pricing power of African producer markets, and contributing to improved overall price discovery, stability and resilience in global cocoa, delivering a 'win-win' for currently excluded smaller-scale actors, international buyers and terminal markets<sup>6</sup>;

• Africa FOB sustainable cocoa and cocoa products, with the objective to drive increased compliance with sustainability requirements, as the sustainability premium would become market-determined and more transparent, thus driving greater uptake by farmers, processors and consumers;

• **Financing solutions** will be enabled by AfCX through warehouse receipts (WRs) and other instruments to make available working capital that empowers producers to market their produce more dynamically over the season and avert distress selling to informal traders from farmgate, while driving increased scale and speed of aggregation by downstream players to boost value addition and export competitiveness. A role for input loans, and pre-harvest finance more generally, will also be explored.

• An innovative cocoa-backed cryptocurrency, provisionally 'Cocoacoin', will be explored with the aim to provide farmers with improved means to participate in financial markets and the markets for goods and services on the back of their produce, without the transmission losses experienced through use of fiat currency, i.e. commissions and margins charged by financial institutions for payments, transfers and deposit-based services, which often weigh disproportionately on the smaller-scale actors.

• Additional commodity and financial products, both for physical trade and price risk management, may be explored once the core cocoa markets have been established. These could reflect synergy between the cocoa value chain with:

- a) complementary value chains (e.g., coffee, cashew and other crops with which cocoa value chain actors engage);
- b) financial needs (e.g., FX and interest rate hedging, linked to regional cross-border and international trade); and
- c) national policy imperatives (e.g., income diversification through strengthened trade of oil and gas, metals and minerals, and processed and manufactured products).

• **Regional clearinghouse** would be introduced to clear and settle trades on AfCX whose regionality would better position it to meet the increasingly stringent capital adequacy and systemic risk mitigation criteria defined in international best practices, while capitalising on advances in cross-border payments systems such as PAPSS as well as the AfCFTA.

• **Professionalisation and capacitation support** will be provided at scale through national and regionwide programmes to drive beneficial participation in AfCX by all actors and thus be a critical enabler of inclusivity, impact, commercial sustainability and scalability.

On the basis of this emerging vision, a proposed update to the Study TOR for Phase II has been set out in Section 9.5.

<sup>&</sup>lt;sup>5</sup> In line with normal sequencing, futures instruments will be introduced first. Once the futures markets become liquid, alternative instruments which leverage off the futures market can be introduced. These include options, contracts for difference (CFD) and exchange-traded funds (ETF) – see Section 3 for further information. Importantly, it is noted that options, CFDs and ETFs tend to be more supportive of hedging for smaller-scale actors than futures instruments.

<sup>&</sup>lt;sup>6</sup> This recognises that commodity exchange liquidity is not zero-sum but rather positive sum. A new contract which creates market access for currently excluded actors can create liquidity not only on the originating exchange (AfCX) but can also increase the liquidity on the existing global exchanges as well through arbitrage trade between AfCX and the global exchanges. Commodity exchange price discovery is said to be efficient to the extent it represents the convergence of supply and demand. To the extent that previously excluded pricing signals from the supply side will now be integrated into contract pricing, on both AfCX and – via arbitrage - on the global exchanges, price discovery across both venues will be to that extent strengthened.

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## >> Acronyms

• ACE	Agricultural Commodity Exchange for Africa, Malawi
• AfDB	African Development Bank
• AfCFTA	African Continental Free Trade Area
• AfCX	
AFEX	AFEX Exchange, Nigeria
<ul> <li>Afreximbank</li> </ul>	African Export Import Bank
• AGRA	Alliance for a Green Revolution in Africa
• AHCX	Auction Holdings Commodity Exchange, Malawi
• AMASS	Aaricultural Market Access Sub-Strateau of AfDB
	l'Autorité des Marchés Financiers de l'Union Monétaire Quest Africaine
	African Organisation for Standardisation
ALL	
• AU	African Union
• BIS	Bank for International Settlements
• BMM	Bolsa de Valores de Moçambique
• BRVM	Bourse Régionale des Valeurs Mobilières, Côte d'Ivoire
• BST	British Summertime
• BVMAC	Bourse des Valeurs Mobilières de l'Afrique Centrale
	Comprehensive Africa Agriculture Development Programme [African Union]
	Comprehensive Amod Agriculture Development Programme (Amodif Onion)
• CBOI	Chicago Boara of Irade, USA
• CCC	Conseil du Café-Cacao, Côte d'Ivoire
• CCP	Central Counterparty Clearinghouse
• CEMAC	Central African Economic and Monetary Community
• CFD	Contracts for Difference
• CETC	Commodity Eutures Trading Commission USA
• CME	Chicago Mercantile Evolution USA
Casabad	Chang Coope Paged
• COSUMAF	Central Africa Financial Market Surveillance Commission
• DFI	Development Finance Institution
• DVP	Delivery versus Payment
• EAX	East African Exchange
• FCB	European Central Bank
• FCOWAS	Economic Community of West African States
ECY	Ethiopian Commodity Evolution
• EIVIX	Egyptian Mercantile Exchange
• ESG	Environmental Social and Governance Criteria
• ET	Eastern Timezone
• ETF	Exchange Traded Fund
• EU	European Union
• FAO	Food and Agriculture Organisation of the United Nations
• FCA	Financial Conduct Authority UK
ECC	Enderation of Concer Commerce
•FX	Foreign exchange
• FOB	Free on Board
• GCX	Ghana Commodity Exchange
• GMT	Greenwich Mean Time
• ICA	International Cocoa Agreement
• 1000	International Cocoa Organisation
	InterContinental Exchange Futures Europe LIK
	InterContinental Evoluting Futures LISA
	Inter-Continential Exchange i alla 500A
•10500	International Organisation of Securities Commissions
• IPE	International Petroleum Exchange, UK (part of ICE Futures Europe)
• ITC	International Trade Centre
• JSE	Johannesburg Stock Exchange, South Africa
• KII	Key Informant Interview
• LBA	Licensed Buuing Agent
•IBC	Licensed Buuing Company
• L C E E	Lagos Commoditu Euturos Evolopao Nigoria
	Lagos Commodity i atales Exchange, Nigena

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• LME       London Metal Exchange, UK         • MCX       Multi Commodity Exchange of India         • MEX       Mercantile Exchange of Madagascar         • MIS       Market Information System         • MMOU       IOSCO Multilateral Memorandum of Understanding         • MT       Metric Tonne         • NCDEX       National Commodity Derivatives Exchange, India         • NCX       Nigeria Commodity Exchange         • NJ       New Jersey, USA         • NY       New York, USA         • NYBOT       New York Board of Trade, USA         • ONCC       Office National du Cacao et du Café, Cameroon         • OTC       Over the Counter         • PAE       Pan-African Exchange         • DADSS       Dan-African Exchange	• LIFFE	London International Financial Futures Exchange, UK (part of ICE Futures Europe)
<ul> <li>MCX Multi Commodity Exchange of India</li> <li>MEX Mercantile Exchange of Madagascar</li> <li>MIS Market Information System</li> <li>MMOU IOSCO Multilateral Memorandum of Understanding</li> <li>MT Metric Tonne</li> <li>NCDEX National Commodity Derivatives Exchange, India</li> <li>NCX Nigeria Commodity Exchange</li> <li>NJ New Jersey, USA</li> <li>NY New York, USA</li> <li>NYBOT New York Board of Trade, USA</li> <li>ONCC Office National du Cacao et du Café, Cameroon</li> <li>OTC Over the Counter</li> <li>PAE Pan-African Exchange</li> <li>DADSS Dan African Daumont and Sottlement Sustem (of Afrovimbank)</li> </ul>	• LME	London Metal Exchange. UK
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PAP33 PAP33 PUI-AIICUI PUUNENI UNU SELLEMENI SUSLEMI IOI AITEXIMPUNKI	• PAPSS	Pan-African Payment and Settlement Sustem (of Afreximbank)
• PoP Point of Presence	• PoP	Point of Presence
Repurchase Contract	• Repo	Repurchase Contract
SEC-G Securities and Exchange Commission of Ghang	• SEC-G	Securities and Exchange Commission of Ghang
SEC-N Securities and Exchange Commission of Nigeria	• SEC-N	Securities and Exchange Commission of Nigeria
SGF Settlement Guarantee Fund	• SGF	Settlement Guarantee Fund
SME Small- and Medium-Sized Enterprises	• SME	Small- and Medium-Sized Enterprises
SWOT Strengths Weaknesses Opportunities and Threats analysis	• SWOT	Strengths Weaknesses Opportunities and Threats analysis
•T+0 [1, 2, 3 etc] Settlement within [0, 1, 2, 3, etc] days of trade confirmation	•T+0 [1, 2,3 etc]	Settlement within (0, 1, 2, 3, etc) days of trade confirmation
•TMX Tanzania Mercantile Exchange	•TMX	Tanzania Mercantile Exchange
• TOR Terms of Reference	• TOR	Terms of Reference
• UCF Uaanda Commoditu Exchange	•UCF	Uaanda Commoditu Exchange
• UEMOA West Africa Economic and Monetary Union	• UFMOA	West Africa Economic and Monetary Union
• UNCTAD United Nations Conference on Trade and Development	• UNCTAD	United Nations Conference on Trade and Development
• UNECA United Nations Economic Commission for Africa	• UNFCA	United Nations Economic Commission for Africa
•UK United Kinadom	•UK	United Kinadom
•USA United States of America	• USA	United States of America
•USD United States Dollar	•USD	United States Dollar
•WR Warehouse Receipt	•WR	Warehouse Receipt
•WRF Warehouse Receipt Finance	•WRF	Warehouse Receipt Finance
•WRRB Warehouse Receipts Regulatory Board, Tanzania	• WRRB	Warehouse Receipts Regulatory Board, Tanzania
•WRS Warehouse Receipt Sustem	•WRS	Warehouse Receipt Sustem
• ZAMACE Zambian Commoditu Exchange	• ZAMACE	Zambian Commoditu Exchange
• ZMX Zimbabwe Mercantile Exchange	• ZMX	Zimbabwe Mercantile Exchange



## D1 Background and Terms of Reference

## 1.1 BACKGROUND

Africa currently produces about 4 million metric tonnes (MT) of cocoa beans every year, generating an estimated revenue of about USD 12 billion under the current marketing systems. It is difficult to estimate the costs of producing and trading cocoa in Africa, but it is believed that the costs are very high due to production and marketing inefficiencies.

If a commodity exchange-based cocoa marketing reform is implemented in Africa, ICCO estimates that the revenue generated could be doubled through marketing efficiency that will have a positive effect on production efficiency. In addition, a commodity exchange-based cocoa marketing system will create an ecosystem of other services and service providers that will generate additional income to the economy.

An African Cocoa Exchange (AfCX) could operate as a platform on which large traders or farmers' cooperatives with large enough volumes can sell their cocoa beans to local processors and exporters who will be able to buy cocoa from a specific national origin. Given the intricacies of the existing marketing systems in Africa, it is assumed that more than 50% of cocoa produced in Africa could be traded through the African Cocoa Exchange. This percentage will increase over the years as the benefits of trading on the exchange becomes evident.

The first step towards the establishment of AfCX is to conduct a feasibility study to establish the technical feasibility and financial viability of the exchange. In this respect, the feasibility study will consider the following broad and specific questions.

a. Can commodity exchanges cause a positive impact on farmers marketing channels by improving their linkages to formal markets?

b. Can commodity exchanges be applicable to a regulated marketing system?

c. What is the level of preparedness of Africa for a regional or pan-African Cocoa Exchange?

d. What effect would the establishment of an African Cocoa Exchange have on the incomes of cocoa farmers?

e. How would price formation through the African Cocoa Exchange benefit farmers more than the current price formation systems?

f. Is the international cocoa price on the London and New York Cocoa Futures a relevant benchmark market price for cocoa and does it reflect the prices on the physical market?

g. How would an African Cocoa Exchange and the London and New York Cocoa Futures interact?

h. What are the policy implications for each cocoa producing country in Africa to reform its cocoa marketing system to adopt commodity exchange trading system?

i. Where would possible resistance to establishing an African Cocoa Exchange come from and what other challenges can be expected?

j. What would be the reaction of the major cocoa users in Europe, USA and Asia to a world cocoa price benchmarked on prices discovered on the African Cocoa Exchange and will they accept and use an African Cocoa Exchange?

### 1.2 TERMS OF REFERENCE

The broad Terms of Reference (ToR) for the feasibility study will include but not limited to the following:

1. Review the structure of production of cocoa and possibly of a few other commodities produced by farmers where diversification applies and provide an overview of how they can be integrated in the Exchange.

2. Review the physical and organisational structure in place in the commodity markets in each country.

3. Identify the basic elements of the reform of the cocoa marketing in each country as a prerequisite for the establishment of an African Cocoa Exchange.

4. Design a model of the Exchange for the flow of cocoa beans from farm gate to the Exchange floor.

5. Assess the availability and functioning of standard cocoa storage facilities and warehouses to identify capacity gaps required for the functioning of the exchange.

6. Assess the availability of warehouse receipt system and collateral management in place to be incorporated in the Exchange trading.

7. Assess the standards and standardization of cocoa quality and their alignment with international quality standards.

8. Assess quality certification and traceability process in place to ensure integrity of cocoa beans as its moves along the supply chain.

9. Assess the interest and capacity of financial institutions such as banks and insurance companies to provide liquidity to the Exchange trading system.

10. Analyse the acceptance of an African Cocoa Exchange by the private sector, national stakeholders, and international players.

11. Identify and define a sound legal framework for the establishment and functioning of the Exchange. The proposed framework will have to consider the existing framework under International Trade laws (effectively ETA and EPA).

12. Identify any issues relating to regulations and policies that could hinder the establishment and functioning of the Exchange in each country servicing the three other ones; especially the legal constraints linked to the regional nature of the exchange: free movement of goods, and of financial services.

13. Identify the relevant regulations for the West African Economic and Monetary Union (UEMOA) especially those of the Regional Council Public Savings and Financial Markets (CREMPF); and for the Central African Economic and Monetary Community (CEMAC) especially those of the Central Africa Financial Market Surveillance Commission (COSUMAF).

14. Review the existing market information services in place in the countries and identify changes required to ensure a wider and timely dissemination of market information from the Exchange.

15. Assess the availability of human capacity that would be needed to operate the exchange and identify any capacity building required to have the necessary expertise.

16. Suggest any other measures required to ensure a satisfactory establishment and operations of the Exchange.

17. Analyze cocoa futures markets and their possible implications on the establishment of an African Cocoa Exchange including how the Exchange would interact with the London and New York Cocoa Futures.

18. Carry out a comprehensive SWOT analysis of the proposed African Cocoa Exchange and propose a schedule of implementation plan as well as financing plan for the establishment of the Exchange.

The feasibility study will make the case for an African Cocoa Exchange building on the foundation laid by the African Development Bank (AfDB) study on "Agricultural Market Access Sub-Strategy for Africa: commodity exchange, warehouse receipt systems, and new standards (AMASS)". The scope of the study will be limited to Côte d'Ivoire, Ghana, Nigeria and Cameroon.

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The feasibility study will be conducted by a team of experts to be comprised of a core team of experts, country experts and advisory experts. The list of experts to be involved in the study is as follows:

А	Core Team	
1.	Mr Alexis Fritz Kwabena Aning (Ghana)	- Team Leader
2.	Mr Adam Gross (United Kingdom)	- Study Architect and Author
3.	Mr Bruno Bianchini (France)	- Member
4.	Dr Tedd George (United Kingdom)	- Member

B	Country Experts	
1.	Mr Pierre Etoa Abena	- Cameroon
2.	Mr Prosper Atse Kouassi	- Côte d'Ivoire
3.	Mr Alexis Fritz Kwabena Aning	- Ghana
4.	Mr Ayo Akinola	- Nigeria

С	Advisory Experts	
1.	Vallis Group Limited	- Collateral Management, Warehousing and Quality
2.	Exusia Law Consult	- Legal and Regulatory

The consultants shall submit:

- 1. A preliminary report outlining different options of a feasible AfCX model with their specific features and comparative advantages;
- 2. A final and comprehensive feasibility report on the exchange model chosen through consultation with stakeholders.

# 02 Methodology and Workplan

## 2.1 METHODOLOGICAL PREMISES AND OUTLINE

The methodology and workplan is based on two main premises:

• The AfCX Project is of exceptional strategic importance to the ICCO and to the African cocoa producing member countries;

• Given the strategic importance of the sector:

- a detailed analysis is required to build detailed understanding of the sector;
- a participatory process is required to build consensus among key actors.

On the basis of these premises, a mixed methods and multi-phase approach to the feasibility study has been developed incorporating the following methodological components:

The AfCX Project is of exceptional strategic importance to the ICCO and to the African cocoa producing countries: It is understood that the cocoa sector contributes significantly to national income, export revenues, foreign exchange and employment in the four focus countries. The challenges that AfCX is intended to address – including (but not necessarily limited to) price discovery, quality control, fair trade and sustainability, export promotion, agro-industrialisation, market access, access to finance – if overcome, can unlock significant development gains for the countries and for the livelihoods of actors involved in the cocoa value chain, not least the myriad smallholder producers and their communities which continue to suffer from unsustainable and impoverished livelihoods.

#### Given the strategic importance of the sector, as outlined:

**a.** A detailed analysis is required to build detailed understanding of the sector: The Study will produce a detailed and validated design proposal which is not only feasible but also optimally reflects the needs and interests of the stakeholders involved. This can only be done by building a detailed understanding of the sector as it is currently configured (regulation, quality standards, warehousing, financing, buyers, terminal markets, etc) and then articulating a realistic and achievable pathway within an implementation plan for how the sector transforms from how it is today to how it will become after AfCX is introduced. To achieve this, a multi-phase approach is proposed:

i. During Phase I

• A detailed analysis of the cocoa value chains and sectoral regulations in the four selected African cocoa-producing countries will be performed by country experts with deep knowledge of the cocoa sector. These analyses will be based on desk research, stakeholder engagement and site visit, and will leverage the experts' own detailed understanding of the sector (see Annex I for the four Africa cocoa value chain and sectoral regulatory studies, together with the study tool template and guide to completion).

• Further, a detailed assessment of the African commodity exchange experience will be performed through survey of Africa's currently operational commodity exchanges (see Annex II for the completed surveys, along with the survey tool template).

ii. During Phase II, significant time and travel will be dedicated in order to visit production and intermediate centres, inspect physical infrastructure, and meet with stakeholders, in order to generate a 'deep dive' feasibility appraisal and implementation plan.

**b.** A participatory process is required to build consensus among key actors: The Study will engage with stakeholders in an iterative process to ensure that not only is the design proposal a technically feasible solution and the articulated pathway/implementation plan is realistic and achievable, but also that it enjoys broad consensus and support from key stakeholders. A participatory methodology has been developed which incorporates stakeholder participation across two key dimensions:

i. **Phase I Stakeholder Workshop**: at the end of Phase I of the study, the Study Team proposes to facilitate jointly with ICCO a stakeholder workshop to present, debate and reach consensus around the deliverable. In this workshop, the stakeholders will participatorily select a model for AfCX from a number of model options presented by the Study Team. These model options will be linked to the analyses of the cocoa sector and the African commodity exchange experience. Ahead of the workshop, the Study Team will disseminate to ICCO a draft deliverable for onward dissemination to stakeholders. After the workshop, the Study Team will debrief with ICCO before revising and submitting a final version of the Phase I deliverable.

#### ii. Phase II Stakeholder Engagement: Phase II will focus on a 'deep dive' feasibility appraisal and

implementation plan, including a detailed design proposal and articulated pathway/implementation plan for the model option selected in the Phase I workshop. During Phase II, stakeholders will be engaged twice. Initially, stakeholders will be engaged for purposes of information gathering and sharing of perspective through key informant interview (KII). After an initial design schematic is developed, the stakeholders will be engaged a second time for purposes of validating this design schematic.

In this way, it is anticipated that the final design proposal will not only reflect a model option selected collectively by the stakeholders through the participatory stakeholder workshop at the end of Phase I, but also will encompass an implementation framework that has been designed in collaboration with and validated by strategic actors across the four African cocoa-producing countries, and thereby provide a strong foundation for efficient and timely implementation thereafter.

### 2.2 WORKPLAN OVERVIEW

In light of the above, therefore, the Study workplan encompasses a Phase I, culminating in a deliverable that appraises institutional design model options for AfCX ahead of a stakeholder workshop for participatory debate and model selection, and a Phase II, comprising a 'deep dive' analysis and institutional design proposal and articulated pathway/implementation plan for the model that is selected by the stakeholders.

#### 2.3 WORKPLAN – PHASE I

#### 2.3.1 Phase | Rationale:

The rationale for Phase I is to avoid the danger of 'copying and pasting' a presumed but somewhat mythical 'standard model' for a commodity exchange into the context of the African cocoa sector. Instead, various possible model options will be presented as the basis for engaging the relevant stakeholders in a participatory exercise to debate and select the most appropriate model.

To explain further, in the study TOR, it is assumed that AfCX will offer spot and derivative trading of cocoa, linked to a WRS<sup>7</sup>.

The institutional model for a commodity derivatives exchange is relatively uniform and uncontested with much of the differentiation situated not in the institutional design or the type of market mechanism but rather in the technical implementation details (e.g. the composition of the contract specification, the exchange membership structure, the physical delivery arrangements, the margining requirements, etc.).

<sup>&</sup>lt;sup>7</sup> However, it is important to note that while a WRS may be a necessary component of a cocoa financing platform, it may not be sufficient. There are other financial products that may also be necessary to assure adequate financing of the value chain, including producer input prefinancing, small asset financing, supply chain financing, and trade finance. Facilitation of these types of financing may require platform functionality beyond what a WRS can offer. Therefore, it will be important to also examine the role for all types of financing solutions in the context of African cocoa and consider the need for a platform with broader scope than a WRS, particularly in light of ag/fin-tech solutions that are emerging in the region.

The model for a WRS is also generally uniform and uncontested, comprising a legal-regulatory framework for licensing and overseeing warehouses and warehouse operators against defined standards for physical infrastructure, managerial capacity and financial resources. The main variations seen on WRS tend to be twofold: whether the WRS is an independent public regulatory agency (the Ivorian approach) or whether it is operated by a commodity exchange which is in turn overseen by a public regulatory agency (the Ghanaian and Nigerian approach); and whether the WRS involves paper or electronic receipts, although there has been a strong trend towards electronic receipts over the past decade.

In contrast with a derivatives exchange and WRS, the institutional model for a commodity spot exchange is neither uniform nor uncontested. Rather, there is a need to understand and appraise the diverse kinds of institutions and market mechanisms that have been described as a 'commodity spot exchange', and also to consider whether in fact a commodity spot exchange - in whatever form - is an optimal arrangement for facilitating more inclusive, efficient physical trade in the specific context of African cocoa, or whether alterative models may be preferable.

Aside from selecting an appropriate model for facilitating cocoa spot trade, it is also pertinent to note – based on the ICCO TOR – the selected model for spot trade will need not only to facilitate efficient inclusive domestic/ export trade, but also interface with related institutional components that may offer:

• **Regional trade** – i.e. to create effective cocoa market linkages region-wide. This will be important to enable African downstream processors and manufacturers to efficiently source cocoa from across the region;

• **Hedging** – i.e. to link with a region-wide derivatives market which offers an Africa pricing basis for the purpose of effective cocoa price discovery and hedging, in particular, for improving market access, discovering fair prices and reducing basis risk for regional value chain players, and/or the prevailing international terminal markets;

• **Finance** - to integrate with the financing platform which will allow cocoa value chain players to access finance according to their needs.

In light of the above, the objectives of Phase I of the study will be to:

- Understand the African cocoa context production, aggregation, trade, finance, organisation, sectoral regulation, etc;
- Analyze in more detail the specific issues that the ICCO is seeking to address;
- Build insight into stakeholders' perspectives and needs on these issues;
- Articulate a clear and limited set of institutional design options across all three intended components spot, derivative, finance;
- Participatorily engage with ICCO and stakeholders to select the preferred model which will be the subject of deep dive feasibility analysis and implementation planning in Phase II.

#### 2.3.2 Proposed Phase I Deliverables

- 1. Pre-workshop: A document defining the most pertinent options for the institutional model design of AfCX in the light of an understanding of the cocoa sectors in the four focus countries.
- 2. Post-workshop: The validated document after stakeholder review and input, along with a specification of the model selected by stakeholders during the Phase I Workshop on which to perform the detailed 'deep dive' feasibility analysis and implementation planning in Phase II.

## 2.3.3 Activity-Level Workplan

### Table 1: Phase I Activity-Level Workplan

Activity N°	Name	Description
1.1	Sectoral Analysis	Analyse the four countries' cocoa production, aggregation, financing and trade/market linkage systems, within the context of sectorial organisation and regulatory frameworks, identifying the strengths and weaknesses from the perspective of producers, buyers (domestic, regional, international) and financiers
1.2	Model Analysis	Review models and experiences for commodity exchanges, and related last mile farmer aggregation and market linkage models, with particular focus on cocoa within African value chains, but also considering wider experiences in Africa and comparable developing country contexts
1.3	Options Analysis <b>(First Deliverable)</b>	Map and describe in the first study deliverable: the broad institutional design model options for AfCX institutional design – inclusive of commodity exchanges, as well as, related farmer aggregation and physical market linkage models – building on analysis under (1.1) and (1.2)
1.4	Stakeholder Workshop / Model Selection	Facilitate a stakeholder workshop to discuss the first deliverable, with participants to include ICCO, national cocoa bodies from participa- ting members, and other relevant stakeholders, with the aim to agree on the model for AfCX to take forward for deep dive analysis and design in Phase II

# **03** Definitions and Typology<sup>8</sup>

## 3.1 INSTITUTIONS WITHIN THE COMMODITY EXCHANGE ECOSYSTEM

**Commodity Exchange**: "...a market in which multiple buyers and sellers trade commodity-linked contracts on the basis of rules and procedures laid down by the exchange. In developed countries, and in an increasing number of developing countries, such exchanges typically act as a platform for trade in futures contracts, or for standardized contracts for future delivery. In other parts of the developing world, a commodity exchange may act in a broader range of ways to stimulate trade in the commodity sector. This may be through the use of instruments other than futures, such as the cash or "spot" trade for immediate delivery, forward contracts on the basis of warehouse receipts (WRs), or the trade of farmers' repurchase agreements for financing (known as "repos"). Alternatively, it may be through focusing on facilitative activities, rather than on the trade itself, as is the case in Turkey, where exchanges have served as centres for registering transactions for tax purposes"<sup>9</sup>.

Beyond this core definition, it may be emphasized, the exchange is neither a broker nor a trader, but the market itself. Thus, an exchange facilitates and often guarantees transactions, but it does not take ownership of the physical commodity. Further, the exchange does not 'set prices' – prices result from the free interaction of buyers and sellers.

**Clearinghouse**: An institution, linked to a commodity exchange (either an internal department of the exchange, or an external clearing corporation designated by the exchange), which performs the clearing and settlement of exchange-traded contracts. In the case of spot, forward and repo contracts, the clearinghouse performs a process known as delivery versus payment (DVP), the simultaneous or near-simultaneous transfer of goods from seller to buyer and of payment from buyer to seller. In the case of forward, futures, options and repo contracts, the clearinghouse performs a process known as central counterparty clearing (CCP), a process which entails the dynamic collateralization and marking to market of market participants' open positions ahead of settlement obligations on a future date, with the CCP in its role of central counterparty assuming through novation of contracts the role of buyer to every seller and seller to every buyer, to reduce counterparty risk virtually to zero.

In performing the clearing and settlement roles, the clearinghouse interfaces with delivery warehouses to facilitate the transfer of goods via the WRs they issue, and with exchange-designated Clearing Banks facilitate the transfer of cash, and also non-cash payments or deposits where applicable.

**Warehouse Receipt System (WRS)**: A regulated framework for licensing and overseeing warehouses and warehouse operators, and for managing the issuance, transacting and financing of WRs. WRs are documents issued by the warehouse operator confirming, inter alia, the type, weight, quality, location and ownership of goods stored in a warehouse, and they may be negotiable or non-negotiable as stated on the receipt.

**Market Information System (MIS)**: A platform for the dissemination of market information, including and in particular, up-to-date market prices for commodities of specified quality grades in specified locations.

**Settlement Guarantee Fund (SGF)**: A pool of assets that stand behind a commodity exchange, or its associated CCP, to guarantee the fulfilment of contracts in the event of default by one of the contracting parties.

**Over the Counter (OTC)**: The unregulated market for bilateral trade between two counterparties, a technical term used as the counterpoint to regulated exchange-traded markets.

**Public Regulatory Authorities**: Authorities, sometimes known as securities and exchange commissions or capital market authorities, that are authorized under public regulatory law to regulate and oversee the activities of commodities exchanges on the basis of requirements stipulated in law. Almost all public regulated authorities

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<sup>&</sup>lt;sup>8</sup> The definitions in this section are adapted from those offered by the United Nations Conference on Trade and Development (UNCTAD).

<sup>&</sup>lt;sup>9</sup> UNCTAD (2009), Development Impacts of Commodity Exchanges in Emerging Markets, UNCTAD/DITC/COM/2008/9, Geneva, available: <a href="https://unctad.org/system/files/official-document/ditccom20089\_en.pdf">https://unctad.org/system/files/official-document/ditccom20089\_en.pdf</a>

have membership in the International Organisation of Securities Commissions (IOSCO) and conform with global standards defined and periodically updated on a participatory basis under IOSCO auspices. Clearing and settlement, in particular linked to CCPs, also conforms with global standards defined by the Bank for International Settlements (BIS), in collaboration with IOSCO. Since the Global Financial Crisis of 2007-08 shone light on unmitigated systemic risk in world financial markets, that was a root cause of that crisis, CCPs have become recognised as a critical piece of financial market infrastructure.





## 3.2 COMMODITY EXCHANGE-TRADED INSTRUMENTS

The instruments traded by exchange are traded through 'contract markets', i.e. markets for the trade of a specific contract between seller and buyer. These include:

**Spot**: Contracts traded on a commodity exchange, or OTC, for the purchase or sale of a commodity leading to immediate or near-immediate delivery and transfer of goods from seller to buyer. Spot contracts are usually settled on the basis of DVP.

**Forwards**: Contracts traded on a commodity exchange, or OTC, for the purchase or sale of a commodity with deferred delivery and transfer of goods from seller to buyer. Forward contracts are usually settled on the basis of DVP, but typically also involve collateralization through, on the one hand, deposit of an upfront or initial margin (i.e. a defined portion of the total amount due) by the buyer, and on the other, pledging of the WR by the seller<sup>10</sup> to the buyer.

**Futures**: Contracts traded on a commodity exchange, for the purpose of hedging, speculation or arbitrage, which are standardized forward contracts representing an obligation to make or take delivery of a fixed quantity and quality of a commodity at a specific location on a specified future date. Contrary to forwards, futures contracts do not often result in physical delivery, as market participants tend to use them for the purposes previously stated, rather than for trade of the physical. Accordingly, futures positions can be offset by an equal and opposite contract before the delivery date. However, physically deliverable futures contracts allow for the possibility for the

<sup>10</sup> Once the warehouse receipt is pledged by the seller to the buyer, the warehouse is not permitted to release the goods to the seller or any other party.

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contract to be taken through to the expiry date and culminate in the making or taking of delivery of the physical commodity. By contrast, cash-settled futures contracts, when taken through to expiry, result in the transfer of cash only. Market participants that enter into futures contracts are subject to a dynamic system of collateralization, known as clearing, which involves deposit of an upfront or initial margin, plus daily settlements – also known as variation margin, or mark to market margin–- comprising payments based on the daily movement of market prices.

It is the management of these daily margining requirements, and the risk of 'margin calls' that require high cash payments at short turnaround that is one of the main factors why futures instruments are usually not the preferred instrument for hedging by smaller-scale actors. However, futures instruments are first required to be in place in order to allow for trade in other instruments more friendly to smaller-scale actors such as options, CFDs and EFTs.

**Options**: Contracts traded on a commodity exchange, or OTC, for the purpose of hedging, speculation or arbitrage, giving the right, but not the obligation, to buy or sell a futures contract at a specified price or before a specified date. To obtain such a contract, the options buyer needs to pay a fixed premium, which is similar in nature to the premium payable on an insurance contract. For this reason, an option is sometimes referred to as 'price insurance', and is a major factor why options tend to be preferred to futures by smaller-scale actors. The seller of an option, also known as an options writer, receives the premium, but takes on the price risk, as the options writer may need to enter into a futures contract at the specified price (known as 'strike price'), irrespective of the actual market price on the exercise date. The options writer is therefore subject to initial and variation margining.

**CFD**: A financial instrument that allows market participants to trade the difference between opening and closing prices of a given security based on cash-settlement only.

**ETF**: A security whose value tracks the value of a basket of securities (e.g. an index) which can be bought and sold on a stock exchange in the same manner as the stock of a single company.

**Repos**: Contracts traded on a commodity exchange, or OTC, which involve an obligation by a party to repurchase a stated asset, or pool of assets, on a stated day, for a stated price. It therefore represents a fixed income product with the intent to raise financing for the party committing to the repurchase that may be traded as a security through exchange or OTC markets. The assets under the repo are typically held under third-party custody, for which a WR may be issued, while the party committing to the repurchase may be required to place collateral through deposit of an initial margin.

## 3.3 COMMODITY EXCHANGE FUNCTIONS

**Trading**: the matching of orders placed by sellers and buyers of the respective instrument under a framework of rules that provides the confidence for counterparties to transact. Trading may involve auctions (one seller, many buyers), reverse auctions (one buyer, many sellers) or two-way auctions (many buyers, many sellers – also known as 'bid-offer' markets). Matching is typically based on price-time priority – the party offering the most competitive price is prioritized, and if two parties both offer the most competitive price, the party offering that price first is prioritized.

**Price Discovery**: the process by which a market price is determined as a result of the matching of orders between sellers and buyers. Exchange-traded price discovery is typically considered the optimal form of price discovery, most reflective of the intersection of supply and demand, as the prices generated by an exchange reflect actual commitment of funds by the counterparties. By contrast, price polling – with however much scientific rigour it is performed–- requires the polled parties to specify a price without actual commitment of funds. An exchange typically disseminates market prices, directly, or indirectly through an MIS or alternate channels, as well as a broader range of market data that allows for market participants to use or analyse the data. While an exchange may disseminate core price information to the public without charge, it typically charges fees to access the data.

**Membership**: the designation and oversight by the commodity exchange of market access to participants meeting defined qualification criteria by the exchange for trading ('trading member') and/or clearing and settlement ('clearing membe'') for their own account only ('dealer'), for client accounts only ('broker'), or for both their own and client accounts ('broker-dealer').

**Storage**: the designation and oversight by the commodity exchange of warehouses for delivery of physical goods that are traded through the exchange, and the maintenance of product weight and quality during the storage period. These warehouses may be managed directly by the exchange, or they may be operated by third parties under the oversight of the exchange. Exchange delivery warehouses typically issue WRs for the stored goods of depositors.

**Clearing**: the collateralization and marking to market of market participants' open positions ahead of settlement obligations on a future date.

Settlement: the facilitation of transfer of goods from seller to buyer, and of payment from buyer to seller.

## 3.4 COMMODITY EXCHANGE PARTICIPANT TYPES

**Physical Traders**: Parties participating in a commodity exchange to sell or buy the physical commodity on a spot or forward basis. Such parties may also obtain credit secured against WRs issued by the exchange's delivery warehouses, known as warehouse receipt finance (WRF).

**Hedgers**: Parties participating in a commodity exchange for purpose of price risk management, or 'hedging'. Hedging may be performed using a futures contract to lock in a price for the sale or purchase of the physical commodity on a future date, on the basis that gains or losses arising from price changes in the physical market will be offset by equal and opposite price changes in the futures market. Alternatively, hedging may be performed using an options contract for the seller to lock in a minimum price for the sale of a commodity ('put option'), or for the buyer to lock in a maximum price for the purchase of a commodity ('call option'), on a future date.

**Speculators**: Parties participating in a commodity exchange seeking to benefit from correct anticipation of favourable future price movements, which accept the price risk transferred by hedgers, and thereby increase market liquidity to the level sufficient to enable efficient hedging.

Ordinary speculation is therefore considered a prerequisite for an efficient futures and options market. Ordinary speculation stands in contrast to excess speculation, a condition when speculation far exceeds levels needed to facilitate hedging and as a result disrupts the price discovery process. It also stands in contrast to manipulation, which is a criminal activity performed by an unscrupulous actor deliberately seeking to distort price discovery and benefit from these distortions.

To protect against excess speculation and manipulation, commodity exchanges, based on requirements stipulated by regulatory law and overseen by public regulatory authorities, closely supervise market activities and impose a range of controls, including position limits for non-hedgers, and price limits to restrict daily price movements within a certain range.

Additional regulatory mechanisms to protect the market from excess speculation and manipulation include increasing the levels of initial margin (or upfront deposit) that participants need to participate on the exchange, and including qualification criteria in the exchange's membership process to ensure market participants are 'fit and proper' persons.

**Arbitrageurs**: Parties participating in a commodity exchange seeking to benefit from pricing distortions between two linked markets. This contrasts with manipulation in the sense that manipulaters seek to create the distortions from which they take advantage whereas arbitrageurs help to remove distortions that naturally arise during the market price discovery process, and thereby integrate spatially, temporally or industrially fragmented markets. Specifically:

• Spatial arbitrage helps to ensure that pricing for commodities deliverable at different locations comes to reflect only the associated transportation costs from one location to the other;

• Temporal arbitrage helps to ensure that pricing for commodities deliverable on different dates comes to reflect only the associated 'costs of carry' between the two dates (i.e. the costs of storage and finance that enable the commodity to be kept ahead of delivery on the future date);

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• Industrial, or value chain arbitrage helps to ensure that pricing for commodities at different levels of value addition comes to reflect only the costs of transformation (i.e. processing, manufacturing) from the raw to the progressively processed product.

Arbitrageurs therefore play an economically useful function by integrating market prices temporally, spatially and industrially, while also contributing to overall market liquidity.

**Market-Makers**: Parties participating in a commodity exchange, usually appointed by the exchange, or participating on the basis of an exchange-specified market-maker program, whose function is specifically to contribute to market liquidity by ensuring there is always a buyer for every seller and a seller for every buyer at a price linked to the market price.

Market-makers are commonly engaged early in a contract lifetime to overcome a 'chicken and egg problem' that otherwise inhibits the liquidity development of new exchange-traded contract markets

- on the one hand, market participants will not participate in a market until it becomes liquid;
- but on the other, a market cannot become liquid until market participants participate.

However, many exchanges maintain a market-maker program even after the market has become liquid. The main reason is to protect the integrity of price discovery, and to ensure orderly continued trading and/or hedging, in the event of sudden dips in market liquidity. Typically, a market-maker is remunerated by the exchange for performing the market-making role, through a direct payment, and/or through a rebate against fees that would otherwise have been due, with remuneration usually linked to the volume of business generated.

## **04** The Case for Commodity Exchanges in Africa

## 4.1 CONTEXT

African policy frameworks have repeatedly called for the establishment of commodity exchanges. These include the Arusha Declaration and Plan of Action on African Commodities (2005), the Comprehensive Africa Agricultural Development Programme (CAADP) Pillar II, 'Framework for Improvement of Rural Infrastructure and Trade-Related Capabilities for Market Access', (2010) and the "Feeding Africa" Action Plan for African Agricultural Transformation (2015), which in turn stimulated the African Development Bank's Agricultural Market Access Sub-Strategy (see Section 5). This section explores briefly the reasoning for this call.

The argument for commodity exchanges in Africa rests on the imperative to reimpose structure on the **Continent's agricultural value chains.** This policy imperative arose as a response to the reform or removal of many African national agricultural marketing boards during the structural adjustment programs of the 1980s and 1990s<sup>11</sup> which were imposed by international financial institutions on many African countries as a result of rising national debt, in some cases linked to financially unsustainable marketing board activities.

## The agricultural marketing boards prevalent in many African value chains had created a comprehensive framework of support for smallholder-prevalent production systems which incorporated:

- agricultural productivity and resilience gain;
- post-harvest quality control and post-harvest loss prevention;
- output marketing and producer livelihood support;
- food security and value addition; and
- export promotion and competitiveness.

#### Accordingly, marketing boards typically performed a wide range of functions:

- agri-input distribution, including provision of seedlings, fertilizer and plant protection;
- extension service provision;
- price- and standards-setting;
- licensing and oversight of value chain actors;
- storage operations;
- food reserve management;
- logistics; and
- purchasing and export, in many cases acting as a monopsony buyer of agricultural produce.

As the marketing boards were reformed or removed, smallholder farmers became more extensively exposed to market forces. Smallholders were often left with minimal protection or support in the face of key challenges, including water resource depletion and climate change, globalising value chains with increasingly stringent quality requirements and volatile prices, and reduced access to agri-inputs, transport, storage, finance and markets.

<sup>11</sup> It is recognised that some agricultural marketing boards remain in place, including Cocobod (Ghana), as Ghana resisted the heavy pressure to move to a fully free market approach.





In this context, a commodity exchange has been positioned by African governments as an inclusive but market-friendly and financially sustainable solution for reimposing structure on agricultural value chains. The role of the exchange, in this thinking, is to create access for value chain actors, from the producer onwards, to a full range of support services:

• Warehouses close to the production areas would facilitate bulking and reduce post-harvest losses, around which rural transportation services would assist farmers bring their goods to the store;

• **Laboratories** at these warehouses would certify the quality of the stored goods in line with prevailing industry standards, around which sensitization and extension services would promote good post-harvest practices;

• Warehouse receipts issued by the warehouse operator would be accepted as bankable collateral, enabling farmers to access finance to procure agri-inputs and mechanization services for the coming production cycle;

• A trading platform would create access to markets by linking the sellers to buyers which would procure the stocks from warehouses around the country on the basis of quality-linked market-based pricing, disintermediating the multiple levels of non-value adding intermediaries in the value chain, with the resulting market price information disseminated to the value chain actors to drive efficient production and marketing decision-making.

• A clearing and settlement platform would facilitate efficient payment from buyer to seller.

• The introduction of forwards, futures and options instruments to supplement an initial spot offering would enable value chain actors to mitigate their exposure to price risk through hedging.

• **Regionalization of commodity exchanges** would gradually take place to drive African economic integration and enable African jurisdictions to boost value addition and improve Africa's export competitiveness.

Policy emphasis has typically focused on the role of the commodity exchange driving productivity gain, quality upgrade, resilience and improved price realisation for smallholder producers.

However, a commodity exchange can also generate positive impacts for the downstream agro-industries (i.e. processors, manufacturers and exporters). By helping to improve the efficiency and sustainability of raw material aggregation, expand access to working capital, and make available price risk management instruments, a commodity exchange can help increase overall value addition, reduce volatility of supply, enhance compliance with end buyers' quality, traceability and sustainability requirements, and boost overall export competitiveness.

#### 4.3 PRE-REQUISITES

While there has been a danger that this attractive combination of potential benefits could be understood by some stakeholders as a panacea for the array of challenges facing African value chains, it has also been recognised that various pre-requisites and complementary initiatives need to be in place to facilitate the intended outcomes identified above:

• **Supportive policy and sectoral regulatory framework** on the one hand that mobilises ecosystem development and participation on the exchange, on the other that avoids distorting commodity exchange markets through interventions which could negatively impact price discovery mechanisms, for example through price or liquidity shocks;

• **Supportive legal-regulatory framework** to provide legal certainty for actors engaged in storage, financing, trading, clearing and settlement activities;



- **Organised farmers** that can overcome the high costs of micro-handling by working together in village-, producer- or community-based groups to generate economies of scale in primary aggregation, quality control, delivery to the warehouse and marketing;
- **Timely and reliable transportation services** to facilitate efficient transfer of goods to, and between, warehouse locations, on good quality access roads;
- **Storage infrastructure** of sufficient capacity, condition and accessibility to absorb and maintain smallholder produce;
- **Storage operators** that have capacity to operate and maintain the warehouses based on generation of sustainable user fees, and provide financial guarantees to depositors backed by insurance and liquid assets-- against damage to their stock;
- Quality control including: quality grades that reflect an industry consensus as the basis on which to trade; and warehouse-based laboratories that perform reliable and timely testing and quality certification of smallholder produce;
- Sustainability frameworks including embedding environmental, social and governance criteria into value chain and commodity exchange processes and pricing mechanisms;
- **Financial services**, including: timely disbursement of cash loans to sellers upon delivery to the warehouse collateralized against the stock that bridge the period ahead of sale; effective and inclusive payment systems that enable the timely and reliable transfer of funds and in the case of futures and options, 'margin' deposits from buyers to sellers; and access to bank accounts, or mobile wallets, into which sellers can receive the funds;
- Efficient agricultural research, input distribution and mechanization systems that would enable smallholders to deploy finance and re-invest their returns on production into improved farming techniques, yield gain, area expansion, diversification and sustainability;
- Access to suitable affordable technologies that would facilitate efficient and inclusive warehouse receipting, trading, clearing, settlement and market information distribution;
- **Brokerage services** that would facilitate the participation of value chain actors in the market, and manage the technicalities and risks associated with trade; and
- **Regional integration enablers**, including facilitation of cross-border currency, capital and commodity flows, and the legal-regulatory frameworks to oversee trading and financing transactions with legs in multiple countries
- **Training** to equip market actors with knowledge and skills on the functioning of the new markets.

This overview indicates that a successful commodity exchange requires much more than just an exchange institution, but rather requires a supportive commodities ecosystem involving the coordination of public and private sector across multiple domains.

## 05 The AMASS Africa Commodity Exchange Framework

The African Development Bank (AfDB) is a multilateral development finance institution (DFI), and Africa's designated regional development finance bank, co-owned by 54 African and 27 non-African member governments, founded in 1964 and headquartered since 2014 in Abidjan, Côte d'Ivoire. With authorized capital as of December 2021 of USD 253 billion, AfDB has a mission to promote sustainable economic growth and reduce poverty in Africa.

At a High-Level Conference held in Dakar, Senegal, during October 2015, AfDB, together with AU Commission, United Nations Economic Commission for Africa (UNECA) and the Government of Senegal, mapped out the 'Feed Africa' Agriculture Strategy (2016-2025) as one of five 'High 5' priorities that taken together form an overall blueprint for Africa's economic transformation.

Agricultural market access is a core component of this strategy, aligning closely with the wider continental agricultural development framework in which market access features as one of four organising pillars of the African Union's (AU) Comprehensive Africa Agriculture Development Programme (CAADP).

Within this framework, delegates agreed inter alia to bolster support for agricultural market access development through the establishment of commodity exchanges and WRS.

Accordingly, building on earlier work in this domain, AfDB commissioned in 2016 a study to develop what became known as its Agricultural Market Access Sub-Strategy (AMASS)<sup>12</sup>.

AMASS represents a coherent framework of action through concrete sectoral promotion measures for promotion of agricultural market access as a lever for unlocking Africa's agricultural transformation, in fulfilment of two specific strategic imperatives:

• **Augmentation**: To augment achievements made by Africa's existing national commodity exchanges and WRS through sectoral promotion measures – investment, policies and capacitation – that support continuing growth, innovation, and nurturing of smallholder market linkages.

• Additionality: To fill in the gaps that still remain in Africa's market access landscape through sectoral promotion measures – again comprising investments, policies and capacitation – that create price discovery, market liquidity and enable price risk management by supporting the emergence of derivatives and regional approaches to commodity exchange development.

To realize these imperatives, AMASS is structured as a two-dimensional matrix.

The first dimension comprises a range of sectoral promotion measures, known as AMASS 'Products'. These emerge from a structured diagnostic in the African context of the pillars and building blocks from which commodity exchanges and WRS are built. Each Product comprises a coherent package of investment, policy, and capacity-building interventions tailored to overcome the bottlenecks faced by Africa's commodity exchanges and WRS.

The AMASS Product List may be found overleaf.

<sup>12</sup> The Study was conducted in partnership with the Alliance for a Green Revolution in Africa (AGRA), the Food and Agriculture Organization of the United Nations (FAO), the International Trade Centre (ITC) and UNECA.

#### Table 2: AMASS Product List

N°	Product Name	MAI-F
1	Market Access-Oriented Irrigation Scheme Investments	Build capacity of irrigation schene participants, operators and aggregators to utilise/link participants to comex/WRS
2	Market Access-Oriented Value Chain Input and Mechanisation Finance Facility	Build capacity of «lead firm» agribusiness contracting with producers to hedge exposures to price risk es the basis for offering foward pricing
3	Market Access-Oriented Agribusiness Park and Agro-Processing Investments	Build capacity of agribusiness park operators, residents and tenants to link their infrastructure to and utilise comex/WRS
4	Food Reserve Agency Market Enhancement (FRAME) Programme	Build capacity of food reserve agencies to utilise comex/WRS for procurement, replenishment, sales, storage and pricing
5	Market Access-Oriented Commercial Warehousing Investments	Build capacity of commercial warehouse operators and depositors to link their infrastructure to and utilise comex/WRS
6	Market Access-Oriented Rural Warehousing and Rural Service Hub Investments	Build capacity of rural warehouse operators and depositors to link their infrastructure to and utilise comex/WRS, and to operate rural service hubs
7	Market Access-Oriented Logistics Efficiency and Enhancement Programme (LEEP)	Build capacity of logistics operators to integrate logistics infrastructure with comex, domestic and cross-border, and build awareness around freight exchanges
8	Bank Market Enhancement (BME) Programme	Build capacity of commercial banks to sustainably participate in comex/ WRS in a range of capacities
9	Rural Bokerage and Inclusive Connectivity and Technology Incubation Fund (RUBICON-F)	Build capacity of institution to act as a rural broker trough business mo- del advisory, technology anchancement and training functions
10	African Market Maker and Arbitrage Fund (AMMA-F)	Build capacity of African financial institutions to perform market-making arbitrage functions
11	Regulatory Integration - Pan African Exchange Regulatory Committee (PAERC)	Build capacity of African regulators to develop and harmonise the capabilities to regulate continental derivative exchanges
12	Capacity-Building on Adoption of International Best Practices	Builf capacity of regulators on international practices around policies, legislation and institutional mechanisms trough research, dialogue and training
13	Fund for taking Equity in New Contract Development (TEND-F)	Ν/α
14	Fund for taking Equity in New Contract Development (TEND-F)	Build capacity of value chain players to support utilisation of comex/ WRS products to serve Bank-identified priority value chains
15	Comex/WRS Information Unit (CIU)	Provide an informational basis to support compilation of market informa- tion on African comex/WRS and measurement of value creation
16	African Derivatives Development (ADDED)	Range of capacity-building measures integrated into AMASS products under ADDS
17	Product Manager «Rainmaker» Network	Build capacity of African exchange professionals to develop world class exchange profucts
18	Africa CCP Capitalisation Liquidity, Robustness and Transformation Programme (ACCELERATE)	Build capacity of African CCP operators to develop and manage Quali- fied CCPs
19	Market Access-Oriented Transfrontier Oark Investments	Build capacity of transfrontier park operators, residents and tenants to link their infrastructure to and utilise comex/WRS
20	Regional Integration Monitoring Service (RIMS)	Provide an informational basis to support implementation and oversight of regional trade protocols

The second dimension comprises two workstreams through which these Products are deployed, each Workstream framed to address the strategic imperatives identified above:

- **Comex Reinforcement (CORE) Workstream**: to support Africa's existing national commodity exchanges, based on the needs and priorities expressed by these institutions and their stakeholders;
- Africa Derivatives Development (ADDED) Workstream: to create space for the emergence of derivatives markets in Africa within the context of regional integration, an imperative that has become increasingly pertinent with the introduction of the Africa Continental Free Trade Area ('AfCFTA'), in force since 2019, and now ratified by 44 countries. ADDED is inspired, on the one hand by successful Chinese and Indian experiences with derivatives development in the context of regional integration<sup>13</sup>; and on the other, by the application of existing international regulatory mechanisms and practices to support cross-border activity.

AMASS proposes that the institutional focus for ADDED implementation should be on a select number of 'Pan-African Exchanges' (PAEs) that provide investment and transactional gateways into and across the Continent that are competitive, based on economies of scale and scope, with international peer exchanges in other emerging and industrialised regions.

Within this context, it is anticipated that AfCX could be one such PAE, with the specific scope of countries and products to be determined. On this basis, AfCX could seek to align its activities and development needs with the AMASS sectoral promotion products to obtain the necessary investments, policy support and capacitation that can help to drive a successful implementation.

<sup>13</sup> In the Chinese and Indian context, commodity exchange development took place in the context of integrating previously fragmented sub-national markets into nationwide multi-commodity exchanges.



## OF Worldwide and Africa Commodity Exchange Experience Overview and Key Learnings

Please see Annex II for the survey of experience from Africa's eight operational commodity exchanges:

- Agricultural Commodity Exchange for Africa (ACE), Malawi
- AFEX Exchange, Nigeria<sup>13</sup>
- Ethiopian Commodity Exchange (ECX)
- Ghana Commodity Exchange (GCX)
- Johannesburg Stock Exchange (JSE), South Africa
- Lagos Commodity Futures Exchange (LCFE), Nigeria
- Nigeria Commodity Exchange (NCX)
- Tanzania Mercantile Exchange (TMX)

These combine experiences in West Africa (Ghana, Nigeria), East Africa (Ethiopia, Tanzania), and Southern Africa (Malawi, South Africa).

Since this survey was performed, two other commodity exchanges are understood to have become operational – Egyptian Mercantile Exchange (EMX) and Zimbabwean Mercantile Exchange (ZMX) – while the regional stock exchange of West Africa, the Bourse Régionale des Valeurs Mobilières (BRVM), headquartered in Côte d'Ivoire, has announced a two-year pilot of commodity exchange trading starting later in 2023.

Other commodity exchanges which are understood not to be operational at the current time, comprising those in the process of set-up, and those in the process of restructuring, include<sup>15</sup>: Bolsa de Mercadorias do Moçambique (BMM), Mercantile Exchange of Madagascar (MEX), Uganda Commodity Exchange (UCE), and Zambian Commodity Exchange (ZAMACE).

It is noted that there is an apparent dearth of commodity exchange experience in Francophone countries. However, it may be noted that warehouse receipt systems have been established recently in both Côte d'Ivoire and Senegal.

## 6.1 WORLDWIDE

While the trading of commodity-linked instruments has ancient pedigree, the world's first bona fide commodity exchanges emerged in the 18<sup>th</sup> century. Ancient texts identify prevalence of commodity trading instruments for spot and forward delivery, and even nascent forms of optionality in some places, for example the suspension and deferral of farmer loan repayments in the event of drought. There has also been a long global history of rural, local and wholesale markets for physical trade of commodities. In the Medieval Middle Ages in Europe, traditional wholesale markets developed into membership- and rule-based trading structures associated with professional and mercantile guilds. However, the first commodity exchange as it would be understood in modern terms, one which offers specified contract markets with standardized trade of commodities, is identified as the Dojima Rice Exchange in Japan, founded during 1730. Chicago Board of Trade (CBOT) was founded in the USA during 1848 for agricultural spot trade, with futures emerging soon after in 1865 (although some say 1859). A significant number of additional exchanges sprung up in the mid/late 19th century in the USA, and worldwide, including Africa's first commodity exchange, the Alexandria Cotton Exchange, Egypt, which was founded in 1865 (although again, some say earlier).

<sup>&</sup>lt;sup>14</sup> The survey response from AFEX incorporated experiences from its sister exchange in Rwanda, known as East Africa Exchange (EAX). <sup>15</sup> Auction Holdings Commodity Exchange (AHCX) in Malawi was active for several years as a competitor to ACE, but now has completely shut down, as has Global Board of Trade in Mauritius.

Since the late 1990s, there has been a widescale transformation of the commodity exchange world. Before then, and since the 19th century, most commodity exchanges offered 'open outcry' trade around a trading 'pit'; were mutually owned by their members as a non-profit organisation; and had a governance mindset that may best be characterised as an 'old boys club'. The overwhelming majority of trading volume took place in developed economies. In many cases, exchanges focused narrowly on addressing national or sub-national markets and specific segment or product verticals (i.e. agriculture, energy, metals, or sub-sector niches within them), in some cases trading spot and forwards as well as futures and options. Clearing and settlement was a low-key 'back office' function, with the brunt of regulation taking place through self-regulatory mechanisms largely rubberstamped by the public regulatory authorities.

This is not to say that commodity exchanges in this context were unimportant – quite the contrary. The price discovery and price risk management functions were understood and well-appreciated, particularly in developed economies. Across the agriculture, energy and metals sectors, price discovery and price risk management transformed industries, helping to organise and provide structure for value chains locally, nationally, regionally and globally. The emergence of commodity futures and options in these chains enabled long-term forward contracting that stabilised transactional relationships and market pricing alike across large geographical distances, laying a foundation for industrialisation and the globalisation of trade.

The meta-trend that broke this status quo was the internet revolution which gathered pace in the late 1990s. Digitalisation drove a whole series of new developments that rendered obsolete the old commodity exchange model. In the exchanges sector there is a fundamental principle that 'liquidity is king'. In practical terms, it means that no exchange which builds a critical mass of liquidity for a particular product has ever lost that liquidity to a second-entrant rival. Except once. In 1997-98, DTB – the German forerunner of today's Eurex exchange, and one of the world's first electronic exchanges – managed to capture liquidity from the UK-based LIFFE, which operated an open outcry pit, for the trading of a German government bond futures product, the Bund. In the words of the European Central Bank (ECB), "thanks to the combination of its electronic market structure and EU-wide access deregulation, DTB increased the relevant size of the market for exchange members and disproportionately attracted those ones who originally did not exist [prior to electronic trading] or used to submit their orders through a broker<sup>16</sup>". This landmark event has been heralded as a tipping point which drove many commodity exchanges to migrate rapidly to electronic trading.

As the ECB articulates, the most fundamental impact of electronic trading was to open up market access to new types of market participant. Value chain actors (including the smaller-scale among them), institutional investors, commodity indexes, hedge funds, specialised traders, algorithms, market makers and a wider range of financial intermediaries beyond the traditional commodity brokers entered the market, helping to break the back of the 'old boys clubs'. Importantly, the advent of electronic trading also allowed easier access to exchanges from participants outside the domestic market, a development actively encouraged by the exchanges themselves, and thus helped to regionalise and in some cases globalise the more successful exchanges.

With electronic trading, opportunities for arbitrage massively expanded – spatially, temporally and industrially. Arbitrage became a major driver of commodity exchange liquidity. A new generation of high-speed, high-frequency and algorithmic traders entered the markets to perform arbitrage at increasing levels of efficiency. Speed became increasingly important as algorithms detected pricing anomalies within or across markets and the fastest among the automated, algorithm-driven 'black box' traders reaped the benefit. This was not without its risks, however, as there has always been a danger that imperfections within the algorithms could cause erroneous or destabilising action, leading to so-called 'flash crashes', a deep and sudden fall in prices followed by a quick recovery, the first of which took place in May 2010, and then have occurred periodically thereafter, with at least six known examples to current date<sup>17</sup>.

For the most part, the growth of arbitrage has been beneficial. It has become an essential component of successful new product launches and has boosted market efficiency, liquidity and price discovery. With it, physical and futures markets have become better integrated over time; geographical markets have become better integrated across space; and products along the value chain are more efficiently priced relative to the costs involved. Relating this to the agricultural value chain, all other things being equal, it means that an agricultural producers can more rapidly obtain a market-linked price when selling their produce.

<sup>&</sup>lt;sup>16</sup> ECB 2007, "How and when do markets tip? Lessons from the Battle of the Bund", Working Paper Series 766, June 2007, available: <u>https://www.ecb.europa.eu/pub/pdf/scpwps/ecbwp766.pdf</u>

<sup>&</sup>lt;sup>17</sup> It is important to emphasise that there is disagreement as to the extent to which algorithmic or 'black box' trading is the sole cause, or even a cause at all, of 'flash crashes'.

**Electronic platforms have also provided a more reliable and efficient way to conduct market-making which helps kickstart new product liquidity.** Market-making is a specialised function performed by qualified institutions to assure liquidity even in the early phases of a contract's lifetime. This is important, as was noted above, because new contracts face a 'chicken and egg' challenge which is otherwise difficult to overcome – market participants will only trade in liquid markets but markets will only become liquid if participants trade in them. By providing at all times bids and offers into the market at a defined spread from the market price, market-making creates the liquidity conditions in which the largest commercial players on either side of the market can commence participation early. Otherwise, there is a danger that the largest commercial players will wait to participate until liquidity accumulates, the result of which is that liquidity takes much longer to develop, or may never develop at all – some African commodity exchanges, including the Global Board of Trade (Mauritius) and AHCX (Malawi), are examples.

As market liquidity has become easier to build, the scope of trading has expanded beyond the traditional commodity and financial asset classes. Over time, innovative products have included: climate change mitigation instruments, electricity, weather, biofuels, feed, fish, wine, freight, real estate and mortgages, macroeconomic indicators, events, intellectual property and cryptocurrencies.

#### Volumes have surged.

As trading migrated online, superior technology and connectivity became a key value proposition for exchanges and the costs of operations soared. In the first decade of digitalisation, before the technology itself became commoditised (see below), the software to drive electronic trading, and to build straight-through interfaces with pre- and post-trade processes, became extremely expensive. Specialist software vendors offering brokerage and trading solutions led to proliferation in the range of software that serves the commodity exchange ecosystem. This proliferation of different software types created significant technological complexity which in turn drove a need for a further genre of 'middleware', i.e. specific technology solutions designed to integrate multiple types of software. This meant that commodity exchanges came to resemble technology firms, assembling large teams of in-house IT professionals and specialised consultants to design and implement repeated rounds of software upgrade and migration, while maintaining state-of-the-art data centres to host the burgeoning technologies.

On the connectivity side, exchanges needed to address a range of stakeholder needs. Some market participants looked for bandwidth and reliability; others for speed, noting that for algorithmic trading a difference of micro-seconds could be the difference between seizing or losing a market opportunity. In this light, exchanges have invested significant resources to manage expanding data networks, ensure network security, establish points of presence (PoPs), and build state-of-the-art data centres for hosting and colocation of traders' servers alongside their own, which allows the traders to have the fastest possible response time to seize the market opportunity. Further expense has been incurred investing in backup sites that ensure business continuity in the event of disaster (a point driven home by the events of 9/11 early in the electronic era).

**The entry of new players helped drive increased asset class and cross-border interconnectedness.** Value chain participants, and in particular importers and exporters, looked to mitigate commodity price risk in tandem with foreign currency (FX) and interest rate risk which led to growing interconnectedness between commodity, FX and interest rate futures markets. Institutional investors sought to diversify portfolios from stocks and bonds into commodities, taking advantage of lower correlations between prices and returns across the different asset classes, but as a result of which new and increasing correlations were created. Hedge funds, specialised traders and algorithms pounced on new opportunities for arbitrage and speculation across asset classes and geographies.

The greater interconnectedness between asset classes and geographic markets spurred multiple rounds of institutional integration. Financial exchanges acquired commodity exchanges in developed and emerging economies alike. Global consolidation saw the formation of multinational exchange groups<sup>18</sup>. Commodity exchanges in different parts of the world linked up for mutual benefit. These linkages have ranged from collaborative exercises – product licensing, cross-listing, clearing synergies and technology interfaces – to equity participation and cross-border mergers and acquisitions.

<sup>18</sup> Some of the most famous include the formation of Euronext in 2000 with the merger of the French, Dutch and Belgian exchanges; the acquisitions by the US-based InterContinental Exchange (ICE) of the UK-based International Petroleum Exchange (IPE) in 2001, followed by the acquisition of two North American exchanges in the 2000s, the Climate Exchange in 2010; the consolidation of the US benchmark exchanges, Chicago Mercantile Exchange, Chicago Board of Trade and New York Mercantile Exchange under the CME Group between 2006-2008; the acquisition by the US exchange, NASDAQ, with the Scandinavian exchanges group OMX in 2007; and the acquisition of the London Metal Exchange by the Hong Kong Exchanges and Clearing in 2012.

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The digital transformation and its consequences led to ownership and governance transformation. The new kinds of market participant were no longer satisfied to participate in an exchange owned and managed by a narrow clique of 'old boy' members for their own benefit. This led to calls for demutualisation and the professional separation of ownership and management from trading interests. Additionally, to remain competitive in this new era, exchanges needed to raise significant amounts of investment capital and financial liquidity, in particular to support the high-cost technology base – the old non-profit model could no longer support the scale of financial expansion required.

Accordingly, a wave of demutualisations occurred in the early 2000s as exchanges transformed into private for-profit enterprises with full separation of ownership, management and trading interests. The members lost their privileged position in accessing information and running the exchange, but instead participated – along with representatives of new types of market participant – in consultative committees that advise the exchange about the modalities for trading particular products and asset classes.

**Transformation of the trading environment sparked a similar transformation of the regulatory environment.** Regulators needed to become more active as markets expanded in scale, breadth and interconnectedness, bringing with it increasing risk to the real economy, even before the Global Financial Crisis of 2007/2008. International regulatory principles and best practices were introduced under the framework of the International Organisation of Securities Commissions (IOSCO) to provide the basis for regulatory harmonisation. Protocols for sharing of information between regulators and for coordination to manage cross-border risks were established through the IOSCO Multilateral Memorandum of Understanding (MMOU), signed by leading regulators around the world. This in turn facilitated further expansion of cross-border trade between the IOSCO MMOU signatory jurisdictions.

**The Global Financial Crisis of 2007/2008 provoked a further phase of regulatory development.** The Crisis had its roots in the OTC derivatives sector (i.e. derivatives such as 'exotic' options, forwards and swaps which trade bilaterally between counterparties rather than through exchanges). However, the Crisis also provided a major validation of the CCP model used to clear exchange-traded derivatives. While major defaults were taking place during the Crisis in the OTC segments causing the disintegration of some giant global financial institutions around the world, no CCP clearinghouse experienced a default at that time despite some of those collapsing institutions being among the largest participants on global commodity and derivative exchanges. The regulatory response to the Global Financial Crisis was coordinated at global level, initially through political leaders via the Group of 20 (G20) Pittsburgh Summit Declaration of 2009, and subsequently institutionalised under global technical bodies including IOSCO and the Bank for International Settlements (BIS), and it focused on driving more trading volumes onto financial and commodity exchanges with settlement through CCP clearinghouses.

In particular, the post-Crisis regulatory reform drove the rise in importance of the clearing and settlement function relative to trading. OTC products were pushed wherever possible to be cleared through CCP clearinghouses. CCPs in turn were pushed to adopt more stringent risk management practices in anticipation of the additional risk-load they would absorb. Commodity exchanges came under pressure to be more circumspect with their risk parameters such as position and pricing limits and margining frameworks. The regulatory environment – in particular through the Basel Capital Accords – started to differentiate the regulatory costs of trading and financing according to the level of stringency by which the applicable CCP mitigated risk. The sum of all this was that clearing and settlement was no longer a mere back-office function but rather a robust clearinghouse has become of equal importance to stakeholders as the liquidity and efficiency of the market itself.

As the era of electronic trading has matured the costs of technology and connectivity have fallen providing greater opportunity for exchanges to take root in smaller economies. Reduced costs of technology have been driven by various factors. More players have entered the technology space making it increasingly competitive. The functionality and technical performance of trading and clearing technologies have become less differentiated over time, reducing the justification for high premiums. The commercial model for technology provision has also changed as technology vendors offer not just the software but rather a fully hosted solution at a shared data centre, taking away the need for less well-resourced exchanges to build their own exclusive data infrastructures and connectivity networks, and thus making electronic trading more affordable for all.

## 6.2 EMERGING AND DEVELOPED MARKETS

The advent of electronic trade and the subsequent technology commoditisation has been one among several important factors triggering another meta-trend – the emergence of commodity exchanges in emerging and developed markets. As UNCTAD<sup>19</sup> makes clear, in many emerging markets, commodity exchanges are playing an important role in the political economy of the developing world in the context of consolidating political transition, economic liberalisation and financial reform.

For the most part, commodity exchanges in most emerging markets, including all five 'BRICS' economies, have focused on futures and options products. By contrast, Africa, together with Eastern Europe (including Turkey), are the regions which have adopted a spot market preference. India focused initially on commodity derivatives, before turning its attention to spot markets once futures markets liquidity had been established in the late-2000s and early 2010s. However, it has taken more than a decade, and at least one major scandal, for India's spot exchanges to start bearing fruit.

**Special mention is made of Brazil.** While its core commodities business is futures and options, the B3 exchange – the rebranded former BM&fBovespa exchange after the 2017 merger with the CETIP depository – also operates a highly specialised system of forward trade for commodity-backed instruments issued by producers to obtain pre-harvest finance, known as Cedula de Produto Rural (CPRs), literally translated as rural credit notes, and more colloquially as 'crop receipts'. B3 also offers spot trade in warehouse receipts once the commodity reaches the warehouse. This unique offering has captured the imagination of many developing countries and has been the focus of much attention by the international financial institutions<sup>20</sup>.

In the commodity futures and options space, emerging market exchanges have grown fast in terms of contract volume. Already by 2008, UNCTAD could conclude that a majority of the world's agricultural futures volume was being transacted in the developing world. By 2019, according to the Futures Industry Association's annual volume survey, two of the world's three largest exchanges, and sixteen of the world's twenty largest commodity markets were located in developing countries. However, it is worth noting that exchanges in developed economies remain largest both by value – this is explained by the emerging market exchanges typically offering smaller-scale contracts – and by open interest (i.e. the proportion of actors holding longer-term positions), reflecting a higher proportion of hedging taking place in the developed economy exchanges.

The 'liquidity is king' principle remains intact – this means, all other things being equal, liquidity still migrates from most emerging markets, including Africa, onto the global benchmark commodity exchanges. The global benchmark exchanges are those which offer futures and options markets for products which are globally traded using standardised quality grades; i.e. oil and gas traded on CME and ICE Group exchanges; base and precious metals traded on LME and CME Group exchanges; some agricultural products including cocoa, coffee, cotton, sugar, rubber and – to a more limited extent – some grains and oilseeds traded on ICE and CME Group exchanges; and palm oil traded on Bursa Malaysia. They are known as 'benchmark exchanges' because the prices that are discovered on these exchanges provide the benchmarks for transactional pricing and collateral valuation in the underlying physical and financial markets around the world.

#### In this context, how have emerging market exchanges managed to develop liquidity?

**In some cases, regulatory impediments block access to the global benchmark exchanges.** These impediments can include capital controls, lack of currency convertibility, and outright legal prohibition. The two prime examples are China and India. In these countries, regulatory impediments have held 'captive' the sizable onshore liquidity and ensured it flows almost entirely to domestic rather than international exchanges<sup>21</sup>. However, it is important to emphasise that regulatory impediments are not the sole driver of the Chinese and Indian success stories, though they have certainly helped.

<sup>&</sup>lt;sup>19</sup> UNCTAD (2008), «Report of the United Nations Study Group on Emerging Commodity Exchanges: Development Impacts of Commodity Exchanges in Emerging Markets», UNCTAD/DITC/COM/2008/9, available: <u>https://unctad.org/en/Docs/ditccom20089\_en.pdf</u>

<sup>&</sup>lt;sup>20</sup> The International Finance Corporation (IFC) and FAO joined forces in 2018 for a study examining the potential of Brazil-style crop receipts in Africa IFC 2019, 'Africa Crop Receipts Initiative Report – Crop Receipts: A New Financing Instrument for Africa', see <a href="https://www.ifc.org/wps/wcm/connect/industry">https://www.ifc.org/wps/wcm/connect/industry</a> ext content/ifc external corporate site/agribusiness/resources/crops+receipts

<sup>&</sup>lt;u>nttps://www.irc.org/wps/wcm/connect/industry\_ext\_content/irc\_external\_corporate\_site/agripusiness/resources/crops+receipts</u>
<sup>21</sup> Some exemptions have been provided in both China and India for large hedgers, especially when they face Dollar-exposure, whose requirements cannot be absorbed by domestic exchanges.

## Another important factor driving emerging market volume growth – including in India and China – has been product complementarity and differentiation from the benchmark exchanges.

- <u>Complementarity-based approaches</u> involve offering similar contracts as traded in the global benchmark exchange but in smaller-scale units, with local currency denomination and during locally-relevant trading hours. These contracts are often cash-settled against the prices discovered on the international exchange without a physical delivery option. This approach offers an affordable and convenient market access solution for locally-domiciled market participants, while still benefitting from the liquidity advantage and efficient price discovery of the international exchanges.
- <u>Differentiation-based approaches</u> involve adaptation to the global contracts to allow for localised physical delivery, quality specifications and origin/variety acceptance. By localising these parameters, these contracts can discover a price that is more relevant for the domestic actors if there are good economic reasons why the international price may be less pertinent. At the same time, these contracts are positive in terms of overall liquidity creation on both the local and international exchanges as they open up new arbitrage opportunities that can help drive increased volumes on both. For this reason, the dynamic between local and international exchanges is most often collaborative rather than competitive because an arbitrage or 'spread' trade generates an order on the local exchange and an order on the international exchange, creating a 'positive sum' rather than a 'zero sum' liquidity outcome. In some cases, these localised contracts have become important sources of price discovery in global markets alongside those of the benchmark exchanges, especially when the exchange has become the venue for leading buyers or suppliers of important commodities in the global markets. Examples include base metals, minerals and some agricultural products trading on Chinese exchanges, precious and some agricultural and livestock products trading on the Brazilian and South African exchanges.

Overall, it can be argued that strong product development capability, aligned to the size of the underlying market and the facilitative-ness of the policy and regulatory environments, best explain which emerging market exchanges have succeeded and which have not.

**Commodity exchanges in emerging markets have typically succeeded by focusing on small-scale contracts, SME and retail participation, and a strong broker development capability.** Emerging market agricultural contracts are typically sized around the 5-10 MT mark, compared with contracts of 50 or 100 MT trading on the benchmark exchanges (although it is noted that ICE US and UK offer 10 MT contracts for cocoa). Similar ratios also apply for metals and energy contracts. This aligns more closely with the needs of medium- and small-scale value chain participants and 'retail' investors, which have tended to be more prominent in emerging compared with developed economy exchanges.

Because the market participants have been smaller-scale, the imperative to develop efficient modalities for training brokers at scale has been a critical driver of emerging market exchange success. In India and China, this has been particularly the case. When the Indian government established the framework for the multi-commodity derivatives exchanges in the early 2000s, the two leading exchanges, NCDEX and MCX, converted and trained over 500 physical market traders and brokers apiece to become commodity futures brokers in the space of 6-12 months. This number continued to grow rapidly over the next few years. The emerging market brokers, much like their counterparts in the developed world, have absorbed much of the initial cost and complexity of futures market participation to drive widescale take-up by value chain players and retail investors in a relatively short period. The scale and efficiency of the brokerage sector is also important in explaining how the Indian and Chinese exchanges became arguably the fastest of any exchanges worldwide in creating liquidity for newly-launched contracts. In India at one point, the new contract launch process was condensed to as short a turnaround as one month. By contrast, some of the leading international exchanges can take several years performing groundwork before launching a new contract.

#### Emerging market exchanges have also been adept in accommodating new kinds of market participant.

Exchanges have been quick to recognise the role of arbitrage as a major driver of liquidity on exchanges. Marketmaking has also been incorporated, officially or unofficially, into the contract development process for many new contracts. Speculation has generally been accepted as a necessity for long-term liquidity growth in futures markets, the acceptable economic function of speculation being to facilitate the transfer of price risk from hedgers looking to offload to speculators looking to take it on. With this in mind, public regulatory authorities in emerging markets have been relatively stringent to ensure that speculative controls, for example position and daily price limits, and rigorous margining techniques, are in place to manage the consequence of large-scale speculative participation.



In China specifically, the significant participation of the public sector – companies and agencies – has been a critical factor in not only building high levels of liquidity but also doing it in super-quick time. A key value proposition of the Chinese commodity exchanges has been their capability to engage with government decision-makers to mobilise and capacitate the public entities, as well as their suppliers and buyers, to perform hedging and trading through the Chinese commodity and derivative exchanges.

## 6.3 GLOBAL EXCHANGE-TRADING OF COCOA

Cocoa futures contracts are traded on both the New York Board of Trade (NYBOT), which is now part of the Intercontinental Exchange (ICE) Futures USA, and the London International Financial Futures Exchange (LIFFE), now known as ICE Futures Europe. While both exchanges offer cocoa futures contracts, there are some notable differences between the two. The traditional names are used in the analysis below.

#### Contract Specifications:

- NYBOT: The cocoa futures contract on NYBOT represents 10 metric tons of cocoa beans and is denominated in USD. It trades with a ticker symbol of «C"» and is quoted in cents per pound. Delivery months for NYBOT cocoa futures include March, May, July, September, and December.
- LIFFE: The cocoa futures contract on LIFFE represents 10 metric tons of cocoa beans and is denominated in British Pound Sterling. It trades with a ticker symbol of "«C"» and is quoted in pounds per ton. Delivery months for LIFFE cocoa futures include March, May, July, September, and December.

#### Trading Volume and Liquidity:

- **NYBOT**: The NYBOT cocoa futures contract has historically had higher trading volume and liquidity compared to LIFFE. It attracts significant participation from traders and hedgers globally, given the prominence of the U.S. market and the role of the USD dollar in international trade. The NYBOT open interest on all cocoa futures contracts reach today up to 300,000 lots.
- LIFFE: While the LIFFE cocoa futures contract has lower trading volume (6,000 lots daily average) compared to NYBOT (16,000 lots daily average), it is still an important market for cocoa trading. LIFFE contracts attract participants from Europe, Africa, and other regions with strong cocoa production and consumption. Open interest can also exceed 300,000 lots.

#### Market Influence:

- **NYBOT**: The NYBOT cocoa futures contract serves as a reference point for cocoa prices in the United States and has a broader impact on global cocoa markets. Price movements in NYBOT cocoa futures can influence hedging decisions and physical cocoa trade in North America, Asia, Latin America and other regions.
- LIFFE: The LIFFE cocoa futures contract plays a significant role in European and African cocoa markets. Price movements in LIFFE cocoa futures can affect hedging decisions and physical cocoa trade in Europe, Africa and other regions.

#### Regulatory Environment:

- **NYBOT**: The NYBOT cocoa futures contract operates under the regulations of the U.S. Commodity Futures Trading Commission (CFTC) and follows U.S. market rules and standards.
- LIFFE: The LIFFE cocoa futures contract operates under the regulations of the Financial Conduct Authority (FCA) in the United Kingdom (UK) and adheres to UK and European Union (EU) market rules and standards.
#### Time Zone and Trading Hours:

- NYBOT: NYBOT operates in the Eastern Time Zone (ET) and has trading hours from Sunday to Friday, providing extended trading hours compared to LIFFE.
- LIFFE: LIFFE operates in the Greenwich Mean Time (GMT) time zone in winter and the British Summer Time (BST) time zone in summer and has trading hours from Monday to Friday.

#### Pricing

- **NYBOT**: The New York contract tends to be more volatile than the London contract due to its higher speculative activity and its lower liquidity. However, this volatility can also vary depending on the market expectations and sentiments regarding the global cocoa market.
- LIFFE: The London contract tends to trade at a premium over the New York contract due to its higher quality standards and its wider range of deliverable origins. However, this premium can vary depending on the exchange rate fluctuations and the relative availability of cocoa beans from different origins.

The pricing across the two exchanges is influenced by several factors, such as:

- **The exchange rate** between the US dollar and the British pound, which affects the relative competitiveness of the two contracts. For example, a stronger pound would make London cocoa more expensive and less attractive for buyers, while a weaker pound would have the opposite effect.
- The differences in contract specifications, such as the deliverable origins, the delivery locations, and the quality standards. For example, London cocoa has a wider range of deliverable origins than New York cocoa, which may affect the availability and diversity of cocoa beans. New York cocoa has more delivery ports than London cocoa, which may affect the transportation and storage costs. London cocoa has stricter quality standards than New York cocoa, which may affect the quality premiums or discounts.
- The differences in market participants, such as the producers, exporters, trade houses, processors, chocolate manufacturers, and speculators. For example, London cocoa is more influenced by European demand and supply conditions, while New York cocoa is more influenced by American and Asian demand and supply conditions. London cocoa has more hedging activity from producers and exporters, while New York cocoa has more speculative activity from funds and investors.

The contango or backwardation of the two contracts can differ depending on the seasonality of cocoa production and consumption, as well as the market expectations regarding future supply and demand conditions. For example, in November 2020, both contracts went from contango to backwardation due to a surge in demand for physical delivery of cocoa beans from buyers who were paying an extra fee to help reduce poverty of the farmers in Ivory Coast and Ghana. However, in May 2021, both contracts were in contango due to weak demand for cocoa in the pandemic-stricken era.

It is worth noting that while there are differences between the New York and London cocoa futures contracts, both markets offer valuable price discovery and risk management tools for participants in the cocoa industry, allowing them to hedge against price volatility and manage their exposure to cocoa beans.

#### Strength and weaknesses in the context of African Cocoa production

#### Strengths of the Cocoa Futures Contracts:

**1. Price Discovery:** Both the New York and London cocoa futures contracts provide a platform for price discovery. They serve as benchmarks for cocoa prices and enable market participants to assess the supply and demand dynamics of cocoa and make effective production, storage and marketing decisions accordingly.

**2. Risk Management:** The futures contracts allow market participants, including cocoa farmers, traders, and chocolate manufacturers, to hedge against price fluctuations. By locking in prices in advance, participants can mitigate their exposure to price risk and plan their operations more effectively.



**3. Global Reach:** The New York and London cocoa futures contracts attract participants from around the world, offering access to a broad range of market participants, including traders, speculators, and hedgers. This global reach enhances liquidity and facilitates efficient price discovery.

#### Weaknesses of the Cocoa Futures Contracts:

**1. Limited Representation of African Cocoa Producers:** While cocoa futures contracts provide risk management tools, they may not reflect the interests and concerns of African cocoa producers who are the dominant global producers of cocoa. Farmers often face unique challenges related to production, pricing, and sustainability but have minimal effective means to access the instruments on NYBOT and LIFFE.

**2. Lack of Producer Participation in Market Governance:** Commodity exchanges put in place product committees for each commodity they trade. These are intended to provide participatory governance comprising the different interests in the market to influence and to build consensus on how the exchange works. Product committees for the cocoa futures contracts generally include traders, investors, and speculators. However, there is limited involvement of cocoa producers, either the national bodies or the producers themselves. This can result in a disconnect between the futures market dynamics and the needs and interests of farmers.

#### Possible improvements to reflect the Interests of African Cocoa Producers:

**1. Collaboration with Producer Organisations:** Encouraging collaboration between cocoa futures exchanges and African cocoa producer organisations, including national sectoral regulatory bodies, apex farmer representative bodies, and local industry associations could enhance the representation of the interests of the African cocoa sector in contract design and market operations.

**2. Contract Size Flexibility:** Introducing cocoa futures contracts with smaller contract sizes could make the contracts more accessible and relevant to smaller-scale African cocoa value chain actors, including producers. This would allow greater access to hedging instruments to overcome some key barriers in place today.

**3. Sustainability Considerations:** Incorporating sustainability criteria in cocoa futures contracts could reflect the growing demand for ethically sourced cocoa, which does not involve child labour or deforestation, for example. This may involve including sustainability certifications or establishing mechanisms to incentivize and reward sustainable practices among cocoa farmers, for example by creating market-derived pricing premiums for organic and certified cocoa.

**4. Education and Outreach:** Providing educational programs and resources to African cocoa producers about the benefits and mechanics of cocoa futures contracts would help them understand how these tools can support their risk management and income stability. Increased awareness and knowledge would empower farmers to make informed decisions and participate effectively in the futures market.

**5. Localized Market Infrastructure:** Establishing localized market infrastructure, such as regional commodity exchanges in West and Central Africa, could create more direct access and participation opportunities for producers and other value chain actors. This would enable them to engage in local price discovery and trading, reducing reliance on international exchanges.

#### <mark>6.4</mark> AFRICA

In Africa, there has been a clear trend since the mid-2000s towards the establishment of commodity exchanges and warehouse receipt systems. Commodity exchanges in Africa have been seen as a solution to specifically agricultural challenges with a focus on spot trading combined with warehouse receipt finance. Despite a larger proportion of African GDP and export revenues originating from metals and energy sectors than agriculture, these sectors have been largely excluded from the Continent's commodity exchange narrative. Moreover, despite widespread emphasis worldwide on the development of futures and options markets, the Continent has focused on spot trading, which is argued to be more reflective of the Continent's needs and priorities. It is commonly suggested that Africa's underlying physical markets need to be better organised before more sophisticated instruments like futures and options can be introduced<sup>22</sup>. The focus on spot also arguably reflects an under-appreciation by policymakers of price risk management as an important driver of value chain structuring and development<sup>23</sup>. In this context, the JSE commodity and financial derivatives exchange in South Africa, established in 1995, remains the only liquid futures and options exchange on the Continent.

The African commodity exchange sector has shown overall growth and innovation of model diversity, although performance has been uneven. The two longest-standing success stories have been the JSE in South Africa and ECX of Ethiopia, respectively with derivative and spot trade<sup>24</sup>. Both exchanges have by now accumulated lengthy track records, generating a significant annual volume of trade.

- JSE arguably has the greatest success worldwide of integrating agricultural futures markets with the underlying physical markets by maintaining a delivery network comprising over 250 delivery silos per commodity type. By contrast, most commodity futures exchanges have only one, or several, such delivery warehouses. On the JSE, this means that producers mainly commercial grain producers can deliver with ease to fulfil futures contracts, and offtakers can likewise collect grain from across the country. Consequently, the price discovery process is strongly reflective of supply and demand, and the JSE prices are the main reference in regional grain trade.
- ECX has developed a robust operational infrastructure which enables rapid, efficient and robust trading of commodities mandated by government. This includes over 20 delivery warehouses close to production areas of its key crops, coffee, sesame and other legumes and pulses. ECX managed to maintain its coffee markets despite early challenges with preserving origin and traceability, a key buyer demand. It now offers trade of individual parcels on a lot-by-lot basis, rather than on the basis of standardised contracts which is the norm for commodity exchanges and the approach initially pursued at ECX.

ACE of Malawi, and the Tanzanian warehouse receipt system, under the supervision of the country's Warehouse Receipts Regulatory Board (WRRB), have also generated a 15-year track record. While performance in both has experienced highs and lows, both are now handling relatively large volumes and values of business. In Tanzania, the TMX has been introduced to trade goods stored in WRRB warehouses.

<sup>22</sup> It is argued this characterisation is based on a misunderstanding that value chain participants, including small farmers, would directly perform the market access function – i.e. buying and selling on a spot exchange; hedging on a futures or options exchange. Even in the developed world this is rarely the case. In most cases, value chain participants access markets through brokers whose role is to understand the end user's needs, convert those needs into a strategy, and then execute that strategy on the exchange. In other words, the role of the broker is to absorb most of the direct cost and complexity of market access on behalf of the client in return for straightforward commission-based remuneration. As described above, the efficient modalities for training brokers to perform this function at scale has been a critical driver of success in India and China.

<sup>23</sup> The counter-argument - for prioritising futures alongside or even ahead of spot trading – is that, with the ability to hedge price risk, offtakers and financiers are better positioned to create stronger relationships with agricultural producers. On the one hand, buyers can offer longer-term supply contracts, including minimum or fixed price clauses that assure the producer of a remunerative income, if the buyer can then hedge the ensuing risk from providing a price commitment. On the other hand, financiers are prepared to lend adequately to producers if they have confidence that the producer's income will be sufficient to repay loan obligations. In the context of Africa's often highly volatile commodity prices, banks are concerned that prices will be low, so they limit lending to the minimum, or otherwise do not lend at all.

<sup>24</sup> However, it is pertinent to note that ECX is an operational but not yet a commercial success story – the commodities for which ECX has developed volume have been those for which the government has mandated trade through the exchange.

- ACE focuses primarily on facilitating aggregation and finance to enable producers and other value chain actors to supply leading offtakers in Malawi (and briefly, in the past, in neighbouring countries as well). Its main activities include provision of robust warehousing and collateral management services, intermediation of bank financing instruments for suppliers and offtakers (including input as well as WR loans for farmers), and carrying out farmer registration, training, information dissemination and other support services. Annual volumes now exceed 200,000MTs of grains, pulses and legumes, with total certified third-party storage capacity of 800,000MT at 130 sites operated by farmer organisations and agribusinesses.
- TMX was established in Tanzania by government in 2018 and is gradually expanding its sphere of operations to trade different commodities stored in WRRB warehouses, including cocoa, as well as coffee, sesame, cashew, lentils and green gram. In some cases, trade has risen to a sizable proportion of national production 70% of green gram, and 15-30% of cocoa, coffee and sesame. Goods are sold by auction on a lot-by-lot basis through the TMX platform.

AFEX in Nigeria and the EAX in Rwanda, two sister exchanges operated by the same private philanthropic consortium, have each been operating for approximately 10 years. Their models are closer to farmer-friendly aggregation brokerage than exchanges per se – i.e. most trades to date have been privately negotiated for producer- and supplier-delivered stock with individual offtakers rather than through multilateral markets and public price discovery. AFEX in particular has shown incredible growth, currently trading over USD 4 million of commodity per day, and has become the aggregator of choice for many Nigerian and some international offtakers. This has followed from many years of investment to organise producers around AFEX's rural warehouses, promote productivity and quality improvement, and structure deliveries from farmgate via the rural warehouses to the large wholesale markets. Total storage capacity now exceeds 160,000MT at 80 locations across Nigeria. Commodity coverage includes cocoa, as well as grains, ginger, sesame and cashew.

In other African countries further behind in the development curve, an important factor holding back exchange development has been the misalignment of policy between government marketing companies and food reserve agencies on the one hand and commodity exchanges on the other. Ghana Commodity Exchange launched with a similar model to ECX, while exchanges in Kenya, Uganda and Nigeria are in process of establishment (or in the case of NCX, restructuring). These initiatives have been driven by government and have had lengthy incubation periods prior to launch, in part reflecting the tensions in government policy between free markets and private sector leadership, on the one hand, and interventionism and food security concerns on the other. Elsewhere, exchanges and initiatives in countries such as Côte "Ivoire, Egypt and Zimbabwe are only now starting to go live, while long-standing initiatives and projects in countries, such as Zambia, Mozambique, Angola, Uganda, and Cameroon have not yet born fruit for a range of reasons including weak regulation, the small-scale of the physical markets, an insufficiently diverse pool of market participants especially on the buy side, poor overall acceptance from the private sector, lack of management capability or experience, and inadequate physical infrastructure.

#### Overall, four broad models for African commodity exchanges are identified to be emerging.

- Horizontal 'spot' model this may be considered the intuitive or traditional exchange model in which multiple sellers and buyers interact for trade of standardised contracts for quality-graded commodities stored at third-party operated warehouses. Due to the under-development of third party-operated storage infrastructure and services, and the absence of professional warehousing companies, contrary to normal international practice, the delivery warehouses are typically operated by the exchanges themselves to fill the gap. The main examples are ECX and GCX, with the same model replicated unsuccessfully by AHCX in Malawi, now closed, and BMM in Mozambique which continues to develop its model.
- Vertical 'spot' and 'forwards' model this model involves exchanges certifying as their delivery warehouses the storage facilities of large offtakers with focus on integrating farmers and other value chain actors into agribusiness supply chains. The large offtakers for example, grain millers, feed manufacturers, oilseed processors, cash crop exporters are typically the actors in their respective jurisdictions that have sufficient storage infrastructure to allow for commodity exchange deliveries. The key functions of an exchange in this arrangement includes the sourcing and transport of smallholder produce from the rural areas, the oversight of the offtaker's warehousing akin to a collateral management function, the certification of quality, and the facilitation of finance to both sellers and buyer. In this model, exchanges have started to introduce innovative forward and repo contracts which are hybrid trade and financing instruments –

the fixing of price for future delivery means the banks are more comfortable to finance the offtaker's aggregation, including provision of competitive finance for farmers. These exchanges also typically operate, or work with, a network of smaller-scale rural warehouses to enable efficient and inclusive primary aggregation of produce before transportation to the offtaker warehouses. They have also expanded the scope of farmer support from strictly exchange-focused business to include a wider set of activities, including input loans, extension services, farmer registrations, financial access and field training. The main examples are ACE, AFEX and EAX.

- Hybrid 'spot': TMX is somewhat of a hybrid between the two. It facilitates trade from the WRRB warehouses, some of which belong to offtakers, and therefore have some resemblance of the vertical model. However, some of its warehouses are those of apex, secondary or regional producer cooperatives (also known as cooperative unions, being unions of primary or local-level producer cooperatives). In the case of Tanzania, these apex cooperatives also sometimes operate warehouses of sufficient capacity and condition to support commodity exchange deliveries. Therefore, the exchange has facilitated auctions from the apex cooperative warehouses involving multiple offtakers bidding for the stored farmer-owned produce. In Ethiopia too, apex cooperatives have adequate storage infrastructure and management capability, and have recently participated in two seasons of warehouse receipt pilots linked to the new National Warehouse Receipt System. ECX is currently exploring allowing for these sites to become certified delivery centres on the exchange, potentially with ECX directly operating the warehouses as a 'field warehousing' service on behalf of the farmer cooperatives.
- **Derivatives model** this is the model of JSE and (at a very nascent stage) LCFE, following the standard international model for commodity futures and options markets.

# The single major challenge facing African commodity exchanges has been developing uptake on both sides of the market – from producers on the one side, and from buyers on the other – through migration from existing informal practices.

- As concerns smallholder producers, the imperative for smallholders to make farmgate sales for cash to informal traders has often been too high to resist despite the lower price realisation it usually entails when compared with trading through a commodity exchange. Typically, producers are highly indebted by the time of harvest and desperately need the immediate cash payment for the sale of their output. However, commodity exchanges typically struggle to offer cash to the farmer on collection or delivery, but rather in the best-case scenario, a producer can obtain cash from the sale of their goods, or from the financing of stock in the warehouse pending a deferred sale a couple of days after goods reach the warehouse. This asks a lot from the farmer for whom their produce represents a large portion of their annual income, and with desperate need for cash to hand over their commodities and to wait patiently while trusting that the cash will be forthcoming, especially when liquidity has tended to be low on many African commodity exchanges.
- As concerns buyers, the convenience that buyers find with their existing procurement modality, typically taking delivery at factory gate from value chain intermediaries that bring their trucks full of aggregated produce, has often been too high to contemplate commodity exchange-based procurement, despite the oft-cited drawbacks of quality inconsistency and higher prices. Commodity exchanges typically require pre-funding of purchases, collection of goods from a remote location, and then charge fees for so doing. The advantages of purchasing through an exchange are often said by buyers to be offset by the additional costs of pre-funding, remote collection and fees, and this is compounded by the low levels of liquidity on many exchanges.

The challenges with migrating market actors onto the exchange has created a structural liquidity-building conundrum for African commodity exchanges, which in turn has elicited various strategic responses. As mentioned above, liquidity building is a 'chicken and egg' challenge – on the one hand, market participants will not participate in a market until it becomes liquid; but on the other, a market cannot become liquid until market participants participate. Therefore, the main incentive for producers and buyers to migrate onto a commodity exchange – the presence of a ready market into which to sell or from which to purchase – has been absent.

## What are the strategies used by the successful African commodity exchanges that have overcome this liquidity conundrum?

- In the case of ECX, the liquidity conundrum has been 'solved', in a sense, through the government's decision to mandate trade through the exchange for some commodities. However, for commodities for which government has not mandated trade in Ethiopia, as well as for GCX in Ghana where the government has not mandated trade for any commodities, it has been a struggle to build liquidity.
- The 'vertical approach' taken by ACE, AFEX, and EAX addresses the buyer's concerns by structuring the tradeflows to replicate the prior informal market arrangements factory-gate deliveries, whether by existing suppliers, or by farmer groups organised and facilitated by the exchange. Financing arrangements, structured around the 'anchor' offtaker, then allow for cash in hand payment to farmers that supply their produce, and it is notable that the three exchanges make considerable effort to organise, strengthen and empower smallholder producers to deliver through their systems.
- TMX together with JSE have overcome the liquidity challenge by working with established sources of bulked commodity supply in the case of JSE, these are commercial grain farmers; in the case of TMX, these are the apex cooperatives that aggregate from many individual smallholder farmers through their farmer organisations. GCX is evolving an aggregator-facilitation model towards the same end aggregation and transportation of bulk commodity in rural areas to facilitate bulk sale from the exchange delivery warehouses in the secondary aggregation centres.
- It is noteworthy that African commodity exchanges, JSE apart, are not known to have tried the common liquidity building techniques used in international exchanges, including through facilitation of arbitrage opportunities and through introduction of a market-maker program.

A secondary challenge, linked to the primary challenge of uptake and liquidity-building, is that exchangebased storage models remain under-developed. Few African countries have managed to establish commercially sustainable models for third-party storage and quality certification. Common constraints include both the adequacy of storage infrastructure (including the three sub-constraints of capacity, coverage, and condition), as well as the sufficiency of warehouse management capacity (including the two sub-constraints of operational knowhow and financial adequacy). It is important to note that countries such as India and South Africa, which have had in place adequate third-party operated storage infrastructure around which their commodity exchanges have emerged, have usually benefitted from significant prior government investment into warehouses going back many decades. Those warehouses were then subsequently made available to private sector which could invest in developing warehouse management services, benefitting from economies of scale based on the high overall capacity they could come in to manage. Accordingly, some African commodity exchanges - ECX and GCX, among others - have directly established their own footprint of delivery warehouses, with in-house management arrangements. On the one hand, this 'gap-filling' approach has ensured accessibility for value chain actors to good quality storage. On the other, when taking into account the costs of construction, operations and insurance, it has added significant cost into the value chain, which is exacerbated when storage utilisation levels are not high.

Two alternative approaches that may circumvent bottlenecks in the availability of adequate storage are on the radar screens of African commodity exchanges. One involves exploration of alternative storage technologies which are more portable and lower cost than traditional warehousing – for example, hermetically sealed storage bags, silo bags, mobile silos, prefabricated warehouses, 'cocoons', and others (although none of these have yet been significantly tested for exchange-based deliveries). Another way around the high costs of storage may be leveraging technology-driven market linkage solutions, the approaches typically used by e-commerce-platforms for the sale of consumer goods, but are prominent in the aggregation and sale of commodity from rural areas in China through platforms operated by Alibaba and Pinduoduo. These approaches goods move faster along the value chain at lower cost, with more flexibility in the delivery and quality parameters above certain minimum requirements.

The benefits from integrating commodity finance with commodity exchange markets have been underrecognised on the Continent. Banks remain largely tied to financing commodities based on collateral management 'field warehousing' arrangements ('tierce detention' in French), rather than through warehouse receipt systems, despite the limitations of the collateral management model which incurs high transaction costs and thereby excludes a large portion of the potential market. For their part, the microfinance and rural

finance sectors have not yet embraced the opportunities presented by warehouse receipt-based collateralised commodity finance to augment or supersede their traditional group-lending models.

The experiences of South Africa, India and Brazil in particular – and to a certain extent, Malawi and Nigeria as well – show the strong synergy between markets and finance. Commodity exchanges in these countries have been major catalysts for unlocking finance for value chain participants, mainly but not only through warehouse receipt-based collateral financing. In turn, finance has been a major driver of market liquidity – the more finance that buyers and sellers can access, the greater and the faster the volumes they are able to trade. In these countries, finance has been a game changer for market liquidity, and the integration of finance and markets offers the potential for transforming the Africa commodity exchange landscape entirely. In Malawi, special mention is made of the forward contracting instrument – a financing instrument with significant liquidity potential which has been accepted by almost all major banks and agribusinesses in the country.

To address the challenges faced by farmers, deployable field staff and use of digital technologies, may help to address producer uptake challenges. The traditional exchange model starts with the producer's commodity reaching the exchange's delivery warehouses. Over the previous decade, an emerging trend in farmer financing and market linkages has been the emergence of platform-based service providers whose model combines rural field agents using hand-held devices to support and monitor producer groups during the production cycle up to an including collection or delivery. Some commodity exchanges are now introducing similar arrangements – GCX is one example with its GCX Aggregation Support Scheme – so that the commodity exchange can work more closely with farmers and rural aggregators to begin engagement to support effective bulking and quality control at the farm-level, well before the produce reaches the delivery warehouse, and even to allow for earlier release of cash to producers at the time of collection.

**Another major opportunity in Africa is regionalisation.** With few exceptions, Africa's economies are small in global terms. Previous regional initiatives in the exchange space – for example, the Bourse Africa initiative headquartered in Botswana and Mauritius, and the East Africa Exchange<sup>25</sup> – have sought to link various markets as a means to create comparable levels of liquidity to other emerging markets while lowering the transaction costs of supporting a world-class market infrastructure. However to date, not much intra-regional volume has actually been traded. New regional trade enablers, like AfCFTA, as mentioned above, with its vision to allow free trade of commodities, goods and services, and the Afreximbank-backed PAPSS, promise to re-energise the pursuit of regional commodity exchange opportunities.

#### 6.5 AFRICA EXCHANGE-TRADING OF COCOA

Two African commodity exchanges currently offer trade in cocoa – AFEX (Nigeria) and TMX (Tanzania).

#### **AFEX**

AFEX offers trade in cocoa through two mechanisms – OTC commodity sourcing for cocoa buyers against confirmed orders, and bid-offer exchange-traded markets.

To facilitate trade, AFEX maintains delivery warehouses in Edo, Ondo and Cross River States. Quality standards are as set out below. It is understood total volume of trade facilitated by AFEX since it launched trade of cocoa, over the 2021/22 and 2022/23 seasons, is 12,000 MT.

<sup>25</sup> Bourse Africa sought to offer a hub and spoke model comprising a continental 'hub' futures exchange and clearinghouse linking to national spot exchange 'spokes' across the continent. The model was well-developed but never fully implemented. EAX, with its hub in Rwanda, sought to establish itself as an exchange for the region. It was launched with fanfare including participation from four of the five East Africa Community presidents. However, the political realities precluded EAX from serving markets outside Rwanda and to a lesser extent Uganda as the other countries sought to develop their own exchanges.

Grading Parameters	Grade 1	Grade 2
Moisture content	7.5%	8.0%
Mould	3.0%	5.0%
Slaty	5.0%	8.0%
Other defects	3.0%	6.0%
Admixture	1.5%	3.0%
Foreign matter	0.5%	0.75%
CRM	3.0%	3.5%
Sieving	1.0%	1.5%
Bean count	100 / 100	115 / 100
FFA	1.0%	1.5%

#### ТМХ

TMX introduced cocoa during the 2021 season and is now in its third season of trading. Volumes in 2021 and 2022 were relatively small at 260 and 284 MTs respectively.

TMX facilitates trade from the more than 80 delivery warehouses certified by WRRB, although only some of these are situated in the cocoa producing areas, namely Mbeya and Morogoro.

The trading mechanism involves a standard auction of sellers' cocoa on a lot-by-lot basis.

Prior to the auction, TMX produces a sales catalogue (see overleaf), which includes:

- name of the depositor;
- weight and quality of the cocoa;
- location and name of the warehouse; and
- the number of the warehouse receipt being auctioned.

#### SALES CATALOGUE DETAILS

#### COMMODITY NAME: COCOA

DATE OF TRADE: 17/05/2023 (WEDNESDAY)

#### TIME OF TRADE SESSION: 11:00 AM (EAT) ONWARDS

MODE OF TRADE: ALL OR NONE

COMMODITY DESCRIPTION SUMMARY				
No	Catalogue Number	Warehouse Locations	<b>Total Bags</b>	Total Weight (KG)
1	TMX/MOR/COCOA-71	Morogoro (Mvomero)	223	15,610
	TOTAL		223	15,610

#### COMMODITIES DETAILS:

S/N	WHR No	DEPOSITOR	LOT	COCOA DESCRIPTIONS										
			No	мс	MC BC CL/ MD FB/ SL/ Insect FM				WEIGHT		GRADE			
				%		100%	100	100	100%	/100	%	TOTAL	NET	
							,	2		beans%		BAGS	KGS	
1	1889933578	KWEUMA AMCOS LTD	1	7	100	1.1	0	1.2	3	0	0.3	9	630	1
2	1889933579	URAFIKI AMCOS LTD	1	7	103	1.1	0	1.4	0	0	0.4	85	5,950	1
а	1889933580	MHONDA JUU AMCOS LTD	1	7	100	1.2	0	1.4	2	0	0.5	129	9,030	1
GRAND TOTAL								223	15,610					



## 07 Early Responses to ToR Questions

The analysis to date provides the basis to provide an early response to the ToR questions. These will be revisited in the Phase II deliverable.

## a. Can commodity exchanges cause a positive impact on farmers marketing channels by improving their linkages to formal markets?

The evidence from the Africa commodity exchange survey is that positive impact can be generated for farmers by improving their linkages to formal markets, but at the same time, positive impact does not always automatically follow from a commodity exchange being introduced.

There is some evidence, albeit limited, from Ethiopia, Tanzania and Malawi (and perhaps others not seen), that selling through the commodity exchange can generate an improved price for the farmer.

This may result from selling into a competitive market, as has been the case in Ethiopia where the government has mandated buyers to buy certain commodities through the exchange.

However, it is more commonly the result of the premiums that trade through an exchange can generate compared with selling at farmgate or through informal rural markets:

- **Quality** a premium for standardized quality, versus the unstandardized quality more typically prevalent when buying at farmgate or through rural markets;
- **Bulk** a premium for bulk purchase from multiple sellers through the exchange, versus the micro-scale purchases that are typical in farmgate and rural market-based transactions;
- Location a premium for the urban or wholesale market location which is typical of exchange-based delivery warehouses, versus the rural purchases at farmgate or rural markets.
- **Time** the improved price may also result from deferred sale linked to a warehouse receipt system (WRS) for crops where prices typically rise over the course of the season. Under a WRS, the farmer usually through a farmer organisation deposits their produce at the warehouse, defers sale to later in the season when prices may have risen, and in the meantime takes finance secured against the stored goods to repay accumulated debt and cover the production and household costs prior to the deferred sale.

What has not yet been seen, as far as has been known, is whether a commodity exchange specifically can help secure higher prices for farmers on the basis of their produce meeting ESG-related sustainability criteria. However, it is noted that worldwide, stock exchanges, acting under the framework of the UN-led Sustainable Stock Exchanges initiative, have made significant advancement to encourage ESG performance, and this can provide a sense that such an approach may also be feasible for commodity exchange-trading, particularly if a commodity exchange can more efficiently and transparently link sustainable cocoa producers with ESG-conscious buyers.

Specifically, it is anticipated that access to a cocoa exchange trading certified cocoa would guarantee that farmers and cooperatives receive the full premium for certified cocoa, something that is not guaranteed at present with many farmers being forced to sell their sustainable cocoa at normal market rates owing to lack of offtaker agreements. An exchange could not only guarantee higher income from sustainable cocoa, but it could also increase the attractiveness of cultivating sustainable cocoa by de-risking the payment of the premium.

Aside from positive price impact, there are additional benefits an exchange may deliver for farmers including: helping reduce post-harvest losses and quality deterioration when goods are stored in a professionally-managed warehouse; helping improve farmer access to finance by using the stored commodity as bankable collateral that the farmer may not otherwise have; and helping develop long-term supply relationships with buyers they may not otherwise be capable of supplying.

#### b. Can commodity exchanges be applicable to a regulated marketing system?

This depends on the nature of the regulated system. There are different types of regulation which can create different implications for the space they leave for a commodity exchange to operate.

A high-level typology of regulation may include the following categories: licensing, standards setting, taxation, pricing, procurement and trade.

Licensing regulation would appear, in general, to be fully compatible with a commodity exchange. An exchange may require a regulatory license as a condition of market participation. The license may become one among several requirements an actor would need to fulfil in order to achieve a relevant category of exchange membership to enable market access. In this respect, by way of analogy, it is noted that a commodity exchange performs transfer of funds to effect settlement through banks designated for this purpose. One of the requirements a bank needs to fulfil in order to play this role is to have a regulatory license from the banking regulator. A similar arrangement as concerns trading or brokerage may be applied without difficulty.

Standards-setting regulation would also appear, in general, to be fully compatible with a commodity exchange. An exchange may adopt the standards specified by the regulatory authority as the basis for trade of the commodity.

Taxation, in purely functional terms, is fully compatible with a commodity exchange. A number of established commodity exchanges apply, calculate and deduct taxation as part of standard settlement processes. However, commodity exchanges have noted that the deduction of tax, and the general exposure of trading activities to revenue authorities, can be a deterrent for some market actors to migrate from the informal markets onto the exchange-based marketing system.

Pricing regulations may or may not be compatible with an exchange-based marketplace. The simple application of a minimum price is not a difficulty as far as an exchange is concerned. Most exchange technologies allow for the exchange to set a 'daily price limit'. This sets the maximum price movement within a trading day beyond which the exchange closes the markets for a cooling off period. The exchange could use a similar function to close the markets for 'cooling off' if the prices reach the minimum price threshold. Exchanges could also refuse to allow buyer's offers that fall below the minimum price threshold onto the exchange order book. This is unlikely to affect commodity exchange-trading if the minimum price is known in advance and all market actors are clear about what happens in the event someone tries to buy at a level below the minimum price. Aside from this, there are arguments grounded in economics as to the implications for the value chain when a minimum price is imposed, but these do not impact the capacity of an exchange to continue offering markets for products with a minimum price. The same is true, in theory, were a maximum price to be set.

However, if pricing regulations are implemented through ad hoc price-setting interventions, especially if such interventions take place outside a clear framework of rules for such interventions, it is unlikely that a commodity exchange could operate over the long term in these conditions. Ad hoc regulatory interventions, which have been prevalent for example in food markets in Southern and Eastern Africa, have sometimes triggered price or liquidity shocks – i.e. a sudden fall or rise in the price of the traded commodity, or a sudden drying up of trading volume. In this circumstance, in the spot markets, those market actors holding stock, and those banks financing stock, will face significant losses, and to that extent, market actors are deterred from using storage and finance. In the long term, such conditions disincentivise investment into storage infrastructure while under-utilisation of existing storage infrastructure leads to reduced maintenance and a deterioration of storage facility condition. This in turn will exacerbate market volatility. For actors that may be holding derivative contracts that are subject to margining, those on the wrong side of the price movement are likely to face margin calls requiring rapid placement of high levels of additional capital. This can lead to significant defaults and may cause knock-on bankruptcies if the margin calls cannot be fulfilled.

Not only explicit price-setting but also direct procurement and trade interventions are likely to be incompatible with commodity exchanges if those interventions could trigger sudden unexpected price or liquidity shocks. Again, looking at the experience of Southern and Eastern Africa food markets, sudden changes in import and export restrictions (e.g. the imposition of export or import bans, changes in quota levels), and sudden actions by government procurement bodies – for example a large purchase or sale order – have been known to trigger a price or liquidity shock. An example of this took place in Malawi where the imposition of import restrictions in 2017 on pigeon pea by the Government of India, the main export market, led to plummeting prices and an inability to offload stored financed stock which triggered significant default by traders.

However, if procurement and trade regulations are based on a predictable set of rules well-known to the market then it is possible that such regulations could co-exist with commodity exchange-based trading. In the case of procurement, the space for an exchange may appear if there are gaps in government monopsony powers. Governments in several countries, alongside institutional buyers such as the World Food Programme, have conducted purchases through commodity exchanges. Even where they do not, if the government is one of several buyers active in the market, the non-government purchases may be conducted through a commodity exchange. And even if the government is a monopsony purchaser, a commodity exchange may be active if the governmental monopsony does not cover all links in the value chain, and/or if it does not cover a commodity at all stages of processing.

The aforementioned factors apply to spot markets. It is noted that several governments which are monopoly sellers, or otherwise large sellers, of commodities produced in their jurisdiction (e.g. oil and gas, natural resources) reference futures market prices to price the sale of the physical product. In theory, governments that perform monopsony purchasing of a given commodity may also use futures market pricing as references for their purchases of the physical product, if there is a relevant exchange-traded price benchmark they can reference.

#### c. What is the level of preparedness of Africa for a regional or pan-African Cocoa Exchange?

Preparedness may be assessed in different spheres: legal-regulatory and policy frameworks, value chains, physical infrastructure, technology/connectivity, and skills.

In terms of legal-regulatory frameworks, many African jurisdictions' capital markets and securities regulators are members of the International Organisation of Securities Commissions (IOSCO). IOSCO provides common standards which the regulators benchmark against. This enables most jurisdictions to meet minimum requirements to regulate commodity and security exchanges to international standards. Beyond this, IOSCO provides a framework for cooperation among regulatory authorities when transactions have legs that cross borders – this is called the IOSCO Multilateral Memorandum of Understanding (MMOU). It is noted that the regulatory authorities of West Africa (AMF-UMOA), Central Africa (COSUMAF), Ghana (SEC-G) and Nigeria (SEC-N) are IOSCO members and MMOU signatories.

Regulatory and policy frameworks beyond the direct application of commodity exchange regulation require more detailed review. The AfCFTA is now in effect and this promises to reduce bottlenecks to cross-border trade. African Export Import Bank (Afreximbank) has recently launched a pan-African Payment and Settlement System (PAPSS), which enables efficient settlement in local currencies for transactions between African jurisdictions. This promises to reduce bottlenecks to cross-border settlement of commodity exchange transactions. The remaining challenges are likely to be faced in standards alignment or harmonization, banking regulations, and sectoral policies and regulations. These will be explored in more detail during Phase II.

Cocoa value chains remain national in scope, but there are actors – particularly the large buyers, some of which are involved in local processing as well as export – that participate in multiple national markets. A potential impact of AfCX could be to stimulate regionalisation of the currently national cocoa markets.

A greater challenge – perhaps the greatest – is to find the value proposition for AfCX that works for all actors along the value chain. Only when both the sellers and the buyers in a given market are ready to participate on a commodity exchange can the exchange succeed. While African commodity exchanges have experienced some successes, they also remain relatively small-scale and fragmented, with limited commodity and geographical coverage, and focus mainly on spot trade. Existing value chain modalities are deeply entrenched and it may take time to migrate trading onto the commodity exchange.

Particularly deep-rooted challenges include the usual needs of smallholder farmers for immediate cash payment which they receive when they make sales at farmgate or through rural markets, and the preference of buyers for making cash purchases of commodities delivered by value chain intermediaries direct to their factory-gate. To switch to the commodity exchange modalities, which involve buying and selling from remote locations, in a fully competitive and transparent marketplace, in which cash payment to seller is not immediate upon delivery to warehouse, and in which buyers must pre-fund their purchases, while all parties pay user fees to the exchange and their brokers, has been a difficult sell.

On the other hand, the access to finance by using WRs issued by the exchange at its delivery warehouses as loan collateral to secure working capital loans, and the access to storage capacity at those warehouses, may be an interesting value proposition for market actors. Similarly, the potential for improved quality, traceability and

sustainability in cocoa procurement through a commodity exchange may add value to buyers, especially those whose end consumers are quality- and ESG-conscious.

Therefore, there is a pressing need for careful listening to the views of the value chain players to understand the intersection of their different needs and find a value proposition that works for all actors.

Physical infrastructure may also be problematic if the exchange delivery warehouses are to be located outside of established wholesale and port locations. There are understood to be capacity gaps, as well as concerns about the condition of storage outside the commercial centres. There is also a general absence of quality warehouse management service providers. Current collateral managers tend to work on a field warehousing arrangement at the warehouse of a large company that is taking loans from a bank. The difference between collateral management and warehouse management is often not fully appreciated, and collateral managers may not have appetite to provide warehousing services outside the main centres, or at all.

There is also a wider issue with respect to commodity exchange experience so far in that the prevalence of a large rural storage footprint, backed by an array of required insurance policies, makes the exchange an asset-heavy and therefore expensive infrastructure to operate and maintain. This may add substantial cost into the value chain. As cocoa is a high value, quality-sensitive commodity which may be better positioned to absorb these extra costs, this may not be as significant as with lower-cost food staples which are traded on many of Africa's existing commodity exchanges. However, careful analysis is required – to examine the cost implications of the exchange's warehouse footprint, and also to explore potential alternative storage technologies, or technology-based logistics opportunities that move and track the commodity faster along the value chain, compared with the traditional exchange model which is cost-intensive.

Technologies, connectivity solutions and skills are understood to be available and sufficient to support a commodity exchange, although deep dive feasibility appraisal will need to explore the specific requirements of AfCX as per stakeholder specification in light of technology, connectivity and skills availability in the West and Central Africa regions.

## d. What effect would the establishment of an African Cocoa Exchange have on the incomes of cocoa farmers?

The potential impacts of a commodity exchange on the realised price of cocoa farmers are set out in (a) above. However, farmer income is a determinant not only of price, but also of volume, as well as, diversified non-cocoa revenues.

Volume is a function of yield, post-harvest losses and subsistence consumption.

Yield may be impacted indirectly by a commodity exchange – if a farmer generates higher realised income (even if, only initially driven by price gain), then it may provide greater liquidity for the farmer to outlay for yield-enhancing agro-inputs. If a commodity exchange is accompanied by a WRS, the resultant WRF may also provide increased liquidity for the farmer to outlay on agro-inputs.

Post-harvest losses may be impacted directly by the commodity exchange, once the produce reaches the commodity exchange's delivery warehouse, through professional quality certification, handling, storage and preservation services that guarantee the condition of the goods in the warehouse.

Subsistence consumption is not relevant to a cash and export crop such as cocoa.

Diversified non-cocoa revenue streams may be supported if the exchange offers trade facilitation, finance, storage and related services for crops other than cocoa, that cocoa farmers typically produce as part of diversification and rotation strategies.

### e. How would price formation through the African Cocoa Exchange benefit farmers more than the current price formation systems?

Currently, price formation takes place at venues in which the African cocoa value chain is at minimum underrepresented, and arguably not represented at all.

Prices reflect the intersection of supply and demand based on the interaction between global traders (sellers)

and chocolate manufacturers (buyers), and further impacted by the market activity of financial investors.

The economics driving the African cocoa value chain, in particular cocoa producers and producer organisations, are not adequately factored into price formation. This includes intra- and inter-seasonal variances in costs of production, post-harvest handling, tree productivity, logistics and marketing.

Therefore, providing market access to the African cocoa value chain through an African Cocoa Exchange will enable these influences to be more extensively factored into price formation, shifting the intersection of supply and demand to a new equilibrium that should improve the pricing power of cocoa producers to achieve a remunerative income.

### f. Is the international cocoa price on the London and New York Cocoa Futures a relevant benchmark market price for cocoa and does it reflect the prices on the physical market?

New York cocoa futures contracts have nearly a century of activity, starting from when cocoa trading was first formalized on commodity exchanges in Europe and the United States. Over time, the contracts have evolved to reflect changing market conditions and industry standards. Today, the New York and London Cocoa futures contracts are actively traded and used by cocoa producers, traders, and consumers to manage price risk and facilitate global trade.

Futures markets, by design, do not reflect prices on the physical markets. Rather, they reflect the best collective view of the market actors about the future prices on a given delivery date. As a futures contract nears its expiry date, the futures and spot prices converge, as a result of arbitrage between physical and futures markets. Where futures markets are efficient, the futures market prices drive pricing in physical markets, not the other way round. Price discovery in the futures market is understood to be driven over the long-term by 'fundamentals' of supply and demand, in particular the levels at which buyers and sellers lock in forward prices (although 'technical' factors may drive short-term price trends).

#### g. How would an African Cocoa Exchange and the London and New York Cocoa Futures interact?

AfCX could offer an arbitrage opportunity between the large financial markets represented by the ICE futures contracts and the African physical cocoa markets, in particular providing effective market access for the value chain participants from the African cocoa producing countries and, potentially, robust physical cocoa delivery mechanisms in these countries.

Commodity exchange liquidity is not zero-sum but rather positive sum. Introduction of a new Africa-deliverable cocoa contract, which creates market access for currently excluded actors, can create liquidity not only on the originating exchange (AfCX) but can also increase the liquidity on the existing global exchanges as well through arbitrage trade between AfCX and the global exchanges.

Commodity exchange price discovery is said to be efficient to the extent it represents the convergence of supply and demand. To the extent that previously excluded pricing signals from the supply side will now be integrated into contract pricing, on both AfCX and – via arbitrage – on the global exchanges, price discovery across both venues will be to that extent strengthened.

AfCX could also bring innovative traceability and storage solutions for organic and certified cocoa beans that would justify premium quotations versus the existing New York and London exchanges.

### h. What are the policy implications for each cocoa producing country in Africa to reform its cocoa marketing system to adopt commodity exchange trading system?

Please see (b) above. The specific reforms required to adopt a commodity exchange trading system will be explored in Phase II based on the preferred model selected by stakeholders for AfCX at the Phase I Stakeholder Workshop.

## i. Where would possible resistance to establishing an African Cocoa Exchange come from and what other challenges can be expected?

Possible resistance is likely to come from the following sources:

1. Cocoa sectoral regulatory authorities, and their line ministries, may resist a commodity exchange unless and until they are assured it will help to promote national priorities as concerns the cocoa sector, at least as much as, the prevailing arrangements, and rightly so, given the strategic contribution of cocoa to the economies of the main producing countries in Africa.

2. Offtakers which have already invested to build structured supply chains, including substantial farmerand farm-level investment, may resist AfCX if they perceive it may disrupt their existing supply chain arrangements, unless and until it contributes new bottom line benefit, for example, by helping to scale supply at lower cost while better helping to meet compliance with the end buyers' quality, traceability and sustainability requirements.

3. Farmers themselves may resist if they see AfCX as being a possible cause for removing some of the assistance they already receive from public, private and the international/donor sector (e.g. through initiatives like the Living Income Differential, through private sector support for farm-level development in the structured value chains, or through international/donor-funded projects to strengthen farmer livelihoods and resilience) unless and until it provides clear benefits for farmers to secure improved prices and better access to storage, finance and markets.

4. Value chain intermediaries may resist AfCX if they see its intent is to disintermediate the value chain, unless and until there is a clear vision for an alternative role for intermediaries in the commodity exchange ecosystem.

5. Regional and global exchanges, and their participants and stakeholders, may resist AfCX if they see it could disrupt or compete with existing markets, pricing mechanisms and commodity flows into which they are invested, unless and until it is clear there are benefits such as liquidity enhancement through new arbitrage opportunities and the entry of new actors into the market.

There are a wide range of other challenges which relate to the effective structuring of the contract markets (spot and futures), as well as, in the set-up and configuration of the exchange. These are neatly encapsulated in the Phase II feasibility considerations, including policy, regulatory, infrastructure, quality standards, payment systems, and stakeholder capacity, among others.

#### j. What would be the reaction of the major cocoa users in Europe, USA and Asia to a world cocoa price benchmarked on prices discovered on the African Cocoa Exchange, and will they accept and use an African Cocoa Exchange?

This will be explored in depth through stakeholder consultation during Phase II. From experience, the main cocoa trading houses would tend to be protective of their interests, so they would study AfCX to identify where there are opportunities to generate additional business. Meanwhile, the European and USA industrial end buyers would be more keen to take an active role on the exchange as they understand the value of working with the producers to achieve improved quality and more sustainable cocoa beans. For cocoa users in Asia, and other parts of the world, AfCX may provide an attractive and accessible market through the provision of physical delivery mechanisms and price references based at the ports of origin, rather than at other consumer market locations of less relevance to their purchasing needs.

As mentioned above, an African Cocoa Exchange is not a zero sum contest with the established exchanges. Arbitrageurs will likely create liquidity on both platforms and supporting efficient price discovery by integrating price signals from all relevant actors. Therefore, it is likely that arbitrageurs – which may include the global trading houses, as well as more specialised actors – will be the main international participants in the African Cocoa Exchange.

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## 08 Model Options for AfCX

#### 8.1 INTRODUCTION

The flow of envisaged benefits does not automatically materialise from the establishment of a commodity exchange.

First, it is understood there are a range of prerequisites and complementary initiatives required to support a successful exchange (see Section 4).

Second, experience suggests that, while there are now some major commodity exchange success stories in Africa there are also examples where an exchange has not managed to take root (see Section 6, as well as Annex II for a detailed analysis of Africa's operational commodity exchanges).

Getting the commodity exchange model right – which means selecting a model that adds value to the stakeholders in the targeted value chains – is the key success factor.

As the previous section demonstrated, there are many possible ways to structure a commodity exchange. Therefore, in order to perform a detailed feasibility analysis for the prospective AfCX, it is first necessary to decide on the structure for the commodity exchange that is most likely to be effective in the context of African cocoa.

Consequently, participatory discussion on the most effective commodity exchange structure to support inclusive and sustainable trade of African cocoa was the main subject for stakeholders representing different interests in the African cocoa value chains at the ICCO AfCX Phase I Stakeholder Workshop hosted by the Government of Ghana, under the auspices of the Cocobod, in Accra (Ghana) on 21-22 June, 2023.

The discussions in Accra hinged around:

- Building a detailed understanding of the cocoa value chain structures and sectoral regulations in the four focal countries (see Annex I); and
- Performing a participatory exercise in which stakeholders expressed a consensus view on the model around which AfCX should be structured.

The outcomes of this discussion, documented below, create the specific framework for the performance of a 'deep dive' feasibility analysis and implementation planning exercise in Phase II of the Study.

The four cocoa value chain and sectoral regulatory country reports, appended under Annex I, have been organised to provide relevant information to guide stakeholders in deciding between different model options for structuring a commodity exchange for African cocoa.

Seven commodity exchange model parameters are presented for AfCX, with a range of choices offered under each parameter:

- Model Option Parameter 1 Market Linkage Type / Value Chain Insertion
- Model Option Parameter 2 Exchange Delivery Warehouse Location Type
- Model Option Parameter 3 Physical Trade, Price Risk Management, Finance or Combination
- Model Option Parameter 4 Institutional Structure
- Model Option Parameter 5 Implementation and Partnership Model
- Model Option Parameter 6 Cocoa Product Focus
- Model Option Parameter 7 Overall Product and Asset Offering

Importantly, these seven model option parameters are presented as a sequence, with the choice made under the first parameters influencing the choice to be made under the subsequent parameters, as described below.

#### 8.2 MODEL OPTION PARAMETERS 1, 2 AND 3

#### Model Option Parameter 1 - Market Linkage Type / Value Chain Insertion

The starting point of this assessment is the value chain structure – see Section 1 of the Value Chain and Sectoral Regulatory Analysis Country Reports.

An understanding of the different links in the cocoa value chain from the producer to the end user or consumer, via different levels of intermediation and value addition, is essential for identifying the most appropriate model for inserting AfCX into the four national cocoa value chains. Specifically, it can help map which link(s) in the value chain AfCX will serve, i.e. who would be the intended sellers and buyers participating in the exchange's contract markets.

The choices under Model Option Parameter 1, for each country according to its dynamics, may comprise<sup>26</sup> the following (see also Diagram 2 overleaf):

- 1.1 The exchange links organised farmers to small or to large intermediaries;
- 1.2 The exchange links organised farmers direct to local processors and exporters;
- 1.3 The exchange links small or large intermediaries to local processors and exporters;
- 1.4 The exchange links organised farmers or small intermediaries direct to overseas buyers; and
- 1.5 The exchange links large intermediaries, local processors and exporters to overseas buyers.

The first three options – 1.1, 1.2 and 1.3 – are focused on facilitating the domestic trade. The fourth and fifth options – 1.4 and 1.5 – are focused on facilitating the intra-regional or international trade. Multiple insertion points may be selected, although experience suggests that the best approach would be to serve each one separately according to their specific needs which are likely to differ in key dimensions (e.g. delivery location, contract size, quality).

While these five options have most pertinence for physical cocoa trade (i.e. spot and forward), even a futures and options market needs to target a specified set of sellers and the buyers. Most likely, this would cover option 1.3 or 1.5, due to the higher liquidity requirements to sustain a futures and options exchange.

In terms of the domestic trade, the exchange may seek to create market linkages for organised farmers to sell more efficiently to small or large intermediaries. Alternatively, it may seek to disintermediate the intermediaries altogether and facilitate market linkages for the organised farmers direct to local processors and exporters. As a third option, the exchange may decide to focus further along the value chain and focus on creating more efficient market linkages, not for producers (especially if they are not sufficiently organised), but rather for the value chain intermediaries with local processors and exporters.

#### Diagram 2: Model Option Parameter 1 - Market Linkage Type / Value Chain Insertion



<sup>26</sup> It is recognised that in Ghana, the insertion of a commodity exchange into the regulated cocoa chain would imply some level of regulatory reform, which stakeholders are invited to take into consideration.

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1.4 and 1.5 are options that involve the exchange facilitating international trade. Such an exchange may focus on facilitating intra-regional flows from sellers in one West or Central African country to buyers in another West or Central African country, for example so that local processors can develop a regional cocoa procurement strategy to source higher volumes of cocoa, in line with the Africa Continental Free Trade Area (AfCFTA) vision. (For example, Ghanaian processors sometimes have to source beans from Côte d'Ivoire when Ghana's light crop is too small. With an integrated regional exchange, this would be cheaper and more efficient to do than under current arrangements).

Alternatively, the exchange may focus on facilitating trade to the global markets. As well as supplying existing markets more efficiently, such an exchange could enable African cocoa processors and exporters to supply new markets, for example in Asia, the Middle East and Latin America. It may also provide a useful platform for producers of sustainable cocoa to find a market directly with buyers in global markets looking to purchase organic or certified cocoa direct from producers.

#### Model Option Parameter 2 - Exchange Delivery Warehouse Location Type

The option(s) selected under <u>Model Option Parameter 1</u> will subsequently influence the type of warehouse delivery location that the exchange would serve.

The choices under Model Option Parameter 2 may comprise the following (see also Diagram 3 overleaf):

2.1 Delivery warehouses at primary aggregation centres;

2.2 Delivery warehouses at secondary aggregation centres;

2.3 Delivery warehouses at upcountry intermediate sites; and

2.4 Delivery warehouses at wholesale and export terminal locations

To explain further,

#### 2.3 Primary Aggregation Centres

Options 1.1 and 1.2 under Model Option Parameter 1 – from organised farmers to small or large intermediary; from organised farmers to local processor or exporter – may be implemented around exchange delivery warehouses located at primary aggregation centres. These are typically warehouses with capacity ranging from 500MT to 2,000MT in small towns/market centres in the production areas.

#### 2.4 Secondary Aggregation Centres

Alternatively, options 1.1, 1.2, as well as 1.3 and 1.4, under Model Option Parameter 1 – from organised farmers to small or large intermediary; from organised farmers to local processor or exporter; from organised farmers to international buyer, and intermediary to local processors/exporters – may alternatively involve exchange delivery warehouses located at secondary aggregation centres. These are typically warehouses with capacity ranging from 2,000MT to 5,000MT in the larger cities within a rural production region.

#### 2.5 Upcountry Intermediate Sites

Options 1.2 and 1.3 under Model Option Parameter 1 – from organised farmers to local processor or exporter; from small or large intermediary to local processor or exporter – may be implemented around exchange delivery warehouses located in upcountry intermediate sites, typically the provincial regional capitals. These are typically warehouses with capacity ranging from 5,000MT to 10,000MT.

#### 2.6 Wholesale and Export Market Terminals

Options 1.3, 1.4 and 1.5 under Model Option Parameter 1 – from small or large intermediary to local processor or exporter; from organised farmers or small intermediary to international buyer; from large intermediary, local processor or exporter to international buyer – may be implemented around exchange delivery warehouses located at wholesale and export terminal locations. These are typically in commercial capitals and at ports, typically warehouses with capacity ranging from 10,000MT and above.

Aside from traditional warehouse-based storage, alternative storage technologies may also be explored, such as hermetically-sealed bags and 'cocoons'.

The specific sites that could be served at each level may be identified from the Value Chain Flow Maps in Section 2 of the Value Chain and Sectoral Regulatory Analysis documents, and a description of the warehousing available along the cocoa value chain in each country may be found in Section 6.

Diagram 3: Model Option Parameter 2 – Potential Warehouse Location Types (Illustrative in Hypothetical Country)



#### Model Option Parameters 3 – Physical Trade, Price Risk Management, Finance, or Combination

The option(s) selected under <u>Model Option Parameters 1 and 2</u> – i.e. the selection of the value chain actors to be served and the delivery warehouses to be used – will subsequently influence the choice of instrument to be offered.

The choices may comprise the following:

#### 3.1 Physical trade

AfCX provides mechanisms for enabling spot and/or forward sale of physical product between actors at the links of the value chain selected under Model Option Parameter 1 with delivery at warehouses selected under Model Option Parameter 2;

#### 3.2 Price risk management

AfCX enables the players at the links of the value chain selected under Model Option Parameter 1 to hedge their exposure to price volatility using futures and options instruments trading against a pricing basis discovered at warehouses selected under Model Option Parameter 2;

#### 3.3 Finance

AfCX enables the players at the links of the value chain selected under Model Option Parameter 1 to access finance against the commodity stored in warehouses selected under Model Option Parameter 2, and/or through other forms of finance linked to trading activities; and

#### 3.4 Combination

Value chain actors would benefit from AfCX offering a combination of instruments.

Due to factors including storage capacity size, build quality, site security, accessibility, and warehouse operator operational expertise and capital adequacy, it is likely that primary aggregation sites (Model Option 2.1) may be suitable only for physical trade; secondary aggregation sites (Model Option 2.2) may be suitable for finance as well as physical trade; and upcountry intermediate sites and wholesale/export market terminals (Model Option 2.3 and 2.4) may be suitable for price risk management as well as physical trade and finance.

A profile of stakeholders and an assessment of their business needs is included in Section 4 of the Value Chain and Sectoral Regulatory Analysis documents, and a description of the financing and pricing along the cocoa value chain in each country may be found in Sections 7 and 8. An analysis of sectoral regulation may be found in the sectoral regulatory sections of the aforementioned documents. See Annex I

<u>Model Option Parameters 1, 2 and 3</u> may be evaluated based on a combination of (a) value proposition to the actors involved, and (b) technical feasibility. Key questions include:

- To what extent does national sectoral regulation and policy in each country provide space for an exchange to operate?
- How organised are farmers, and how capacitated are the farmer organisations to perform post-harvest handling, aggregation, transportation and delivery to an exchange delivery warehouse?
- What kind of structured value chain relationships already exist along the chain, and if so how would these relationships be impacted by a commodity exchange?
- What is the availability of warehousing with sufficient capacity and in adequate condition in each potential location? Or alternatively, could new warehousing be constructed, or are there alternative storage technologies that could be leveraged, in those locations?
- Are there actors ready and able to operate and maintain warehouses?
- At what scale of warehousing would the economics of storage be supportive of efficient commodity exchange-facilitated cocoa aggregation? And what would be the cost implications of storage and relevant quality infrastructure, backed by sufficient insurance and capital, on the cost and export competitiveness of cocoa?
- How much value do intermediaries add along the chain, and what role if any could they perform in the commodity exchange ecosystem?
- To what extent do agribusinesses processors, exporters and regional and international buyers face procurement inefficiencies that an exchange could help to resolve?
- To what extent do local processors and exporters have appetite to facilitate transportation for collection of cocoa from production or upcountry intermediate areas?
- To what extent would sustainable cocoa benefit from improved opportunities to identify a remunerative market through a commodity exchange platform? And what systems and processes would need to be put in place in order to ensure that cocoa traded as sustainable meets the standards of international buyers and certification bodies?
- To what extent is there interest in facilitating intra-regional cocoa trade (e.g. for an international buyer or a local processor in the region to buy cocoa across four markets through one platform, and conversely for a cocoa exporter to export from multiple national markets through one platform)?
- To what extent do market actors have access to existing price risk management tools?
- Are existing price risk management tools, even if accessed, sufficient to provide relevant price discovery and efficient hedging for all actors along the value chain?

A profile of stakeholders and an assessment of their business needs is included in Section 4 of the Value Chain and Sectoral Regulatory Analysis documents. See Annex I.

#### Model Option Parameters 1, 2 and 3- Study Team Provisional Assessment:

Based on analysis conducted during Phase I, it is understood that for Côte d'Ivoire, Nigeria and Cameroon, Option 1.2 (organised farmers to local processor and exporter) for physical trade, and Option 1.5 (local processors and exporters to international buyer) for futures and options trade, may be appropriate.

The rationale to support Option 1.2 for physical trade is that, not only policymakers and the producers themselves, but all value chain actors, are concerned to improve cocoa productivity, quality and producer livelihoods. Given factors such as the achievement of necessary economies of scale, this could most likely be achieved by empowering producer organisations, representing many individual smallholders, to participate on AfCX as a means to access storage, finance and markets. Again, in order to achieve necessary efficiencies, this arrangement is most likely to be commercially sustainable at secondary rather than primary aggregation centres, and hence motivate a pairing with Option 2.2.

From the buyers' perspective, it is understood that buyers would benefit from resulting efficiencies in aggregation, quality control, and traceability that would help reduce unit procurement cost, improve compliance with ESG requirements, and drive overall volume growth. It is further understood that sustainable cocoa accounts for a growing proportion of overall production and there is a need for systematic pathways for producers that have invested in sustainability into a remunerative market, which AfCX may be well positioned to fulfil. If international buyers seeking certified or organic cocoa would have interest, AfCX may help to link them direct to producers (Option 1.4).

The major uncertainties associated with selecting Option 1.2, which stakeholders are encouraged to discuss further, include: the readiness of producer organisations to take on the necessary handling, aggregation, logistics and marketing responsibilities to trade through an exchange; the availability of sufficient storage capacity in secondary aggregation centres that meet minimum fitness requirements and whether the additional costs of exchange-trading and in particular asset intensive storage systems are commercially viable, or whether there are feasible alternative storage technologies that can supplement storage capacity while reducing cost; the risk of disruption to buyers' existing structured value chain relationships; and the readiness of buyers to arrange transportation for collection of cocoa from production centres.

For Ghana, it is understood that Cocobod regulatory frameworks, which involve Licensed Buying Companies (LBCs) purchasing from farmers and delivering to Cocobod warehouses, precludes Options 1.1, 1.2 and 1.4, unless there is substantial reform. Options 1.3 and 1.5, however, both remain viable.

For the futures and options trade, Option 1.5 arises from a recommendation that, for purposes of generating the higher levels of liquidity required to sustain a futures and options exchange, the pricing basis for the futures market is delivery at the major regional ports (San Pedro and/or Abidjan; Tema and/or Takoradi; Lagos and/or Calabar; Douala and/or Kribi). Specifically, delivery could be Free on Board (FOB) to enable better acceptance of the international buyers.

#### 8.3 MODEL OPTION PARAMETERS 4 AND 5

The selections under <u>Model Option Parameters 1, 2 and 3</u> influence a further set of choices concerning the institutional structure and the implementation and partnership arrangements.

#### Model Option Parameter 4 – Institutional Structure

The choices under Model Option Parameter 4 relate to institutional structure and may comprise the following (see also Diagram 4 overleaf):

4.1 One regional exchange hub, linking sellers and buyers across the four different physical markets for physical trade and/or price risk management;

4.2 Four national exchanges, each facilitating domestic physical trade and/or price risk management in its own country; and

4.3 Hub and spoke, combining a regional hub exchange combined with up to four national 'spoke' exchanges.

This set of choices relates to the nature of the African Cocoa Exchange (AfCX) itself.

Would it be one regional institution, perhaps headquartered in one of the four countries, but facilitating trade across all four<sup>27</sup>? This approach places the emphasis of AfCX on regional integration of the currently national cocoa markets. It has the advantage of consolidating regional bargaining power and enabling cross-border trade-flows but faces challenges to align with the different value chain and regulatory structures prevalent in each country.

<sup>27</sup> This would be somewhat similar to the model of the West African regional stock exchange (BRVM)



#### Diagram 4: Model Option Parameter 4 - Institutional Structure









Or would the AfCX concept be delivered through four separate exchanges, one for each country? This approach faces the reverse set of advantages and challenges – aligning with the different value chain and regulatory structures prevalent in each market but facing challenges in consolidating regional bargaining power and enabling cross-border trade-flows.

Or would it be a 'hub and spoke' model in which a regional exchange hub coexists with as few as one or as many as four national 'spoke' exchanges? This appears to combine the advantages of both approaches but may lead to technical complexities to integrate trading and other exchange functional activities across the multiple participating exchange institutions.

<u>Model Option Parameter 4</u> may be evaluated separately for the physical trade and for price risk management.

For the physical trade, the choice may be evaluated according to the likely appetite for market access to all four countries through one platform (e.g. for an international buyer or a local processor in the region to buy cocoa across four markets through one platform, and conversely for a cocoa exporter to export from multiple national markets through one platform). If so, one regional exchange may be an appropriate choice. If not, national exchanges may be more appropriate.

Alternatively, if there is partial appetite for purchasing from several but not all countries through one platform, a hub and spoke option – one regional exchange with several national exchanges – may be appropriate. In this scenario, it is noted that there are operational commodity exchanges in Ghana and Nigeria but not in Côte d'Ivoire and Cameroon. Another possibility for a hub and spoke structure would involve the trading of futures and options through the regional exchange hub, and the spot and forward trading of physical cocoa through national exchanges.

#### Model Option Parameter 5 - Implementation and Partnership Model

The selection under Model Option Parameter 4 influence a further set of choices relating to the implementation and partnership model for AfCX.

The choices may comprise the following:

5.1 A new standalone exchange(s) that offer(s) contract markets directly to value chain actors;

5.2 New cocoa contract markets – spot and/or futures – delivered through existing commodity exchanges in West and Central Africa, where they exist (i.e. GCX in Ghana, AFEX/LCFE/NCX in Nigeria, potentially BRVM in Côte d'Ivoire);

5.3 New cocoa contract markets – spot and/or futures – delivered through existing global cocoa exchanges (i.e. ICE Futures Europe (ex-LIFFE), ICE Futures US (ex-NYBOT)); and

5.4 Hybrid, combining a new exchange with existing regional or global exchanges



This set of choices again relates to the nature of the African Cocoa Exchange (AfCX) itself. Would it be a new institution set up with the purpose of facilitating cocoa trade, which may have dedicated focus and priority on cocoa, but on the other hand could involve more cost and time to implement? Or would AfCX be an initiative or strategy, rather than an institution per se, which would be implemented through the existing regional and/or global exchanges, potentially with lower set-up cost and time, but without necessarily the dedicated focus on cocoa?

<u>Model Option Parameters 4 and 5</u> may be evaluated according to the following considerations:

- To what extent do market actors seek to perform intra-regional trade through the exchange? (i.e. to source cocoa from all four countries through one platform, or conversely to sell cocoa from one country to buyers in the other three countries as well as global markets)?
- How important is it for an exchange to have dedicated focus on cocoa, as opposed to cocoa being one among several, or many, different soft commodities, other commodities and/or financial assets that are traded by an exchange?
- What are the implications on market transaction costs when establishing a new cocoa-focused exchange institution versus trading through the existing exchanges?
- To what extent do the legal-regulatory and policy frameworks allow for the emergence of a regional exchange in West and Central Africa that spans the UEMOA and non-UEMOA countries?
- To what extent will regional value chain actors accept to trade through the existing regional and/or global exchanges?
- To what extent are the existing regional and/or global exchanges ready to onboard new cocoa markets, and allocate sufficient resources to fully address the needs of the cocoa sector?

#### Model Option Parameters 4 and 5 - Study Team Provisional Assessment:

There has been greater acceptance of regional solutions in West and Central Africa, compared with other regions inside and outside of Africa. There are two currency unions (i.e. XOF and XAF), two regional stock exchanges for the UEMOA and CEMAC regions (i.e. BRVM and BVMAC), the common OHADA legal framework spans francophone West and Central Africa, and there are long-standing plans to develop a common West African currency for the ECOWAS zone. The ratification of AfCFTA, which has now come into force and is headquartered in Accra (Ghana) adds additional impetus to the regionalisation of trade. Therefore, the appeal of a regional exchange for cocoa, which could consolidate the production from the four countries and potentially create greater bargaining power in international markets seems high. For the futures and options trade, it is most likely that a regional exchange may be required, due to the higher liquidity requirements to sustain a futures and options exchange.

On the other hand, a regional exchange involves additional complexity to manage the legal-regulatory and policy frameworks, not only for cross-border regulation of exchange-trading but also for the facilitative policies on currency, capital and commodity flows, quality standards alignment (if not harmonisation and convergence), adequate cross-border connectivity of data flows and information systems to allow for traders in different markets to efficiently trade on the platform, and supportive banking and payment system regulations to enable banks to finance and provide payment services across-borders between different currencies. This is likely to create a longer lead time, higher cost, and require coordination from a much wider stakeholder set than implementing through the existing national exchanges.

These factors should be carefully weighed up by stakeholders.

#### 8.4 MODEL OPTION PARAMETERS 6 AND 7

Additional model option choices would emerge from the combination of choices made so far.

To recap:

- Model Option Parameter 1 Market Linkage Type / Value Chain Insertion
- Model Option Parameter 2 Exchange Delivery Warehouse Location Type
- Model Option Parameter 3 Physical Trade, Price Risk Management, Finance or Combination
- Model Option Parameter 4 Institutional Structure
- Model Option Parameter 5 Implementation and Partnership Model

<u>Model Option Parameter 1</u> identifies the link(s) in the value chain that AfCX will serve, i.e. who would be the anticipated sellers and buyers participating in the exchange's contract markets, including whether the AfCX markets are primarily to facilitate domestic, regional and/or global trade, and whether they will trade farmer organisation-owned produce, intermediary aggregated produce, or the output of the local processors and exporters.

<u>Model Option Parameter 2</u> identifies the types of locations from where AfCX would trade according to which links in the chain it would serve – primary or secondary aggregation centres to facilitate domestic sale by farmers and/ or intermediaries, upcountry intermediate locations to facilitate domestic sale by intermediaries, or wholesale and port locations to facilitate international sale by local processors and exporters.

<u>Model Option Parameter 3</u> examines whether the cocoa value chain actors require physical trade through spot or forward instruments, price risk management instruments through futures and options instruments, financing, or a combination.

<u>Model Option Parameter 4</u> moves on to consider, in light of the first three choices, the institutional setup for AfCX, according to the value chain actors and locations it would serve - whether it would be structured as one regional exchange, four national exchanges, or a hub and spoke model that combines both.

Finally, <u>Model Option Parameter 5</u> assesses, in light of the selected institutional structure, whether AfCX should be implemented as a new institution, through existing West and Central African or global commodity exchanges, or a combination.

Taking into account all of the above, the following additional model option choices may now be considered:

#### Model Option Parameter 6 - Cocoa Product Focus

6.1 Dried fermented cocoa beans;6.2 Sustainable cocoa (organic, certified); and6.3 Processed and semi-processed cocoa

#### Model Option Parameter 7 - Overall Product and Asset Offering

#### 7.1 Purely cocoa-focused;

7.2 Cocoa-focused plus other agricultural commodities which have a synergy for exchange-trading alongside cocoa, for example grown in the same areas and/or by the same farmers, capable of being stored in the same warehouses, delivered at different times of the year, subject to similar sustainability certification schemes, purchased by the same buyers (e.g. coffee);

7.3 Cocoa-focused plus other agricultural and non-agricultural commodities, i.e. leveraging the expensive, high fixed cost trading, clearing and settlement infrastructure established for AfCX to also offer trade for, say, oil and gas products, metals and minerals, and others; and

7.4 Cocoa-focused plus also offering trade in financial instruments that are enablers of the cocoa trade, for example weather derivatives to mitigate climate risk, repos to facilitate working capital financing, FX and interest rate derivatives to hedge risks of exchange and interest rate volatility.



<u>Model Option Parameters 6 and 7</u> may be evaluated according to the following considerations:

• For what products – raw, sustainable and/or processed - do cocoa value chain actors need support to find new markets and/or to enable financing of stock?

• To what extent does the scale of raw, sustainable and/or processed cocoa provide a sufficient commercial foundation for the exchange?

• To what extent is there a synergy for the trade of cocoa with other agricultural or non-agricultural commodities on a common platform?

• To what extent do cocoa value chain actors need greater access to instruments that would mitigate other transactional risks, like FX and interest rate volatility?

• What would be the implication of the selected product/asset scope on: AfCX setup time and cost; quality of service to the cocoa chain; and financial metrics that would drive investment and scalability (i.e. time to breakeven, profitability, return on investment, etc)?

#### Model Option Parameters 6 and 7 - Study Team Provisional Assessment:

A key benefit of the AfCX could be to address a major weakness in the sustainable cocoa model, namely that sellers are not guaranteed to receive a premium for their certified cocoa. Under the current model operated by certification bodies such as Fairtrade, cocoa producer organisations and cooperatives are supported to produce cocoa that meets certification standards but are left to market the crop themselves. This has resulted in many cooperatives that do not have offtaker agreements in place struggling to find buyers for their certified output, forcing them to sell it on the open market without receiving a premium. This acts as a major disincentive for cocoa producers to undergo the expense and effort of producing certified cocoa and undermines the commercial rationale for sustainable cocoa production. Should cooperatives be able to directly access the AfCX and sell their sustainable cocoa with a guaranteed premium, it could transform the cost-benefit analysis and encourage more cooperatives to produce sustainable cocoa.

While ICCO is naturally focused on cocoa for the purposes of this study, it is well-understood that the economics of a commodity exchange tends toward diversified use of a high fixed cost infrastructure in order to reduce the transaction costs for market users, improve market liquidity by attracting more players interested to trade a wider basket of products, and increase profitability that will enable surpluses to be reinvested in scaling the exchange (i.e. more delivery locations, improved technology, lower user fees, stronger capital adequacy). It is also appreciated that actors in the cocoa chain face high foreign exchange volatility, so long as cocoa pricing is based on terminal markets that trade contracts denominated in USD and GBP, as well as interest rate volatility given persistent economic uncertainties.

Therefore, it may be advantageous for AfCX to prioritise cocoa, but also build a timetable for developing a wider basket of commodity and financial assets which create positive synergy for cocoa value chain actors – producers, traders, exporters, and financiers, as well as the cocoa producing countries. This may take into account the practicalities of rolling out the exchange, the lead time for developing new contract and instruments, etc.



#### Diagram 5: Model Options Mapping and Decision Tree Framework

In the decision tree framework, the linkages between the model option parameters at each level are made clear. While not strictly deterministic, previous experience – combining factors such as scale, scope, customer value propositions and technical implementation requirements – create natural linkages between different levels of the decision tree. The exception is levels 6 and 7 – cocoa products and product portfolio – in which any of the model option choices at each level could apply irrespective of the choices made in levels 1-5. (A partial exception may apply with respect to level 7 in which an exchange offering financial as well as commodity assets is most likely to fall beyond the mandate and licensing conditions of existing African commodity exchanges).

## 09 Workshop Outcomes and Way Forward

The ICCO AfCX Phase I Stakeholder Workshop was held in Accra, Ghana, on 21-22<sup>nd</sup> June, 2023. The event was hosted by the Government of Ghana under the auspices of the Cocobod and took place at the Kempinski Hotel.

Delegates represented senior stakeholders and decision-makers from public and private sector and civil society from all four focal countries – see Annex III for a full list of delegates.

#### 9.1 AGENDA

The full agenda is appended under Annex IV.

The event commenced with opening addresses from the Right Honourable Minister of Food and Agriculture, Republic of Ghana, the CEO of the Cocobod, and the Executive Director of ICCO.

An introduction to the AfCX project was delivered by the Study Team. This was followed by an interactive session during which the Delegates introduced themselves and articulated the main achievements they would like to see during the Workshop.

The Study Team country representatives from Côte d'Ivoire, Ghana, Nigeria and Cameroon delivered presentations summarizing the reports conducted under Phase I on the cocoa value chain and sectoral regulations in their respective countries, while also highlighting some initial reflections on how a commodity exchange could add value in each context.

Day One of the workshop culminated in a presentation by the Study Team that summarized the Africa commodity exchange experiences and used these to shape a framework for identifying and selecting the most suitable model option(s) for AfCX.

This framework comprised seven decision-making parameters, with options presented under each. These parameters are ordered in a 'decision tree' sequence, with each selected option under the earlier parameters cascading down to influence the selection of options to be made under the subsequent parameters. The options selected by Delegates across each of the seven parameters, taken together, would frame the 'commodity exchange model' for AfCX to be subjected to 'deep dive' feasibility study in Phase II of the Project.

The final session on Day One involved interactive breakout groups in which Delegates discussed and outlined the key mission requirements for AfCX – the problems it should solve and the dangers or risks it needs to address – as well as initial preferences on the AfCX model across four key dimensions:

- The point of insertion into the cocoa value chain (i.e. which set of sellers and buyers along the chain should AfCX address);
- The types of instruments to be traded spot, futures, financing, or a combination;
- The regionality of AfCX, specifically whether it should be structured as a pan-regional institution, a set of national institutions, or a combination of both through a 'hub and spoke' model; and
- The cocoa and non-cocoa products that may be traded by AfCX

Upon conclusion of the breakout group discussions, rapporteurs in each of the eight breakout groups presented the stakeholder preferences which were duly recorded by the Study Team.

Day Two commenced with a site visit to Ghana Commodity Exchange (GCX), including presentations about GCX's operations and experiences by senior management. This helped give delegates a practical insight into how commodity exchanges operate and the key opportunities and challenges they face.

Upon return to the Workshop venue, delegates separated out into four breakout groups. The aim of the Day Two breakout groups was for delegates to reflect further on their initial preferences made during Day One, in interactive discussions facilitated by a designated moderator from the Study Team, focusing on key technical and commercial feasibility considerations which were divided into four themes:

- Value chain insertion
- Regionality
- Environmental social and governance (ESG) factors, including sustainability
- Futures and options

The four breakout groups rotated in 'round robin' format to have discussions on each of the four themes.

At the culmination of the discussions, each moderator reported back to plenary on the overall outcomes emerging from the discussions, highlighting how stakeholders' initial preferences articulated on Day One had evolved in light of technical and commercial feasibility considerations.

During the final plenary, the Study Team proposed a consensus drawn from stakeholders' evolved preferences that emerged from the second breakout groups, as the basis for the intended 'deep dive' technical feasibility study to be performed during Phase II of the study.

The Executive Director of ICCO closed the Workshop, expressing appreciation to the Government of Ghana, represented by the Cocobod, the event hosts, as well as to the Delegates for their participatory, collaborative and fruitful engagement.

All presentations and handouts from the Workshop are appended under Annex V.

#### 9.2 OUTCOMES

The key over-arching outcome of the Workshop was a general consensus across stakeholders on the model of commodity exchange for AfCX which will be subjected to 'deep dive' feasibility during the Phase II of the study.

An important secondary over-arching outcome of the Workshop was the establishment of relationships, buy-in and endorsement of the emerging consensus by the stakeholders to the AfCX concept, which lays the groundwork for positive engagement and consultation during Phase II and expedited implementation of AfCX upon completion of the feasibility study.

Specific outcomes were as follows:

#### 9.2.1 Expected Achievements from the Workshop

The following expectations were communicated by stakeholders:

- **Farmer-centricity**: How AfCX can help 'grow the cake', empower the farmer, make them visible in the value chain and drive a marked improvement in remunerative incomes;
- **Value**: How AfCX will create a paradigm shift in the cocoa sector, driving value addition, and the professionalisation and capacitation of stakeholders in the cocoa chain;
- **Pricing**: How AfCX can create price discovery so that African producers can consolidate their negotiating power and become price makers;



• **Buy-in**: What are the roles for the different actors, what policy support is required, and how to create a win-win for the different stakeholders, including buyers, investors and arbitrageurs;

• **Sectoral Issues**: How will the exchange address major issues and needs in the sector, including sustainability, traceability and volatility;

• **Unique Selling Proposition**: How a commodity exchange can be customised to the specific needs of African cocoa, learning from prior experiences, and emerging as a competitive and diversified alternative to existing platforms.

#### 9.2.2 Problems to be Solved by AfCX

The following priorities were expressed for AfCX, in order of the number of mentions from six breakout group respondents:

• Access to finance	5 mentions
<ul> <li>Improved price discovery</li> </ul>	4 mentions
<ul> <li>More remunerative farmer incomes</li> </ul>	3 mentions
<ul> <li>Market access / improved negotiating power</li> </ul>	3 mentions
<ul> <li>Access to storage</li> </ul>	2 mentions
<ul> <li>Improved traceability</li> </ul>	1 mention
Value addition	1 mention

#### 9.2.3 Dangers/Risks to be managed with the introduction of AfCX

The following dangers and risks were expressed, in order of the number of mentions from six breakout group respondents:

<ul> <li>Resistance of buyers / vested interests</li> </ul>	4 mentions
<ul> <li>Barriers to regional integration</li> </ul>	4 mentions
<ul> <li>Farmer capacity constraints</li> </ul>	3 mentions
<ul> <li>Quality control / harmonisation</li> </ul>	2 mentions
<ul> <li>High setup and transaction costs</li> </ul>	2 mentions
<ul> <li>Integrity of warehousing</li> </ul>	1 mention
<ul> <li>Market manipulation</li> </ul>	1 mention
Price volatility	1 mention
<ul> <li>Lack of political will</li> </ul>	1 mention
<ul> <li>Alignment with existing exchanges</li> </ul>	1 mention

#### 9.2.4 Value Chain Insertion of AfCX

In the Day One breakout groups, the stakeholders – five out of eight groups, a clear majority – expressed preference for Option 1.2, which would involve AfCX linking farmer organisations to local processors and exporters.



Two of the remaining groups expressed preference for Option 1.1, which would involve AfCX linking farmer organizations with small or large intermediaries. One group expressed preference for Option 1.4, which would involve AfCX linking farmer organisations and small intermediaries direct to overseas buyers.

In the Day Two breakout groups, the stakeholders recognized the array of challenges to the realisation of Options 1.1 and 1.2, including gaps in farmer-level organisation and weak farmer organisation capacity and therefore the preferences evolved. However, another potential challenge – the readiness of buyers to collect from rural areas – did not appear to be a bottleneck, provided that the quantities of bulked commodity were commercially viable for transportation, which in general means sufficiency to fulfil a truck load (typically, but not always, 30 MTs).

On the other hand, it was recognised that warehouses in primary aggregation sites did not at present provide sufficient scale or condition to be economic for exchange deliveries. Thus, the focus of AfCX would be the secondary aggregation centres, likely in the larger cities in the production regions, with warehouse capacity targeted at around the 2,000-5,000MT level.

In addition, or alternatively (to the extent possible), alternative storage technologies such as hermetically sealed bags and cocoons may be explored. These would allow for delivery <u>either</u> further back along the value chain at primary aggregation sites, <u>or conversely</u>, further forward along the value chain, as goods could be delivered to and collected from the primary aggregation sites and then immediately transferred in their cocoons to the larger centres. Given that the cocoa in any case must flow towards the wholesale markets and ports, this latter model would have the advantage of reducing the higher transaction costs associated with maintaining cocoa at relatively small-scale storage facilities.

Taking account of these issues, stakeholder preference shifted from a pure focus on Option 1.2 to accommodate a range of other options as per the needs and constraints of a specific context. Options 1.3, 1.4 and 1.5 were all considered, as will be explained further under Section 9.3 below.

A further consideration was the traceability requirements in the upcoming EU Deforestation Regulation which were recognised as having a deep and important potential impact on the structure of the value chain for cocoa (and other commodities which the EU requires to be deforestation-free, such as coffee, palm oil and rubber).

By requiring traceability of produce, the Regulation creates natural momentum for AfCX towards ever-greater farmer inclusion in the commodity exchange as a means of achieving better traceability compliance. To enable this momentum, a region-wide capacity building program to strengthen farmer-level organisation, capacitation and AfCX participation is therefore required. *This is in tune with the stakeholder priority identified in 9.1 above for improved professionalism and capacitation*.

#### 9.2.5 Regionality of AfCX

In the Day One breakout groups, the stakeholders – again, five of eight groups, a clear majority – expressed preference for Option 4.3, a 'hub and spoke model', which combines aspects of regional and national exchange approaches.



Two of the remaining groups expressed preference for Option 4.1, which is a purely regional approach, while one group expressed preference for Option 4.2, a purely national approach.

In the Day Two breakout groups, the stakeholders appeared to further converge around the hub and spoke approach. In particular, stakeholders recognised that a regional approach is essential to enable futures and options where liquidity and scale is a key success factor in order to be competitive with the existing global exchanges.

In terms of physical trade, national approaches were preferred in the short to medium term, in recognition of the need to customise how AfCX works in each country to address the different value chain and regulatory structures, and to capitalise on the presence of existing commodity exchanges.

However, again, a natural momentum towards greater regionality is recognised by stakeholders. Firstly, the drive to expand local value addition will increase the need for local processors to procure on a region-wide basis. Second, the increasing stringency of compliance requirements at the global level is driving a need for standards convergence and harmonisation that can best be achieved through a single gateway platform.

#### 9.2.6 AfCX Instruments

In the Day One breakout groups, the stakeholders – all eight groups – agreed that a combination of physical trade, price risk management and financing was required from AfCX.

In the Day Two breakout groups, while this conclusion was reinforced, it was also understood that the awareness and capacity challenges for enabling stakeholders to effectively utilize futures and options instruments will be large.

Nonetheless, improvements to price discovery and transparency remain a regional priority, as noted under 9.2.1 above, as perceptions about incomplete price discovery on the international exchanges is seen as a structural factor that leads to the inadequate remuneration of the African producer. Moreover, access to risk management instruments is seen as a driver for better management of the excessive volatility in farmer remuneration. Therefore, the focus on futures and options is essential, even while physical trade may offer a more immediate opportunity for direct farmer involvement.

There was also greater understanding developed during the discussion that (a) different actors can benefit from different kinds of instrument – futures instruments are generally difficult for use by smaller-scale actors, and options, together with CFD and ETFs, may offer more effective and affordable opportunities for price risk management; and (b) that the use of price risk management instruments does not necessarily require stakeholders to master the technicalities of hedging –the role of the broker should be to absorb most of the complexity and to structure appropriate solutions for the small-scale hedger. It was noted that options could be structured and distributed to small-scale actors as 'price insurance' in a similar way as crop insurance.

It was also interesting to note the emergence of a completely innovative idea to introduce a cocoa-backed cryptocurrency. The aim of this 'Cocoacoin' would be to provide farmers with improved means to participate in financial markets and the markets for goods and services on the back of their produce, without the transmission losses experienced through use of fiat currency, i.e. commissions and margins charged by financial institutions for payments, transfers and deposit-based services, which often weigh disproportionately on the smaller-scale actors.

#### 9.2.7 AfCX Products

In the Day One breakout groups, the stakeholders – seven of eight groups – agreed that AfCX should focus on trade of all three proposed cocoa products (Options 6.1-6.3) – i.e. dried and fermented beans, processed cocoa products, and sustainable cocoa. The remaining group expressed preference to trade the beans only (Option 6.1).

There was more variance on whether trade of cocoa on AfCX should be combined with other non-cocoa products – three groups expressed preference to combine trade with other commodity and financial products (Option 7.4), two groups expressed preference to focus on cocoa products only (Option 7.1), two groups expressed preference to trade cocoa with synergistic agri-commodities only (Option 7.2), and one group expressed preference to trade cocoa with all other relevant agri- and non-agri-commodities (Option 7.3).

In the Day Two breakouts, the all-inclusive product focus was reinforced. In addition to the three possibilities presented above, it was also suggested that not only sustainable cocoa beans but also sustainable cocoa products should be traded on the exchange. This could help drive a competitive advantage to expand local value addition as the chain of traceability from farmgate to local processors may be more cost-effective than to global processors, if they can improve access to sustainable cocoa through the exchange. It was agreed that the African Organisation for Standardisation (ARSO) Sustainable Cocoa Standard should be used as the regional benchmark for sustainable cocoa traded on the AfCX, which is aligned with the International Cocoa Agreement's (ICA) Global Cocoa Agenda (with a focus on economic, social and environmental impacts) and its overriding objective to provide a living income to cocoa farmers.

It was also noted, in discussions linked to ESG and sustainability, a price discovery process for sustainable cocoa and sustainable cocoa products – at the level of futures, as well as spot – could help drive increased compliance with sustainability requirements, as the sustainability premium would become more transparent and thus a better driver of uptake by farmers and processors who would be guaranteed to receive it, rather than currently where some sustainable cocoa producers and cooperatives are forced to sell their beans on the open market without receiving a sustainability premium.

If the commodity exchange can also help increase the linkages of sustainable cocoa producers with sustainability conscious buyers, it was agreed there could be a huge boost for the sustainability sector, and a major transformation not only in ESG compliance, but – more importantly for the regional stakeholders – for producer livelihoods as well, which is seen as a root cause of non-compliance on issues ranging from child labour to deforestation.

## 9.3 IMPLICATIONS ON AFCX MODEL SELECTION

Through the discussions at the Workshop, the delegates have coalesced around a general consensus for the 'commodity exchange model' for AfCX, based on their selection of options presented under each of seven decision-making parameters, as referenced above.

#### 9.3.1 Parameter 1 – Value Chain Insertion

Delegates expressed in-principle preference with respect to the physical trade and financing of cocoa for Option 1.2 (as per Section 8.2 above) – a model which would involve AfCX linking producer organizations to the downstream buyers, namely the local processors and exporters.



The role of AfCX would be to empower the producer organizations to become efficient marketeers of their produce, taking responsibility for functions including post-harvest handling, aggregation, quality control, logistics, storage, finance and marketing functions.

This is similar to the model of Tanzania Mercantile Exchange (TMX), as documented in the commodity exchange survey. It is recalled that the enablers of the TMX model are strong secondary-level cooperatives which fulfil five broad criteria:

- **Scale**: Large-enough scale to aggregate commodities in sufficient quantities to make the collection by buyers from rural centres commercially viable;
- **Capacity**: Technical and managerial capacity to efficiently perform key post-harvest handling, aggregation, quality control, logistics, storage, finance and marketing functions;
- **Governance**: Sufficient governance to ensure that the key functions are performed with professionalism, integrity and transparency;
- **Storage**: Availability of warehouses with sufficient capacity and in sufficient condition to store goods for several months without quality deterioration while mitigating other key risks (e.g. fire/perils, theft, fraud, negligence).

However, in the Day Two discussions, when the relevant technical feasibility criteria were taken into account, it is recognised that there are critical bottlenecks to the realisation of this model.

- Only in Côte d'Ivoire and South-South Nigeria was it recognised that there are farmer organisations which can realistically fulfil the above criteria in the short-to-medium term, and even then, there are limitations. For those farmer organisations that can fulfil the role requirements, they would become licensed as commodity exchange brokers and conduct transactions as well as access finance on behalf of their member farmers.
- In South-West Nigeria and Cameroon, the general consensus was that farmers are not adequately organised, nor do the organisations that do exist have sufficient capacity, governance or storage facilities to allow for the emergence of Option 1.2 in the short-to-medium term.

• In Ghana, the sectoral regulations prohibit Option 1.2, given the requirement for farmers to sell, directly or via their societies, to LBCs, and from the LBCs to Cocobod Marketing Company.

Accordingly, the delegates for the most part recognised that – with the exception of parts of Côte d'Ivoire and South-South Nigeria where farmer organizations are better developed – Option 1.3 may be more realistic.



In the case of South-West Nigeria and Cameroon, as well as those areas of Côte d'Ivoire and South-South Nigeria in which the farmer organisations may not meet the criteria to participate on the exchange directly, the large intermediaries – specifically the LBAs – may play an important role to facilitate access to AfCX for producers.

Application of Option 1.3 could lead to disintermediation of the smaller-scale intermediaries, enabling individual farmers or farmer organisations to deliver produce directly to the LBA warehouses. However, it could also allow for a new role for smaller-scale intermediaries to facilitate post-harvest handling and bulking at farmgate or primary aggregation centres as a support service to farmers and farmer organisations.

This in turn would require a role transformation by the LBA that better aligns the incentives of the large intermediary with the farmer. Specifically, rather than being the buyer of the goods, which involves the LBA buying low and selling high, in which the interests of the LBA are contrary to the farmer, the LBA may become a commodity exchange broker, which involves taking a commission linked to the transaction, so that when the farmer receives a higher price, so too the large intermediary receives a higher commission, thus aligning the interests between them. As brokers, the LBA may also offer support services to the farmers in the surrounding area, primarily including management of the commodity exchange delivery warehouse, as well as offering support to farmers with additional functions including post-harvest handling, aggregation, quality control, logistics, storage, and finance.

Another exception may involve those farmer organizations that are investing to produce organic or certified cocoa linked to ESG-linked sustainability schemes (e.g. Fairtrade, Rainforest Alliance). In this case, some farmer organizations may be able to pursue Model Option1.4, linking the producer organisations directly with ESG-conscious overseas buyers.



In this case, the sustainability scheme operators, rather than the LBA, may provide support to the farmer organisations to fulfil the identified functions (i.e. post-harvest handling, aggregation, quality control, logistics, storage, finance and marketing functions), although likely more in an advisory and capacity-building role than in a brokerage role. Under this arrangement, the farmer organisations would act as the brokers on behalf of their member farmers and would be supported to professionalise accordingly through extensive capacitation to enable take-up of this role.

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Finally, in Ghana, noting the sectoral regulation that is currently in place, it was suggested that qualified LBCs could be linked via AfCX to sell either to local processors (equivalent to Option 1.3), and perhaps also to international buyers (which is an adaptation of Option 1.5). Appetite for reform of the prevailing sectoral regulations in Ghana – including some or all of the pricing, aggregation, quality, financing and marketing functions currently performed by the Cocobod – could also open up alternative possibilities for AfCX in Ghana.



Option 1.5 would also be the intended option for the physical trade of cocoa products, as part of a wider strategy to stimulate investment into value addition by existing or new players.

As well as the traditional processors, this will include support for: farmer organisations and SMEs to move into cocoa processing to secure higher value from their participation in the chain; and processors of sustainable cocoa to reach the global ESG-conscious buyer segment ready to pay a premium to buy from FO/SME sustainable processors which better remunerate the farmer and encourage sustainable practices.

Overall, then, the initial preference for Option 1.2 has therefore evolved into four different potential models for AfCX for spot trade, each reflecting a distinctive value chain flow:

Option	Flow	Applicable Context
1.2	Farmer organisations	Côte d'Ivoire (for capacitated farmer organisations)
	to local processors/exporters	South-South Nigeria (for capacitated farmer organisations)
1.3	Largo intermodiarion	<ul> <li>Côte d'Ivoire, South-South Nigeria (in locations in which farmer organisations are not capacitated)</li> </ul>
	to local processors/exporters	<ul> <li>South-West Nigeria, Cameroon</li> </ul>
		• Ghana LBCs
1.4	Farmer organisations to international buyers	Trade of sustainable cocoa
1.5		• Ghana LBCs (cocoa beans)
		<ul> <li>Local processors (cocoa products) – including:</li> </ul>
		<ul> <li>farmer organisations encouraged to move into processing and secure higher value from their participation in the chain;</li> </ul>
	Large intermediaries and/or local processors to international buyers	<ul> <li>sustainable processors targeting the ESG-conscious buyer segment who would pay a premium to buy from FO/SME sustainable processors which better remunerate the farmer and encourage sustainable practices; and</li> </ul>
		• if interest is confirmed, to enable domestic firms, including SMEs, alongside larger processors, to achieve improved international market access.
The AfCX markets for physical trade would therefore take on a distinct flavour adapted per context. Each distinctive flow, as set out in the table above, would be served by AfCX through a customized configuration of the exchange-trading modalities, with the key features including:

- buyer and seller type;
- delivery warehouse location, type and operator;
- lot size in MTs (standardized lots of defined size, or unstandardized lots with minimum size);
- quality standard;
- identity-preservation or commingling (according to traceability requirement); and
- trading mechanism (auction, reverse auction, bid-offer markets); and
- pricing basis (whether markets will discover prices at each delivery location, e.g. through lot by lot auction, or bid-offer markets for lots sold at each location; or whether price discovery will be central, based on an FOB benchmark, with transportation differentials applied per location, which have the effect to discount the FOB price by the transport and other applicable costs).

Modalities would also be put in place to support the actors within each flow to access appropriate financing, likely linked to warehouse receipt system arrangements. The aim of this warehouse receipt finance would be to make available working capital that empowers producers to market their produce more dynamically over the season and avert distress selling while driving increased scale and speed of aggregation by downstream players to boost value addition and export competitiveness. A role for input loans, and pre-harvest finance more generally, would also be explored.

These modalities, as well as the interests and capacity of the different actors – in particular the farmer organisations and large intermediaries under Options 1.2 and 1.3, as well as sustainability schemes and local processors under Options 1.4 and 1.5 – would be identified during the Phase II 'deep dive'.

It is noted, in the above table, the Options 1.2 and 1.3 would facilitate domestic trade, which may over time become regional trade as local processors and exporters in the various countries decide to procure across all four countries. However, Options 1.4 and 1.5 would facilitate international trade, with the resultant trade culminating in the export of the goods – either sustainable cocoa (Option 1.4), cocoa products, or exports by Ghana LBCs (Option 1.5). Specific attention will need to be paid during Phase II to examine the additional requirements necessary to facilitate export trade.

It is important to note, based on prior African commodity exchange experience as outlined in Section 6.4, two major structural challenges which will need to be addressed during Phase II to enable trade in raw cocoa beans and sustainable cocoa beans under the various flows outlined above, as per the stakeholder consensus:

**1. Farmer Cash Payment**: Firstly, AfCX will need to design arrangements for cash-in-hand payment to farmers, whether this takes place upon collection from farmgate, or upon delivery to a primary aggregation site or an exchange delivery warehouse. This takes into account that smallholder producers are generally in desperate need for cash at harvest, and this drives distress selling to informal traders at farmgate, even though they are aware they could receive higher prices by alternative marketing practices. AfCX will need to put in place systems, procedures and relationships, likely leveraging warehouse receipt finance, that result in the payment of cash-in-hand to producers. Experience suggests, in the absence of these arrangements, it will be challenging to mobilise producer participation in the exchange.

**2. Liquidity-building**: To recall, any exchange faces a structural liquidity-building conundrum: market actors will not participate without liquidity, but liquidity only comes when market actors participate. In the context of African agricultural produce, this conundrum deters participation from both producers and buyers, for whom the costs and risks of participating in an exchange are too high in the absence of liquidity. The TMX approach has leveraged strong secondary-level farmer cooperatives with the financial liquidity and operational prowess to aggregate significant volume of commodity, placed for auction on the platform, which in turn motivates buyers to participate in the platform. The consensus emerging from the Stakeholder Workshop, as articulated above, therefore places an important pre-requisite on the

capacity of the farmer organisations (Options 1.2 and 1.4) and large intermediaries (Options 1.3 and 1.5) to similarly have the financial liquidity and operational prowess to aggregate significant volume of cocoa to motivate buyer participation on the platform. It also requires validation from buyers that they would be willing to buy and then collect from upcountry locations, to confirm the minimum quantities required to render upcountry collection commercially viable, and the sufficiency of logistics via buyers' own fleet or third-party transporters and forwarders to manage cocoa flows to the wholesale and export locations.

#### 9.3.2 Parameter 2 – Exchange Delivery Warehouse Location

The outcome of this parameter is strongly shaped by the previous parameter, with focus for facilitation of physical trade on the secondary aggregation centres, i.e. warehouses in larger cities in the production area with warehouse capacity likely in the range of 2,000 - 5,000MT.

Specifically, these would be:

- Farmer organisation warehouses in secondary aggregation centres, where Options 1.2 and 1.4 apply;
- Large Intermediary Warehouses i.e. of LBAs/LBCs/agents in secondary aggregation centres and upcountry intermediate sites, where Options 1.3 and 1.5 (Ghana LBC variant) apply.
- **Processor warehouses in wholesale centres or ports** may be used for the trade of cocoa products under Option 1.5 (cocoa product variant).
- **Port warehouses** would be used to support futures products (see below), which are proposed to trade on an FOB basis.

An additional possibility to introduce alternative storage technologies such as hermetically sealed bags or cocoons may also be explored.

The Phase II 'deep dive' would examine the availability, capacity and condition of farmer organisations and large intermediaries in key upcountry locations linked to Options 1.2 and 1.3, as well as relevant processor, wholesale and port warehousing linked to Option 1.5 as well as futures trade.

#### 9.3.3 Parameter 3 – Instrument Type

AfCX would facilitate physical trade alongside financing, as described above.

For futures trade, several potential product opportunities were identified, as per the table overleaf.

Phase II will involve engagement with market actors on both the sell- and buy-sides of the market to confirm interest, and to work collaboratively to build consensus in developing relevant futures contract specifications as the basis for trade, covering parameters such as: trading/delivery months; contract size; acceptable origins and associated premiums/discounts; quality standards; delivery warehouses, locations and operators; and settlement pricing.

As per standard practice, futures contracts will be introduced initially, with options on those futures contracts, as well as other instruments such as CFDs and ETFs, introduced as and when liquidity in the futures markets reaches sufficient levels.

Significant efforts will be made to create inclusivity of price risk management instruments for smaller-scale value chain actors, including farmers. Key activities will include wide-scale capacity-building, and also appropriate structuring of instruments and brokerage arrangements so that a significant proportion of the complexity of price risk management may be absorbed by the brokers and other specialized actors with relevant capability.

In this light, some or all of these instruments – options, CFDs, ETFs – may be the appropriate instrument to be structured by brokers and specialized actors to leverage off the wholesale futures market to create effective and affordable risk mitigation for one or more value chain actors (e.g. structured put options may work well for farmers, structured call options may work well for smaller-scale processors, CFDs and ETFs may work well for traders and investors, and futures for buyers, larger processors and any larger-scale commercial producers.

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Over time, physical and futures trade may be introduced for other products aside from cocoa. However, there is broad agreement that developing the trade of cocoa must be prioritised.

As referenced above, a cocoa-backed cryptocurrency was also identified as an additional instrument that could provide value for cocoa producers.

Product	Comment	
Futures on Africa deliverable cocoa	The objective of this contract would be to create market access for the onshore value chain, including the smaller-scale actors, increasing the pricing power of African producer markets, and contributing to improved overall price discovery, stability and resilience in global cocoa.	
	It would likely be traded on a Free on Board (FOB) basis, given the need to make the product interesting for the buy-side of the market, who may be reluctant to take delivery upcountry.	
	The settlement pricing for the Africa FOB cocoa futures contracts could be determined in various ways, based on diverse practices across different futures markets, which will be explored during Phase II.	
	This contract would present a win-win opportunity for the African and international cocoa actors, and the existing terminal markets. For international buyers, the increased access to price risk management instruments will support price stability and longer-term contracting in the value chain.	
	For the existing terminal markets, the 'win-win' nature of a new African contract is premised on liquidity across exchange markets being not zero-sum but rather positive-sum. The creation of a new instrument that integrates pricing information from previously excluded market actors will strengthen global price discovery and will stimulate additional liquidity on the existing terminal markets through arbitrage trade that creates volume in both the existing and the new cocoa contract markets.	
Futures on Africa deliverable cocoa products	Again, this would likely be traded on an FOB basis. Trading of the cocoa products as well as the beans can allow for the emergence of arbitrage opportunities between the raw and processed product, as is common in other value chains, enabling processors to lock in their processin margins, to improve business stability and long-term planning, which in turn increases processor bankability and enables longer-term supply contracting with end buyers.	
Futures on Africa deliverable sustainable cocoa	The objective of this contract would be to create market-driven price discovery for the sustainabili premium, with a view to incentivise greater uptake by producers.	
Futures on Africa deliverable sustainable cocoa products	Again, the objective of this contract would be to create market-driven price discovery for the sustainability premium, but with a view to incentivise greater uptake by processors. As described above, the trade of contracts for both the raw and processed sustainable products would enable arbitrage opportunities that would benefit processors of sustainable cocoa to lock in the processing margin.	

#### 9.3.4 Parameter 4 – Institutional Structure

A 'hub and spoke' model would be developed, as per stakeholder preference.

For futures trade, this would involve a single regional institution.

For spot trade, the importance of regionality would be recognised, to drive regional cross-border procurement and the convergence (and ultimately, harmonisation) of quality standards, but the structure would allow for national 'entry points' for liquidity via the existing national exchanges into the single regional market, reflective of the existing national regulatory frameworks and diverse value chain structures.

Regionality will also likely be critical to enable the effective clearing and settlement of both the physical trade and price risk management instruments. As noted under Section 6.1 above, a robust clearinghouse has become of equal importance to stakeholders as the liquidity and efficiency of the market itself. In light of increasingly stringent global regulatory requirements, and the compliance and risk imperatives of banks and corporations, a clearinghouse that has regional scale is more strongly positioned to meet capital adequacy and systemic risk mitigation criteria defined in international best practices laid down by IOSCO and BIS, while also able to capitalise on advances in cross-border payments systems and the AfCFTA.

The regionality of the exchange and its clearinghouse - how commodity, currency and capital flows across borders, and the policy and legal-regulatory frameworks that govern for such flows – will therefore be explored in detail during Phase II.

#### 9.3.5 Parameter 5 - Implementation and Partnership Model

The existing national exchanges would be leveraged to originate trade from their markets. In the case of Cameroon, either AfCX would directly facilitate trade, a new exchange would be established in Cameroon, or another exchange in the region, such as a Nigerian exchange, may open a subsidiary in Cameroon.

An important requirement for Phase II, therefore, would be to design how the existing national exchanges would act as entry points, linking to a regional exchange, including through alignment or harmonisation of relevant operational and trading modalities and standards.

#### 9.3.6 Parameter 6 – Products

AfCX will introduce trade in dried fermented cocoa beans, cocoa products, and sustainable beans and cocoa products, under the different flows set out under 9.3.1 above.

#### 9.3.7 Parameter 7 – Overall Product and Asset Offering

AfCX will be open to trading complementary agricultural and non-agricultural commodities, as well as financial products, once the core cocoa offering has been established. During Phase II, a provisional identification of opportunities will be created and a high-level calendar for new product introductions developed.

### 9.4 IN SUMMARY - THE VISION OF AFCX THAT EMERGES FROM THE WORKSHOP

The vision for AfCX emerging from the Stakeholder Workshop envisages the following strategic pillars:

• Creation of a new regional commodity exchange and clearinghouse institution, AfCX, that facilitates physical trade, price risk management and value chain actor financing and payment solutions across African cocoa markets, linking on the one hand, with emerging African cross-border trade enablers such as the African Continental Free Trade Area (AfCFTA) and the Pan-African Payment and Settlement System (PAPSS), and on the other, where applicable, with existing exchanges that provide efficient national entry points;

#### • Key objectives of AfCX:

• **strengthening of market access, price discovery and pricing power** for African cocoa-producing economies in global cocoa markets through consolidation of the region's negotiating power, leveraging emerging opportunities for intra-regional trade;

• harmonisation of standards and creation of markets for standard, organic and certified cocoa, linked where applicable to key sustainability schemes (e.g. Fairtrade, Rainforest Alliance) to drive remunerative income for producers, address key ESG challenges in the value chain, and converge on best practices for post-harvest quality control;

• **increased value addition to the raw commodity** within the African producing economies through enhancing aggregation efficiency, price discovery, price risk management and financing to boost economic returns, export market access and competitiveness;

• **inclusivity for smallholder producers in storage, finance and markets** through empowerment and professionalisation of farmer organisations, and development of farmer-inclusive infrastructure, financing and services, to nurture improved supply-responsiveness and investment that creates a win-win for all actors along the value chain;

• offering buyers an efficient alternative means of sourcing standard and sustainable cocoa across the region, by shortening the value chain, increasing traceability, and offloading some of the costs of running separate supply chains (e.g. storage, quality assurance, certification), to drive economies of scale and lower cost aggregation.

• **Physical trade** through AfCX will be facilitated through the creation of multiple markets across the region customized to serve the diverse flows in the cocoa value chain:

 $\circ$  from organised producers to onshore offtakers, for those producer organisations that are sufficiently organised and capacitated;

from large intermediaries<sup>28</sup> to onshore offtakers<sup>29</sup> in situations in which producers are not sufficiently
organised or capacitated, albeit with a view to supporting increased farmer-level organisation, capacitation
and market participation over time, to the extent that sectoral regulation allows;

 from organised producers of sustainable cocoa to international end buyers, to enable those producers that invest in sustainability to reach the market willing to pay the price premium for organic and certified cocoa<sup>30</sup>; and

• from local processors of cocoa products, and sustainable cocoa products, to international end buyers, as part of a wider strategy to stimulate investment into value addition by existing or new players<sup>31</sup>.

<sup>28</sup> i.e. Licensed Buying Agents (LBA) - Côte d'Ivoire, Nigeria, Cameroon; and Licensed Buying Companies (LBC) – Ghana;

<sup>29</sup> In the case of Ghana, potentially also to international end buyers

<sup>30</sup> Rather than currently where some sustainable cocoa producers and cooperatives are forced to sell their beans on the open market without receiving a sustainability premium.

<sup>31</sup> As well as the traditional processors, this will include support for: farmer organisations and SMEs to move into cocoa processing to secure higher value from their participation in the chain; and processors of sustainable cocoa to reach the global ESG-conscious buyer segment ready to pay a premium to buy from FO/SME sustainable processors which better remunerate the farmer and encourage sustainable practices.

• **Price risk management instruments**<sup>32</sup> will be traded on AfCX to create price discovery and enable effective and affordable hedging, with coverage likely to include:

• **Africa FOB cocoa and cocoa products**, with the objective to create market access for the onshore value chain, increasing the pricing power of African producer markets, and contributing to improved overall price discovery, stability and resilience in global cocoa, delivering a 'win-win' for currently excluded smaller-scale actors, international buyers and terminal markets<sup>33</sup>;

• Africa FOB sustainable cocoa and cocoa products, with the objective to drive increased compliance with sustainability requirements, as the sustainability premium would become market-determined and more transparent, thus driving greater uptake by farmers, processors and consumers;

• **Financing solutions** will be enabled by AfCX through warehouse receipts (WRs) and other instruments to make available working capital that empowers producers to market their produce more dynamically over the season and avert distress selling to informal traders from farmgate, while driving increased scale and speed of aggregation by downstream players to boost value addition and export competitiveness. A role for input loans, and pre-harvest finance more generally, will also be explored.

• An innovative cocoa-backed cryptocurrency, provisionally 'Cocoacoin', will be explored with the aim to provide farmers with improved means to participate in financial markets and the markets for goods and services on the back of their produce, without the transmission losses experienced through use of fiat currency, i.e. commissions and margins charged by financial institutions for payments, transfers and deposit-based services, which often weigh disproportionately on the smaller-scale actors.

• Additional commodity and financial products, both for physical trade and price risk management, may be explored once the core cocoa markets have been established. These could reflect synergy between the cocoa value chain with:

1. complementary value chains (e.g. coffee, cashew and other crops with which cocoa value chain actors engage);

2. financial needs (e.g. FX and interest rate hedging, linked to regional cross-border and international trade); and

3. national policy imperatives (e.g. income diversification through strengthened trade of oil and gas, metals and minerals, and processed and manufactured products).

• **Regional clearinghouse** would be introduced to clear and settle trades on AfCX whose regionality would better position it to meet the increasingly stringent capital adequacy and systemic risk mitigation criteria defined in international best practices, while capitalising on advances in cross-border payments systems such as PAPSS, as well as, the AfCFTA.

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<sup>&</sup>lt;sup>32</sup> In line with normal sequencing, futures instruments will be introduced first. Once the futures markets become liquid, alternative instruments which leverage off the futures market can be introduced. These include options, contracts for difference (CFD) and exchange-traded funds (ETF) – see Section 3 for further information. Importantly, it is noted that options, CFDs and ETFs tend to be more supportive of hedging for smaller-scale actors than futures instruments.

<sup>&</sup>lt;sup>33</sup> This recognises that commodity exchange liquidity is not zero-sum but rather positive sum. A new contract which creates market access for currently excluded actors can create liquidity not only on the originating exchange (AfCX) but can also increase the liquidity on the existing global exchanges as well through arbitrage trade between AfCX and the global exchanges. Commodity exchange price discovery is said to be efficient to the extent it represents the convergence of supply and demand. To the extent that previously excluded pricing signals from the supply side will now be integrated into contract pricing, on both AfCX and – via arbitrage – on the global exchanges, price discovery across both venues will be to that extent strengthened.



While it may appear at first glance that stakeholders have avoided making hard choices by selecting most options at most levels, in fact the stakeholders have recognized the relevant differences across the cocoa-producing countries, and even within-country across different regions, and therefore have made the hard choices but 'micro-selected' the choice to reflect the specific context per country and/or region. [Sections 9.2 and 9.3 above set out the model choices per country - and, where applicable, region - and the underlying reasoning for these choices.] This in fact shows the value of the stakeholder workshop in which the dangers of taking a 'broad brush' approach has been averted. Such an approach may have been impossible in practice to implement effectively. Rather, a nuanced model that accommodates the relevant differences between country and region has emerged. This provides helpful guidance to tailor the detailed 'deep dive' feasibility analysis in Phase II of the project, as detailed in 9.5 below.

## 9.5 PROPOSED UPDATES TO TOR FOR PHASE II

Category	Requirement	Activities
Policy and sectoral regulation	Identify the basic elements of the reform of the cocoa marketing in each country as a prerequisite for the establishment of an African Cocoa Exchange	(i) Assess the scope for exchange-trading that the Cocobod will be prepared to entertain in Ghana;
		(ii) Specify the manner in which AfCX deals with the regulatory floor price in Côte d'Ivoire and Ghana;
		(iii) Identify the national licensing requirements for AfCX market participants in each country, and assess opportunities to standardize the licencing requirements for AFCX market for each country;
		(iv) Align AfCX with regulatory weight and quality certification processes in each country as cocoa moves along the value chain;
		(v) Specify requirements to facilitate exports from each country via AfCX, looking at the regulations of both the exporting and importing countries; and
		(vi) Engage with policy and regulatory decision-makers to secure buy-in, support and political will.
Flows	Design a model of the Exchange for the flow of cocoa beans from farm gate to the Exchange floor	(i) Identify the priority secondary aggregation centre locations in each country for establishment of AfCX delivery points linked to farmer organisations and LBA/LBCs (Options 1.2, 1.3, 1.4, 1.5); and
		(ii) Assess logistics capacity to support efficient movement of goods along the chain from exchange delivery points, including buyers' fleet capabilities and third-party transporters and forwarders.
Stakeholder Interest and Capacity Assessment	Specify the functions to be played by value chain actors, assessing their interest and capacity, and identifying interventions necessary to fill gaps	(i) Define the roles to be played by value chain actors – farmer organisations, intermediaries, local processors, exporters, financiers, international buyers, sustainability scheme operators, others (e.g. stockbrokers) – in AfCX for physical trade and price risk management, looking separately at beans, cocoa products and sustainable cocoa.
		(ii) Assess the interest and capacity of each to perform these roles, including review of farmgate business education and technical training tools
		(iii) Highlight the interventions necessary to create incentives and fill capacity gaps.
Product Design	Design suitable products for physical trade, price risk management and cryptocurrencies	(i) Customize configuration of the exchange-trading modalities to serve each of the physical trade flows supported by AfCX (Options 1.2, 1.3, 1.4, 1.5);
		(ii) Engage with market actors on both the sell- and buy-sides of the market to work collaboratively to build consensus in developing relevant spot and futures contract specifications; and
		(iii) Design the Cocoacoin instrument and modalities.

Category	Requirement	Activities
Storage and	Assess the availability and functioning of cocoa storage facilities and collateral management necessary to support exchange operations	(i) Itemise and describe the warehouses of farmer organisations and LBA/LBCs in the priority secondary aggregation centres identified above, identifying gaps in storage capacity, equipment, condition and managerial capacity at these sites, and propose interventions to address them;
		(ii) Assess warehouse management operational capacity and capital adequacy of farmer organisations and LBA/LBCs;
Collateral Management		(iii) Identify potential providers of third-party warehouse management services for these sites;
		(iv) Perform a high-level assessment of processor, wholesale and port warehousing to support the physical trade of processed products and futures market delivery; and
		(v) Perform a provisional assessment of the feasibility of alternative storage technologies such as hermetically-sealed bags and cocoons.
Standards and Certification	Assess the standards and standardization of cocoa quality and their alignment with international quality standards, and the quality certification and traceability processes in place to ensure integrity of cocoa beans along the supply chain	<ul> <li>Identify key regional (e.g. national, ARSO) and international (FCC, ICE) standards required to support each physical trade and futures modality, and with this in mind, assess standards requirements and identify certifications processes, including:</li> <li>(i) Physical certification of beans and cocoa products;</li> <li>(ii) Sustainability standards (Fairtrade, Rainforest Alliance);</li> <li>(iii) SPS requirements in key global consumer markets;</li> <li>(iv) Traceability requirements, especially related to the EU Deforestation Regulation; and</li> <li>(v) Design a process for regional standards convergence or harmonisation via AfCX, with a plan to identify and overcome bottlenecks.</li> </ul>
Finance	Assess the interest and capacity of financial institutions such as banks and insurance companies to provide liquidity to the Exchange trading system	<ul> <li>[i] Specify the necessary finance, insurance and payments products within the AfCX ecosystem, and identify the financial institutions best placed to provide them;</li> <li>[ii] Assess the interest and capacity of those financial institutions to offer these products, and identifying synergies for financial institutions with existing products and activities (e.g. financing of producer crop/input loans);</li> <li>[iii] identify financing gaps and propose interventions to address them (e.g. guarantee schemes and other risk sharing requirements);</li> <li>[iv] Specifically, address the challenge of how to design arrangements for cash-in-hand payment to farmers, to overcome farmer access barriers; and</li> <li>[v] Explore fintech solutions that could create additional value to the exchange, farmers, SMEs and local processors.</li> </ul>

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Category	Requirement	Activities
Legal- Regulatory Framework	Identify and define a sound legal framework for the establishment and functioning of the Exchange	<ul> <li>(i) Assess the sufficiency of the existing legal frameworks in each country against the IOSCO- and BIS-defined international best practices with respect to the exchange, the clearinghouse and the warehouse receipt system, identifying gaps or bottlenecks in the following areas - the regulatory aspects; the corporate and investment aspects; the tax and customs aspects; and agricultural law aspects.</li> <li>(ii) Identify the necessary requirements from relevant regulatory authorities to obtain regulatory licenses and approvals in order to implement the AfCX model, and engage with regulators to plan how to overcome gaps and bottlenecks.</li> </ul>
Regional Integration	Identify regulation and policy enablers and bottlenecks, and engage with regulatory authorities to identify enabling solutions	<ul> <li>(i) Identify the enablers and bottlenecks to cross-border flows of commodity, currency and capital;</li> <li>(ii) Identify gaps and propose interventions to address them, in partnership with national and regional regulatory and governance bodies;</li> <li>(ii) Engage with public regulatory authorities and national exchanges to create efficient national entry points into AfCX as a regional institution; and</li> <li>(iv) Map the structure and design of the regional clearinghouse, linked to PAPSS, the AfCFTA and other regional mechanisms.</li> </ul>
Market Information	Review the existing market information services in place in the countries and identify changes required to ensure a wider and timely dissemination of market information from the Exchange	<ul> <li>(i) Assess existing market information systems and information distribution channels; and</li> <li>(ii) Identify gaps and propose interventions to address them.</li> </ul>
Terminal Markets	Analyse cocoa futures markets and their possible implications on the establishment of an African Cocoa Exchange	<ul><li>(i) Assess the interface of AfCX futures markets with existing global cocoa futures markets; and</li><li>(ii) Identify the mechanisms for facilitating interaction and arbitrage between the markets.</li></ul>
Human Resources	Assess the availability of human capacity that would be needed to operate the exchange and identify any capacity building required to have the necessary expertise	<ul> <li>(i) Design the org chart for AfCX, identifying the functional departments and personnel requirements;</li> <li>(ii) Design job profiles and eligibility criteria for each position; and</li> <li>(iii) Build a staff recruitment, onboarding and capacity-building plan.</li> </ul>

Category	Requirement	Activities
Implementa- tion	Carry out a comprehensive SWOT analysis of the proposed African Cocoa Exchange and propose a schedule of implementation plan as well as financing plan for the establishment of the Exchange	<ul> <li>(i) Conduct a SWOT analysis for AfCX;</li> <li>(ii) Define IT system requirements to cover key functions – trading, clearing, etc;</li> <li>(iii) Specify the capital structure, contributors, and institutional arrangements for the exchange, clearinghouse, WRS and MIS</li> <li>(iv) Identify key documentation requirements (rules, policies, operating procedures, legal templates) to set up the exchange;</li> <li>(v) Design a detailed implementation plan for AfCX;</li> <li>(vi) Create a financing and investment plan for AfCX; and</li> <li>(vii) Design pilots for AfCX to prove concept and scale.</li> </ul>

# >> Appendices

**Appendix I** Côte d'Ivoire Cocoa Value Chain Report

**Appendix II** Ghana Cocoa Value Chain Report

**Appendix III** Nigeria Cocoa Value Chain Report

**Appendix IV** Cameroon Cocoa Value Chain Report

**Appendix V** Africa Commodity Exchange Survey Tool and Responses