Standing Committee
for Economic and Commercial Cooperation
of the Organization of Islamic Cooperation (COMCEC)

COMCEC

Improving Agricultural Market Performance:
Creation and Development of Market Institutions

COMCEC COORDINATION OFFICE

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ACIAR	Australian Centre for International Agricultural Research
ADC	Agribusiness Development Corporation (South Africa)
AEKI/AICE	Association of Indonesia Coffee Exporters
AFD	Agence Française de Développement
AFVA	Agricultural Extension and Training Agency (Tunisia)
AH	Agri-hub (South Africa)
APIA	Agricultural Investment Promotion Agency (Tunisia)
APII	Agency for the Promotion of Industry and Innovation (Tunisia)
APP	Africa Progress Panel
APPU	Association of Shrimp Hatcheries (Indonesia)
ARC	Agricultural Research Council (South Africa)
ARRU	Agency for Urban Rehabilitation and Renovation (Tunisia)
ASEAN	Association of Southeast Asian Nations
ASSP	Agriculture Sector Strategic Plan (Uganda)
ASTRULI	Seaweed Industry Association of Indonesia
ASTUIN	Tuna Association of Indonesia
ATA	Agricultural Transformation Agency (Ethiopia)
BFAP	Bureau for Food and Agricultural Policy (South Africa)
BKPM	Indonesia Investment Coordinating Board
BPDP-KS	Indonesian Oil Palm Estate Fund
BPOM	National Agency for Drug and Food Control (Indonesia)
BPS	Bureau of Statistics (Indonesia)
BRI	Bank Rakyat Indonesia
BSE	Boviene Spongiforme Encefalopathie
BULOG	National Logistics Board (Indonesia)
CAN	Cocoa Association of Nigeria
CAN	National Advisory Board (Brazil)
CAISTAB	Caisse de Stabilisation des Prix des Produits Agricoles
CBI	Center for the Promotion of Imports from Developing Countries
CBN	Central Bank of Nigeria
CC-PSA	Committee for Coordination of Agricultural Policies (Burkina Faso)
CCC	Conseil du Café-Cacao (Gambia)
CDC	Cocoa Development Centre (Indonesia)
CDO	Cotton Development Organization (Uganda)
CEMAC	Economic Community of Central African States
CEPEX	Center for Export Promotion (Tunisia)
CGIAR	Consultative Group on International Agricultural Research
CKS	Çiftçi Kayıt Sistemi (Turkey)
COBFAS	Community-Based Farming Scheme (Nigeria)
COCTU	Coordinating Office for the Control of Trypanasomiasis in Uganda
COFTRA	Commodity Futures Trading Regulatory Agency (Indonesia)
COMCEC	Standing Committee for Economic and Commercial Cooperation of the Organization of the Islamic Cooperation
COMESA	Common Market for Eastern and Southern Africa
CONECT	Confederation of Tunisian Citizen Enterprises
CPO	Crude Palm Oil
CRA	Agricultural Radiance Center (Tunisia)
CRDA	Regional Office for Agricultural Development (Tunisia)
CSIR	Council for Scientific and Industrial Research (South Africa)

CSA	Food Security Council (Mali)
CSR	Corporate Social Responsibility
CTV	Territorial Extension Cell (Tunisia)
CVC	Cocoa Village Clinic (Indonesia)
DAFF	Department of Agriculture, Forestry, and Fisheries (South Africa)
DDA	Dairy Development Authority (Uganda)
DFI	Development Finance Institution
DGNED	Directorate General for National Export Development (Indonesia)
DOH	Department of Health (South Africa)
DPE	Department of Public Entities (South Africa)
DRDLR	Ministry of Rural Development and Land Reform (South Africa)
DSIP	Development Strategy and Investment Plan (Uganda)
DTI	Department of Trade and Industry (South Africa)
DVPPA	Division of Extension and Promotion of Agricultural Production (Tunisia)
EAOPS	East Africa Organic Products Standards
ECCAS	Economic Community of Central African States
ECOWAS	Economic Community of West African States
EMBRAPA	Brazilian Agricultural Research Consortium
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
FCFA	franc des colonies françaises d'Afrique
FDA	Food and Drug Administration (United States)
FDI	Foreign Direct Investment
FFS	Farmer Field School
FFTC-AP	Food and Fertilizer Technology Center for the Asian and Pacific Region
FIP	Framework Implementation Plan (Uganda)
FIPA	Foreign Investment Promotion Agency (Tunisia)
FPSU	Farmer Production Support Unit (South Africa)
FQIA	Fish Quarantine and Inspection Agency (Indonesia)
FUNAAB	Federal University of Agriculture, Abeokuta (Nigeria)
GAPKI	Indonesian Palm Oil Association
GCC	Gulf Cooperation Council
GDP	Gross Domestic Product
GES	Growth Enhancement Support (Nigeria)
GERNAS	National Cocoa Rehabilitation Program (Indonesia)
GGC	Gambia Groundnut Corporation
GKPN	Union of Indonesian Coastal Cooperatives
GKSI	Indonesian Association of Dairy Cooperatives
GM	Genetically Modified
GMC	Guyana Marketing Corporation
GSA	Guyana School of Agriculture
GSFMO	Grain Silos and Flour Mills Organization (Saudi Arabia)
GPBM	Gambia Produce Marketing Board
IAARD	Indonesian Agency for Agricultural Research and Development
IAQA	Indonesian Quarantine Agency
ICA	Investment Consulting Associates
IDH	Sustainable Trade Initiative
IFAD	International Fund for Agricultural Development
IFC	International Finance Corporation
INAT	National Institute of Agronomy (Tunisia)
INNOPRI	National Institute of Normalization and Industrial Property (Tunisia)

IMF	International Monetary Fund
IPM	Integrated Pest Management
IPS	Indonesian Association of Milk Processors
IRAT	National Institute of Agronomy Researches (Tunisia)
IRESA	Institution of Agricultural Research and Higher Education (Tunisia)
IRIEC	Indonesian Research Institute for Estate Crops
ISPO	Indonesian Sustainable Palm Oil Scheme
ITAC	International Trade Administration Commission (South Africa)
IVIS	Integrated Value Information System (South Africa)
JSE	Johannesburg Stock Exchange
KADIN	Chamber of Commerce and Industry (Indonesia)
KIOF	Kenya institute of Organic Farming
KPI	Key Performance Indicator
LDC	Least Developed Country
LPPOM	Food, Drug, and Cosmetics Assessment Agency (Indonesia)
MAAIF	Ministry of Agriculture, Animal Industries, and Fisheries (Uganda)
MENA	Middle East-North Africa
MIN	Market of National Interest
MINFAL	Ministry of Food, Agriculture, and Livestock (Pakistan)
MNE	Multinational Enterprise
MoFPED	Ministry of Finance, Planning, and Economic Development (Uganda)
MoU	Memorandum of Understanding
MPS	Market Price Support
MP3EI	Master Plan for the Acceleration and Expansion of Indonesia's Economic Development
MT	Metric Tonnes
MTIC	Ministry of Trade, Industry & Cooperatives (Uganda)
MUI	Indonesian Islamic Council
NAADS	National Agricultural Advisory Services Organization (Uganda)
NAIC	Nigerian Agricultural Insurance Corporation
NAGRC&DB	National Animal Genetic Resource Centre and Data Bank (Uganda)
NAMC	National Agricultural Market Council (South Africa)
NAREI	National Agricultural Research and Extension Institute (Guyana)
NARI	National Agricultural Research Institute (Uganda)
NARI	National Agricultural Research Institute (Guyana)
NARO	National Agricultural Research Organisation (Uganda)
NASSEC	National Agriculture Sector Secretariat (Uganda)
NCAED	National Center for Agricultural Extension Development
NDC	Neighborhood Democratic Council (Guyana)
NDDP	National Dairy Development Programme (Guyana)
NIRSAL	Nigerian Incentive-based Risk Sharing System for Agricultural Lending
NFA	National Forestry Authority (Uganda)
NDP	National Development Plan (Uganda)
NGO	Non-Governmental Organization
NAPHIS	National Food Safety, Animal, and Plant Health Regulatory Authority (Pakistan)
NOGAMU	National Organic Agricultural Movement of Uganda
NRA	Nominal Rate of Assistance
NRCS	National Regulator of Compulsory Standards (South Africa)
NRDP	National Rural Development Program (Pakistan)
OC	Cereals Board (Tunisia)
OCT	Tunisian Trade Board
OECD	Organisation for Economic Co-operation and Development

OIC	Organization of Islamic Cooperation
ONAGRI	Observatoire National de l'Agriculture (Tunisia)
ONAP	National Observatory of Supply and Prices (Tunisia)
ONH	National Oil Board (Tunisia)
OTP	Organic Trade Point
PARC	Pakistan Agricultural Research Council
PASSCO	Pakistan Storage and Supplies Corporation
PFL	Pure Food Laws (Pakistan)
PISagro	Partnership for Indonesian Sustainable Agriculture
PMA	Plan for Modernisation of Agriculture (Uganda)
PPECB	Perishable Products Export Control Board (South Africa)
PPI	PT Perusahaan Perdagangan Indonesia
PPP	Public Private Partnership
PTPN	Perkebunan Nusantara (Indonesia)
REPAHA	Regional Educational Programme for Animal Health Assistants (Guyana)
RSA	Republic of South Africa
RUMC	Rural Urban Market Centre (South Africa)
SABS	South Africa Bureau of Standards
SADC	Southern African Development Community
SAGO	Saudi Arabian Grains Organization
SAFCOL	South African Forestry Company
SAFEX	South African Futures Exchange
SAMIC	South Africa Meat Industry Company
SANS	South African National Standards
SANAS	South African National Accreditation System
SANBio	Southern Africa Network for Biosciences
SANSOR	South Africa National Seed Organization
SCAI	Specialty Coffee Association of Indonesia
SDG	Sustainable Development Goal
SIE	State Intervention Stockpile (Mali)
SMIIC	Standards and Metrology Institute for the Islamic Countries
SNS	National Security Stockpile (Mali)
SOTUMAG	Tunisian Company of Wholesale Markets
SP-CPSA	Secrétariat Permanent de la Coordination des Politiques Sectorielles Agricoles (Burkina Faso)
STS	Tunisian Sugar Company
SYNAGRI	Union of Tunisian Farmers
TBS	Fresh Fruit Bunches
TCP	Trading Corporation of Pakistan
TSP	Technical Support Program
UAE	United Arab Emirates
UC	Coordination Unit (Tunisia)
UCA	Uganda Cooperative Alliance Ltd.
UCDA	Uganda Coffee Development Authority
UCE	Uganda Commodity Exchange
UEPB	Uganda Export Promotion Board
UgoCert	Uganda Organic Certification Ltd
UIA	Uganda Investment Authority
UN	United Nations
UNBS	Uganda National Bureau of Standards
UNCTAD	United Nations Conference on Trade and Development

UNFFE	Uganda National Farmers Federation
UNISA	University of South Africa
UTAP	Tunisian Association for Agriculture and Fisheries
UTICA	Tunisian Union of Industry, Trade, and Crafts
UOS	Uganda Organic Standard
US	United States
USTDA	United States Trade Development Agency
VAT	Value-Added Tax
VERCON	Virtual Extension and Research Communication Network (Egypt)
WEF	World Economic Forum
WFP	World Food Programme
WHO	World Health Organization
WOSA	Wines of South Africa
WRS	Warehouse Receipt System
WRSA	Warehouse Receipt System Authority (Uganda)
WTO	World Trade Organization
ZAMACE	Zambia Agricultural Commodity Exchange
ZARDI	Zonal Agricultural Research and Development Institute (Uganda)
ZTBL	Zarai Taraqiati Bank Limited (Pakistan)

Executive Summary

The key objective of the present report is to show ways for increasing efficiency of the agriculture sector and to contribute to food security in the OIC Member Countries by improving agricultural market performance via the creation, development, enhancement, and coordination of market institutions.

This report is based on extensive literature review together with in-depth country case studies conducted in three selected OIC Member Countries: Indonesia, Tunisia, and Uganda, and complemented by South Africa as non-OIC country. The literature study covers existing (policy) documents, publications, and experience of relevant national and international institutions, while the country case studies have been based on thorough desk research, which has been complemented with on-site interviews to validate findings and observations.

Interconnected systems of market institutions are created by Governments across the globe to ensure optimal performance of market systems as evaluated by the extent to which they serve important economic and social policy objectives. In particular, efficient agricultural and food markets depend on a well-functioning system of market institutions to address market failures and to realize policy objectives related to ensuring food security, stabilizing food prices, stimulating domestic food production, promoting social inclusion, and reducing rural poverty.

Governments throughout the world have recognized the importance of the agricultural sector and the need to revitalize, and increase productivity in this agriculture sector. This requires private sector participation as well as Government intervention in agricultural and food markets to ensure its optimal performance. The ability of the private sector to raise productivity and to modernize the agricultural sector by introducing innovative and sustainable technologies and management practices, is often limited by poor infrastructure, high losses and waste, high transaction costs, and an unfavorable business climate, and depends above all on appropriate policies and effective functioning of agricultural market systems.

Hence, Governments everywhere across the globe intervene in the agricultural and food sector to address market failures, complement and facilitate private section participation, and realize policy objectives related to food security, food self-sufficiency, rural poverty, reasonable and equal food prices, competitiveness, industrialization, and rural economic development. Such market failures include information asymmetries, high transport and transaction costs, and unclear or limited property rights, all of which limit markets' ability to provide the desired social benefits, which in addition to food security often include attracting large-scale investment in agriculture and agro-processing, linking smallholders to global market systems, and enabling domestic agro-food producers to compete with imports and succeed in export markets.

Such intervention conducted by Governments into agricultural markets typically includes the subsidization of inputs and favorable tax mechanisms; output price control mechanisms; quantity restrictions; public sector market operations; and public support to producers and intermediaries. Governments across OIC Member Countries have established a wide variety of agricultural and food market institutions with the objective to administer and implement these Government interventions.

The composition of these market institutions depends on their objective, mandate, legal form, and organizational structure they take. This study focuses on six types of agricultural market institutions, which are actively engaged in agricultural markets to concentrate the bargaining power of agricultural and food producers, produce and disseminate market intelligence, develop and administer infrastructure and facilities, support technological improvement, encourage and support agricultural investment and trade, increase the competitiveness of agricultural and food market systems, mitigate price and financial risk to producers, stabilize commodity prices and ensure adequate food supplies. These selected market institutions include:

1. Commodity market regulation authorities;
2. Cooperatives;
3. State-owned economic enterprises;
4. Marketing boards;
5. Licensed public warehousing companies; and
6. Commodity exchange platforms.

The extent to which Governments have used these market institutions as tool to intervene has changed, particularly from the mid-19th century onwards. Government intervention reached its peak in the 1970s, while it eventually became evident many of these inefficient and unsustainable market institutions actually impeded and restricted agricultural market systems. Many Governments started reforms, withdrew from agricultural market systems, and liberalized their agricultural market systems. In the context of this report, many marketing boards in Uganda were privatized while the Government of Indonesia curtailed previously exclusive monopoly powers of some of its market institutions.

However, the liberalization of the agricultural market system did not always realize the desired improvement. State intervention and agricultural market institutions re-emerged to mitigate market failures and to address issues related to food security, oligopolistic market power, and a dual market system, where an efficient agricultural market system is only accessible for market participants with the right size, scale, and skills, leaving out smallholders. The reconstitution of the Uganda Development Corporation and the (future) establishment of Indonesia's National Food Authority are examples of the re-emergence of Government interference.

The degree of agricultural market intervention and, hence, creation of market institutions varies wildly across the nations of the OIC. Several OIC Member Countries have been strong, long-term members of the global agricultural economy for some time, and have the institutions to enable this. Countries such as Nigeria appear to have a comprehensive approach to addressing food safety, and have even established specific agencies for that purpose. Some nations, such as Tunisia, have gone beyond the concepts of food safety and regulation by creating institutions specifically to aid industry compliance with national regulations and for improving the state of food infrastructure. Indonesia's focus on realizing self-sufficiency for a number of agricultural commodities is, among others, facilitated by its market institutions. Still, other nations establish market legislation if and only as needed. Mozambique is one example, and has a slate of different Ministerial orders addressing individual foodstuffs.

Regions within the OIC cope with various problems. In the poorer OIC Member Countries, largely though not exclusively in Africa, agricultural market is constrained by high transaction

costs, high risks, missing markets and lack of social capital or collective action. The Middle East-North Africa region, which is the most arid region in the world, needs to address issues related water scarcity and domestic food production, which lags behind the high rates of urbanization. Nevertheless, agricultural market institutions established across OIC Member Countries seek to address several common concerns:

- Combatting price volatility in order to provide both reasonable income for smallholders and affordable prices for domestic consumers;
- Stabilization of domestic markets by mitigating seasonal or cyclical fluctuations in prices or supply, and also preventing exploitation and oligopoly;
- Demand generation to protect farmer income and risk exposure (rural poverty alleviation), while simultaneously promoting industry development; and
- Ensuring food for increasing populations of urban consumers.

Given the special place of agriculture in so many OIC Member Countries, it would be surprising, if Governments were to prize market efficiency and liberalization above all other considerations, and unreasonable to expect them to do so. Setting and implementing policies for the agro-food sector, even more than in many other sectors, requires balancing of competing and often contradictory interests and objectives: efficiency and social protection, rural and urban, tradition and innovation, high producer prices and low consumer prices, openness to trade and protection of domestic producers, among others.

There is considerable variability of sophistication, size, and capabilities among the food and agricultural market systems of the OIC Member Countries. Even the approaches to market institutions may vary greatly, which is demonstrated by the three country case studies. For example, Tunisia has quite a range of market institutions which facilitate the implementation of its agricultural price support measures and regulations such as subsidized inputs, guaranteed minimum prices, and direct market intervention. Marketing boards have a relatively strong market interference power, as they can negotiate this price freely, thereby guaranteeing a certain minimum price or buy common wheat and durum at prices set by the Government while selling domestic and imported cereals at fixed prices to processing facilities.

In contrast, the agricultural market system of Uganda is - to a great extent - liberalized and market institutions are only responsible for promotion, extension services, and (some) regulatory and promotional functions. State intervention in the agricultural and food market in Uganda traditionally included a number of participants, particularly some concerned line Ministries and their marketing boards and state-owned economic enterprises. The Government of Uganda withdrew its agricultural market institutions as the common rationale was the marketing system should be private-sector led and not restricted by Government involvement in agricultural marketing.

Indonesia's approach can somewhat be positioned between the more controlled price support measures of Tunisia and Uganda's liberalized agricultural market system, where Government intervention is limited. The Government of Indonesia does not let market forces entirely decide the supply and demand of the agricultural sector and leaves room for Government intervention. The market intervention is mixed, with public intervention in certain strategic agricultural commodities as well as private sector-led activities.

The direct observations of agricultural market institutions, obtained through the case studies and interviews carried out as part of this study, together with the observations and analyses obtained from extensive desk research and literature reviews, have led to several conclusions:

1. The Governments examined for this study all intervene in agricultural market systems. The question is therefore not whether intervention is warranted, but rather what kind of intervention can produce the desired outcomes, and how Government and non-Government institutions can interact most effectively to achieve those outcomes.

2. For the countries examined, the performance of agricultural markets is subject to the influence of a great many institutions and policies, many of them only tangentially connected to the agriculture sector.

3. Given the many complex interactions among market institutions, their effectiveness can be assessed only by looking at the entire system of institutions, and the position of those institutions within a wider policy context.

4. Independent, private sector institutions are critical to the effective functioning of market systems. Robust non-Government market institutions such as sector associations' cooperatives, and exporters' federations, are also essential if markets are to work effectively.

5. Markets tend to perform better when institutions harness market forces to serve social goals and try to make markets work more effectively, than when they try to supplant market forces with uneconomic and ultimately unsustainable controls.

6. Market institutions tend to be most effective when their interventions focus on transmitting information, mediating transactions, reducing volatility in commodity markets, facilitating the transfer and enforcement of property rights and contracts, managing competition, increasing the market power of producers and exporters, improving product quality, and, above all, eliminating or mitigating market failures.

These conclusions form the basis for a number of specific recommendations.

Farmer Registration

Provide for better registration of farmers so that training and certification may be provided, thereby improving both the ability of farmers to succeed and also enhancing markets' acceptance of the goods produced.

The creation of a farmer administration and authority managing this administration may contribute to an improvement of market intelligence as this registration could function as an instrument to collect, analyze, and disseminate statistics, data, and information on the agricultural sector. This registration system may also increase the efficiency and performance of the overall agricultural market system as the available market intelligence would show opportunities for connecting agricultural production with processing, value-addition, and other post-harvest activities, and, eventually, consumption. Moreover, this data could also be used for granting and monitoring incentives as well as developing customized support and

assistance to support famers in upgrading their production capacity and informing them on indicative prices.

Institutional Coordination & Human Capacity

Develop, implement, and synchronize agricultural and food market strategies at a national level to ensure agreement on mission and goals and also to provide a means for coordination between and among the various market institutions.

The need for institutional coordination may be coupled with the previous conclusion on farmer registration as part of more wider administration and control systems. Indeed, most OIC Member Countries have a multiplicity of agro-food market institutions, and there is often a lack of coordination among them, leading to conflicts of interest and overlapping responsibilities. This is not unique to the agro-food sector: in many Governments, communications within and, especially, between Ministries and agencies are hampered by excessive hierarchy and formality. This makes timely communications difficult, and it also impedes the development of informal contacts and communications, which may be equally important.

Hence, human capacity development of both agricultural market institutions as well as of other Government entities should become a policy priority. The provision of high-quality services, proper communication with agricultural market participants, other Government officials, potential investors, and the business community, and accurate representation of farmers and their interests requires human capacity development of agricultural market institutions staff in order to understand the current circumstances and challenges of the agricultural market systems and how to anticipate and address these. Similarly, human capacity development of other Government officials should contribute to bridging their unawareness and lack of knowledge of agricultural market institutions, their mandates, functions, activities, and services, eventually improving inter-Ministerial coordination and collaboration.

To overcome these difficulties in communication and coordination, Governments should consider establishing a high-level commission or authority on which all stakeholder groups from Government and the private sector are represented. Such a commission would serve both as a policy advisory body and a forum for public-private dialogue. Moreover, integrating human capacity development and institutional coordination may require an OIC-wide human and administration capacity development initiative, where good practices and lessons can be shared and institutional coordination fostered.

The Role of Inputs

Develop means by which the access to quality inputs (e.g. seeds, pesticides, fertilizers, and other key ingredients) may be assured, thereby improving the quality and market acceptance of end products.

Many smallholders and small-scale farmers are challenged by limited access to high-quality, certified inputs and often only have access to low-quality or even imitated inputs. OIC Member Countries have tried to solve this issue through the provision of subsidized and controlled inputs or through authorities which are responsible for quality assurance and distribution of

inputs. Such an authority is mandated to develop certification for inputs which meet a certain international quality standard,

The Role of Warehousing

Where not currently in place, provide means whereby small producers may gain access to warehousing and storage capacity, thereby allowing small producers to better manage when their products may come to market.

Many OIC Member Countries have implemented Warehouse Receipt Systems or operate licensed public warehousing companies to stimulate smallholders to store their agricultural produce for longer periods to obtain higher prices. However, by the time the harvest comes around, smallholders have typically run out of money and need to sell for whatever price they can get. Storing goods is to sell at a later point has a higher return on investment but requires to convince farmers. A "change in farmers' mindset" has been mentioned across the three case study countries. Organizing farmers into cooperatives that can set up warehouses of their own may prove to be an alternative solution.

Traceability and Standards

Improve overall food quality standards and implement means for ingredient and input traceability in order to further enhance both safety and market acceptance of agricultural and food products.

Traceability of origin for many (strategic and priority) agricultural products can also be lost if issue of farmers' registration is not addressed. The traceability of food in the market system is critical for food safety, but also for broader strategic and market monitoring purposes. The development of such a registration system should contribute to improving market surveillance, product traceability and monitoring of agricultural products and market participants as, for instance, producers should register their middlemen and intermediaries, while importers need to register their domestic distributors. A registration system should enable agricultural market institutions to trace farmers or areas not meeting export requirements in terms of standardization, food safety, and (phyto) sanitary measures, and address these issues.

Research Laboratories

Invest in national or multi-national research laboratories to support food standards and also provide local best-practices for growing, crop rotation, food production, safety, and other agricultural and food knowledge-bases.

The review of national food and agricultural institutions highlighted the importance of research laboratories in the adoption of new technologies and farming practices and adaptation of seed varieties to local soil and climate conditions. It may be possible for these institutions to integrate more fully with existing institutions in some OIC countries in which such coordination is relatively weak compared to other countries.

International Collaborative Efforts

International collaborative efforts are important to address similar challenges faced by OIC Member Countries. In general, most OIC Member Countries need to continuously improve an enabling environment attractive to agriculture, thereby specifically taking in to account the small-scale and fragmented nature of their agricultural marketing systems and the absence of integration of small-scale subsistence farmers into agricultural markets. It is especially this enabling role which market institutions could play.

More specifically, several bottlenecks common across the three selected case study countries demonstrate the inability of domestic farmers to get integrated in the agricultural marketing system. Many examples from the case studies may serve as models for similar initiatives in other OIC Member Countries to address (some of) these bottlenecks, while other bottlenecks may be addressed through OIC collaboration and initiatives. Examples include setting up agricultural zones along borders of Member Countries, encouraging inter-institutional collaboration on agricultural research across on problems typical for OIC Member Countries, harmonizing standards for inputs, and generally creating a platform for the exchange of best practices, research results, and organization of market institutions across OIC Member Countries.

Finally, future research and further discussions may be necessary with regards to developing specific key performance indicators (KPIs), which specifically gauge the efficiency of market institutions. Conducting research into best practice relationships among agricultural market institutions as well as non-agricultural institutions to specifically address the lack of integral coordination of the agricultural market system is required. Finally, how to develop well-functioning farmer registration systems, which are aligned and integrated with other market institutions to optimize performance of such systems, may be a topic for further exploration.

Introduction

Well-functioning agribusinesses and agricultural markets that optimize the sustainable production and distribution of food are essential for global food security. Furthermore, the establishment of a prosperous and equitable agriculture and food sector depends on the agricultural market environment.

A market system is made up of the functions of regulation, market, support, and the organizations that perform them. Buying and selling, storage, transport and processing, standardization of weights and measures, safety and inspection, financing, risk bearing, and market intelligence are considered as the main functions of market. Besides, market systems have fundamental sub-systems; production, distribution, consumption, and regulation.

Marketing of agricultural and food products necessitates special attention due to the unique characteristics of the sector from both supply and demand sides. Government has a crucial role in keeping the operation of markets orderly by using its key instruments. One of the most common ways to ensure well-operated markets is to regulate them via public authority to assure the fair and proper conduct of each player. Moreover, state has a responsibility to provide safe basic agricultural and food products to its citizens at a reasonable price. Hence, direct intervention to the market is another way to address market failures. Therefore, the creation and development of agricultural and food market institutions such as regulatory authorities, state-owned economic enterprises, licensed warehousing companies, industry associations, and commodity exchange platforms are vital for smooth operation of markets in a country.

Improving agricultural market performance is the heart of the economic growth in most of the Organization of Islamic Corporation (OIC) Member Countries, especially the Least Developed Countries (LDCs) member countries since agriculture plays a major role in income and job creation. In this context, agricultural market institutions, as main contributors to economic growth provide multiple functions to markets: they transmit information, mediate transactions, facilitate the transfer and enforcement of property rights and contracts, and manage the degree of competition. At this point, agricultural and food market institutions, which are involved in all aspects of agricultural market sub-systems, have a crucial role to eliminate distortions in domestic markets and to restore the agricultural market efficiencies.

The key objective of the present report is to show ways for increasing efficiency of the agriculture sector and to contribute to food security in the OIC Member Countries by improving agricultural market performance via the creation, development, enhancement, and coordination of market institutions.

The purposes of the Study include:

- to present an overview of the current situation of the agricultural markets in the OIC Member Countries;
- to examine each market channel in the agriculture and food sector, including production, handling, storage, transporting, processing, packaging, and retailing;
    - to identify and examine the agriculture and food market institutions which are established by Government or with Government partnership in the OIC Member Countries;

- to show regulatory power, intervention effect, and overall impact of agricultural and food market institutions on the supply and demand side of products;
- to measure the effectiveness of market institutions and the role of state in the agriculture and food sector; and
- to come up with policy recommendations for the OIC Member Countries which will trigger collaborative actions and help to develop a roadmap with cost-effective and practical solutions.

In-depth literature reviews together with on-site interviews have been conducted to achieve these objectives. The literature study covers existing (policy) documents, publications, and experience of relevant national and international institutions. Country case studies have been conducted in three OIC Member Countries and South Africa, where desk research has been complemented with on-site interviews and to validate findings and observations.

This Study is structured as follows:

1. The first Chapter frames the study by describing the Conceptual Framework. It introduces market systems, agricultural and food markets, and agricultural food markets institutions. The Chapter examines the rationales, types, enforcement mechanisms, roles, responsibilities, and administrative structures of agricultural food markets institutions.

2. The second Chapter builds on the first Chapter as it studies the historical development of market institutions as well as agricultural and food market institutions, after which recent trends are explored.

3. The OIC Member Countries form the geographical scope of the third Chapter. It evaluates agricultural and food market institutions across OIC Member Countries and summarizes their legislative and administrative frameworks as well as challenges and opportunities with regards to enhancing harmony in the OIC.

4. Chapter four links market institutions and market performance and sheds light on positive as well as negative effects of agricultural and food market institutions.

5. Four country case studies form the core of Chapter five. The agricultural and food market institutions and their performance of each case study country are assessed after the justification of the selection of sample countries has been explained.

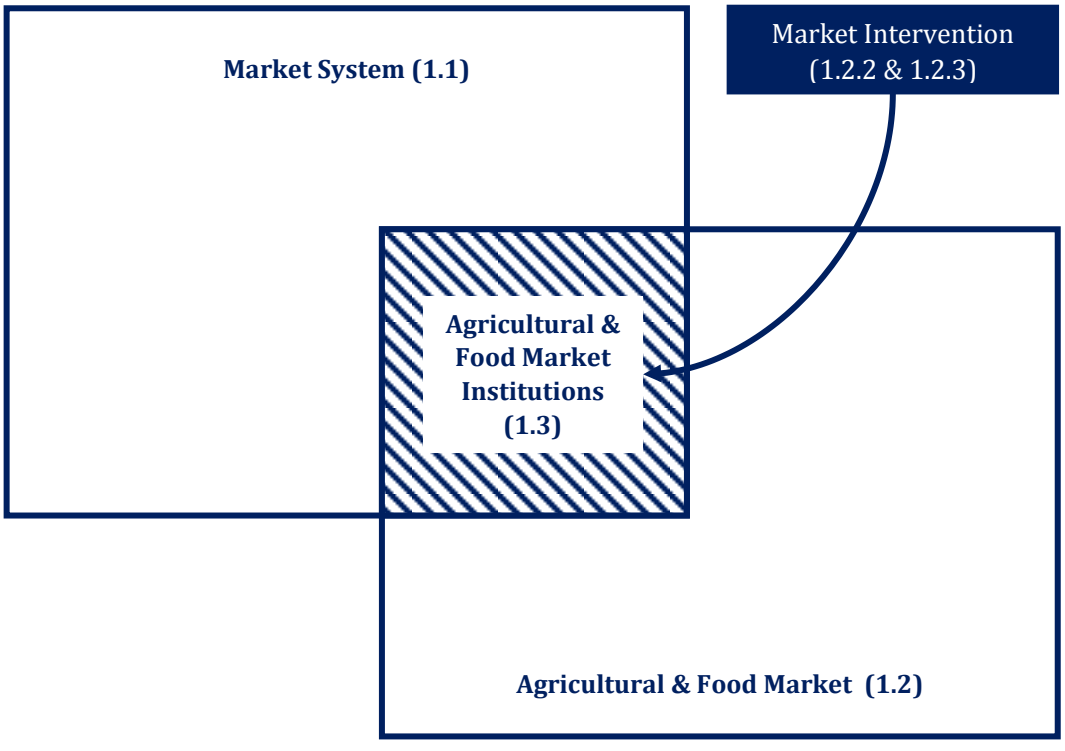
6. The lessons learned, case study outcomes, and observations of all previous Chapters are integrated in Chapter six. Policy recommendations are formulated on national level as well as on international level and look to improve collaborative efforts of the OIC Member Countries.

Chapter 1 – Conceptual Framework

The aim of this report is to present an overview of food and agricultural sector market systems, and how these can influence the overall success of these vital sectors. This Chapter begins by introducing key concepts, explaining the report's scope, and establishing a framework. We introduce the concepts of market systems, market institutions, and the agricultural and food market, which collectively constitute this report's key research topic.

Defining markets and market systems forms the point-of-departure for developing the Conceptual Framework of this study. This Chapter introduces the elements of this Conceptual Framework, which serves as roadmap for the remaining Chapters of this study. It first defines *general* markets and market systems, after which it explores the composition of market participants and the way market systems function (**Figure 1**). Next, the *agricultural and food market* are discussed by exploring the importance of agricultural and food market systems and what the drivers are behind the private sector participation and Government intervention in these agricultural and food market systems. Finally, agricultural and food market institutions are used as "instruments" to implement, apply, and administer this Government intervention in agricultural and food markets. The interaction between these elements constitutes this study's Conceptual Framework.

Figure 1 – Outlay of the Conceptual Framework



Source: Investment Consulting Associates – ICA (2017)

1.1 Introduction to Marketing Systems

1.1.1 Defining Markets and Market Systems

Markets are based on physical and conceptual contexts where the rules-based[1] exchange of goods, products, and services takes place.[2] The price, value, and flows of these goods, products, and services are determined by their demand and supply, while the rules governing markets are shaped by private contracts, cultural norms and values, and - particularly - the legislative and institutional context. Hence, markets encompass the entire equilibrium between demand and supply.[3]

Competitive markets censure efficient allocation of resources, distribute inputs and outputs across time and space, facilitate transformation and value-addition to products, and convey market information and risks.[4] No single producer or consumer can dictate price, supply, or demand in a fully-fledged competitive market. Efficient and competitive markets ensure that sectorial and macro-level policies provide incentives and address challenges faced by micro-level decision-makers while simultaneously underpinning significant opportunities. Moreover, competitive markets also play a fundamental role in managing risks emerging as a result of shocks in demand and supply by facilitating adjustment in net export flows across space and in storage over time, thereby stabilizing prices and reducing the price volatility faced by consumers and producers

A number of conditions need to be satisfied for markets to form and develop into competitive and efficient systems:[5]

- Profitability – The generation of profits is the key incentive for market participants to enter a market.
- Diminishability – The stocks of products and goods will diminish as more products and goods are consumed. Prices will respond to lower stocks and encourage (additional) production.
- Rivalry – Not only producers but also consumers "compete" in a efficient market in order to obtain the benefit of the product or service. A need exists to be competitive to secure the benefit of the good.
- Excludability – It is essential that consumers can be excluded from obtaining the benefit that comes from consumption and not become "free-riders", which undermines the effectiveness of markets.
- Rejectability – Consumers are not forced to purchase goods or products in case they reject the quality or quantity of the good or product.

[1] FAO/INRA (2016), *Innovative markets for sustainable agriculture - How innovations in market institutions encourage sustainable agriculture in developing countries*, p. 2, Rome: Food and Agriculture Organization of the United Nations and Institut National de la Recherche Agronomique.
[2] International Livestock Research Institute (1995), *Livestock Policy Analysis*, pp. 111-148, Addis Ababa: International Livestock Research Institute.
[3] Tollens (2010), "The neglect of food market in developing countries," in Van Trijp, H. & Ingenbeek, P. (eds.), *Markets, market and developing countries: Where we stand and where we are heading*, pp. 23-32, Wageningen: Wageningen Academic Publishers.
[4] Barrett, C. & Mutambatsere, B. (2008), "Agricultural Markets in Developing Countries," in Blume, L. & Durlauf, S. (eds.), *The New Palgrave Dictionary of Economics*, pp. 2-3, London: Palgrave Macmillan.
[5] Economics Online (2017), Competitive markets, available at http://www.economicsonline.co.uk/Competitive_markets/Competitive_markets.html [Accessed August 2017].

When these five conditions are present, it is possible for a market to form and for the seller to fix a price and for the buyer to accept or reject that price. However, impediments such as insufficient market infrastructure, market information failures, which enables consumers to estimate the net benefit from purchasing the products, time lags, absence of property rights, and negative externalities may result in market failures, impacting the efficiency and competitiveness of the entire market system.

Therefore, equal access to high-quality market infrastructure, sufficient provision of market intelligence, and an enabling environment are some of the key ingredients which may foster the creation of competitive and efficient market systems, which, in turn, can enable producers to keep a larger share of the profits from their production, while also contributing to economies of scale and lower prices in domestic and export markets. Such market systems can support increases in domestic value-added through improvements in product quality as well as domestic processing of products and goods. Hence, the subsequent Chapters will explore the relationship between market systems and institutions in a number of (OIC) countries to gauge the extent to which these institutions contribute to market efficiency and competitiveness.

Now markets and market systems are defined, it is necessary to explore how efficient market systems operate. The extent to which a market system functions efficiently is determined by a number of characteristics:

- The type and nature of product(s) and how they move through the market system (e.g. production, storage, handling, processing, packaging, and distribution).
- The size, number, nature, roles, and responsibilities of market participants.
- The density of market participants and geographical location.
- Physical infrastructure connecting these locations.[6]
- The legal, regulatory, and institutional framework in which the market operates.

A comprehensive market system involves all activities from supply of inputs through production, storage, handling, warehousing, processing, and both intermediate and final distribution. These activities are undertaken by a great variety market participants.

1.1.2 Participants of Market Systems

Three key groups of such market participants typically constitute a market system:[7]

1. **Direct Market Participants**: These participants drive economic activity in the market and may include input importers and suppliers, producers, transporters, wholesalers, traders, processors, exporters, and retailers.
2. **Line Ministries and Market Institutions**: These participants set the market system's framework and typically include Government bodies (e.g., Ministries of Agriculture, Ministries of Trade, Ministries of Health, produce marketing boards, export and investment promotion agencies, customs services, standards bureaus), non-Government associations and federations (such as farmer groups and cooperatives,

[6] Tollens (2010), "The neglect of food market in developing countries," in Van Trijp, H. & Ingenbeek, P. (eds.), *Markets, market and developing countries: Where we stand and where we are heading*, pp. 23-32, Wageningen: Wageningen Academic Publishers.
[7] Technoserve (2017), What is a market system?, available at http://www.technoserve.org/our-work/how-we-work/what-is-a-market-system [accessed May 2017].

producer associations, trader organizations, and export federations), and chambers of commerce.

3. **Indirect Market Participants:** Other institutions that do not have a mandate directly connected to the agriculture sector may, nonetheless, influence the effectiveness of market systems. These include tax authorities especially (agriculture is often subjected to special tax regimes), but may also include central banks, whose influence over exchange rates and interest rates can have a profound effect on import and export prices and agriculture credit. Other entities include both public and state-owned financial institutions, some of which may specialize in agricultural and/or small business credit.

Different participants in the same market system may have different goals.[8] Most direct market participants seek mainly to increase their revenues and profits. An efficient market system would contribute to realizing this.

On the other hand, line Ministries and market institutions play a critical role in realizing efficient market systems as they may serve a regulatory or a facilitation role or – certain cases – both. As regulators, they seek to ensure efficient allocation of resources, market stability and efficiency, economic development and inclusive growth, and public health and safety. As facilitators, they may channel physical or financial resources to the sector, administer incentives and subsidies, conduct research, provide extension services and new technologies, support producer organizations, and promote investment and export development. However, some overlap among the roles of the market participants may exist. For instance, market institutions may even operate as direct market participants, which is the case for state-owned economic enterprises. Though many market institutions are in the public sector, development partners and donors, as well as non-Government share the common prime objectives of market institutions such as Governments, multilateral organizations, and non-Governmental organizations (NGOs).

1.2 Introduction to Agricultural & Food Markets

1.2.1 Importance of Agricultural & Food Market Systems

It is the job of this interconnected system of market institutions - as described in Section 1.1 - to ensure optimal performance of a market as evaluated by the extent to which it serves important economic and social objectives. This Section focus on the importance of the agricultural and food market systems (Section 1.2.1) and, hence, why the private sector participates (Section 1.2.2) and, particularly, Governments (Section 1.2.3) intervene in these markets. This paves the way for exploring what kind of agricultural market institutions are used and what roles these agricultural market institutions serve (Section 1.3).

Indeed, efficient agricultural and food markets in particular depend on a well-functioning system of market institutions to address market failures and ensure food security, stabilize food prices, stimulate domestic food production, promote social inclusion, and reduce rural poverty. This is particularly true given the specifics of the agri-food market systems vis-à-vis

[8] International Livestock Research Institute (1995), *Livestock Policy Analysis*, pp. 111-148, Addis Ababa: International Livestock Research Institute.

general market systems, as geography and seasonal variety play an important role in efficient agricultural market systems:

- **Geography** - Agricultural and food producers are often geographically spread across a country and may be located at a considerable distance from principal, largely urban, markets. Most agricultural produce is perishable, and requires specific post-production handling, storage, and distribution processes to limit losses. FAO estimates that 1.3 billion tons of food are lost to spoilage or wastage each year. This is true in both rich and poor countries, though attributable to different causes (people in rich countries buy more than they need and dispose of unused or unwanted excesses, whereas losses in poor countries are generally the result of poor post-harvest handling and storage). And while losses in rich countries have negligible effects on access to and consumption of food, in poor countries these losses can cause widespread hunger.

- **Seasonality** – Many agricultural commodities are plentiful during and immediately after the harvest, and scarce and expensive in other seasons (especially in the interval between the planting and harvest seasons). These seasonal fluctuations may be further accentuated by variations from one year to another, especially when excess rainfall, drought, or other extreme weather conditions can disrupt an entire planting and harvesting cycle. These inter-seasonal variations have become more frequent and more severe as the effects of climate change become more acute. Market institutions and interventions typically seek to ensure adequate food supplies and to moderate price increases in seasons and years of scarcity by storing and, when necessary, importing basic food commodities. They also seek to maintain minimum prices and protect farmers' incomes in times of plenty by buying up and storing food stocks, facilitating food exports, and providing mechanisms such as warehouse receipts and commodity exchanges.[9]

Despite the importance of the entire agri-food market system, Governments often have different goals, and may accord different weights to different performance criteria, based on their Governments' political priorities. It is not the purpose of this analysis to assess these political choices and priorities, but rather to show how they guide the actions of market institutions in regulating the operation of agri-food markets.

Many countries, for example, have given priority to the needs of urban populations, and have regulated markets to limit the cost of basic food commodities for urban consumers, typically with price controls, subsidies, or direct operation of distribution channels. Governments of the countries have prioritized rural incomes and benefits to farmers through price supports or import tariffs and quotas. There are trade-offs to either set of choices: favoring urban consumers can work to farmers' disadvantage and can reduce a country's agricultural production and productivity. This occurred in Nigeria following the discovery of oil, and the devastation to the agriculture sector was compounded by "Dutch disease," appreciation of the currency that made it cheaper to import food than to produce it domestically. Japan, partly because prosperous farmers are an important part of the political base of the ruling Liberal Democrat Party, has kept food prices high by imposing high import tariffs, stringent import

[9] Mangisoni, J. (2006), "Markets, Institutions and Agricultural Performance in Africa," *ATPS Special Paper Series*, No. 27, pp. 2-7.

quotas, and product standards to keep out cheaper imports, as well as by keeping in place an inefficient and fragmented domestic distribution system.
Food security and affordable food prices have become a pressing concern as a result of high rates of urbanization in many countries. In many OIC and non-OIC countries, rising urbanization has shifted Governments' policy priorities from promoting agricultural production and rural livelihoods to maintaining low – and sometimes artificially low – urban food prices. Inefficient agricultural market systems may drive up food prices. The over-reliance on food imports or rigid restrictions on food imports, combined with inefficient domestic production and distribution, may also drive up food prices in urban areas, reducing purchasing power and food security. Inefficient market systems also impede development of exports, of both basic food commodities and cash crops such as cocoa, coffee, tea, rubber, and oil palm.

In some countries, such as the United States and many other Organisation for Economic Co-operation and Development (OECD) countries, inter-sectoral shifts and subsequent rises in real wages economy-wide, though they have not led to reverse migration from urban to rural areas, have been accompanied by significantly increased agricultural productivity. This does not appear to be the case in the less-developed OIC member countries, in which urbanization has not led to increased real wages or productivity, either in the urban or the rural segments of the economy, as urban unemployment has remained persistently high. Without rises in real wages, Governments have faced pressure to keep urban food prices artificially low with food subsidies, agricultural price controls, and import tariffs and quotas. These policy actions, though they may satisfy, at least temporarily, demands by urban populations for lower food prices, have increased burdens on the farm sector and have impeded agricultural productivity growth.

Efficient agricultural market systems are needed to ensure the delivery of inputs such as seed and fertilizers; improve farming techniques through extension services and agricultural research; reduce losses and raise the quality of produce through better post-harvest handling, storage, and distribution; apply health and safety standards; and make agro-food products competitive in export markets. While some countries attempt to curtail exports of certain commodities through export levies (e.g. palm oil in Indonesia)[10], exporting can, in turn, help a country to specialize in one or more economic activities where it may be able to develop a competitive advantage based on natural resource endowment, climate, geographical location, and business environment. In this way it can develop sustainability through trade advantage, fulfilling its other needs in the global marketplace.

Finally, environmental and climate-related issues may put agricultural productivity at further risk, thereby increasing countries' vulnerability to external shocks affecting agricultural production and further challenging aspirations of food self-sufficiency, food security, and rural development. Efficient agricultural and food markets can – to some extent – mitigate these risks but require efficient participation from private sector participants as well as Government intervention in the form of market institutions which facilitate an efficient exchange between private sector participants and, therefore, a well-performing agricultural market. .

Thus, agricultural and food markets are a priority area for nearly every Government, regardless of income level. Consequently, it is possible to draw important lessons and identify

[10] Indonesia Investments (2017), Palm Oil, available at https://www.indonesia-investments.com/business/commodities/palm-oil/item166 [Accessed June 2017].

best practices in governance of agricultural and food markets from OIC members and non-members alike, which will be explored throughout this study. Governments throughout the world have recognized the need to revitalize, and increase productivity in, their agriculture sectors, as it can't be left alone to the private sector (Section 1.2.2). Hence, Government intervention complements private sector participation (Section 1.2.3).

1.2.2 Private Sector Participation in Agricultural & Food Market

Private sector participation concerns domestic invest as well as foreign direct investment (FDI) conducted by multinational agro-industrial enterprises. Many Governments have increasingly recognized the latter as an avenue for socio-economic growth that may also simultaneously help address challenges related to efficient agricultural markets, which can contribute to food security, self-sufficiency, equal access to food, stable food prices, and rural poverty, in part through enabling food value-addition and processing. This can be specifically tied to the potential of FDI to expose the local economy to state-of-the-art and innovative technologies as well as superior experience, knowledge, expertise, and capabilities to increase the competitiveness of a country's (agricultural) sector. This often occurs through spill-over of such technologies and innovations to the local economy (i.e. "multiplier effects" or "positive externalities"), eventually encouraging domestic investment as well.

The number of global FDI projects in the agriculture and food sector (not including mergers & acquisitions) has gradually risen from 182 in 2006 to 322 in 2013 (**Figure 2**). However, value of capital investment of these new FDI projects is volatile. The projects represented a total value of US$18.21 billion in 2009, after which the total value declined to US$10.46 billion in 2014.

Recently, the annual number of newly established FDI projects has remained constant, ranging from 300 to 350 FDI projects since 2013, representing between US$13.5 and US$14.5 billion. However, the number of OIC Member Countries receiving shares of these FDI flows remains limited.

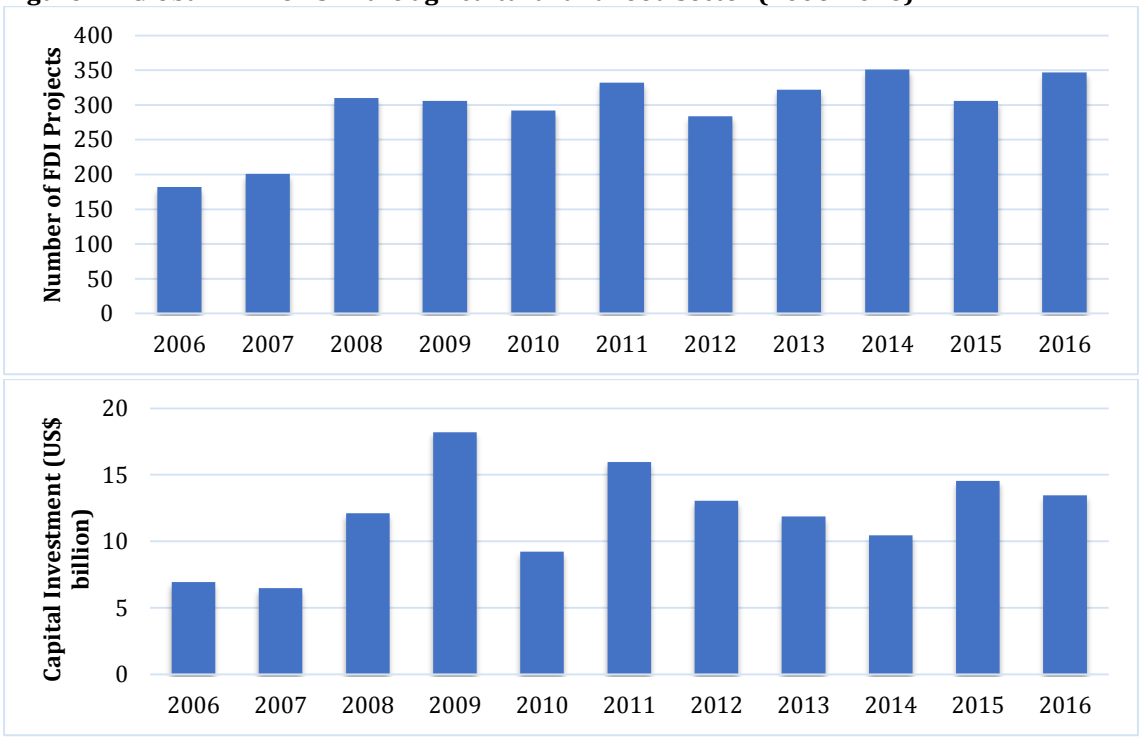
However, FDI undertaken by MNEs as well as domestic investment cannot by itself improve the performance of local agriculture and food markets. The ability of these investments, like that of large-scale domestic investments, to raise productivity and to modernize the sector by introducing innovative and sustainable technologies and management practices, is often limited by poor infrastructure, high losses and waste, high transaction costs, and an unfavorable business environment. For FDI and domestic investment in large-scale agriculture and food processing to deliver gains in productivity, food security, export expansion, and rural incomes depends above all on appropriate policies and effective functioning of agriculture and food market systems in the host countries.[11]

Leaving the agricultural market exclusively to the private sector lets market forces to determine supply, demand, price, and allocation of food, which may not always support Governments' agricultural policy objectives. In fact, market failures may lead to inefficient agricultural markets. Therefore, despite the potential of the private sector in terms of realizing

[11] Shiferaw, B. & Muricho, G. (2011), "Farmer organizations and collective action institutions for improving market access and technology adoption in subSaharan Africa: Review of experiences and implications for policy," in ILRI (eds.), *Towards Priority Actions for Market Development for African Farmers*, pp. 293-313, Addis Ababa: International Livestock Research Institute.

well-performing agricultural markets and addressing issues to food security, equal access to food, food price stabilization, and food self-sufficiency, Government intervention is justified to complement private sector participation and, in fact, facilitate private sector investment. Government interventions - and the market institutions that implement them - are in most cases a Government response intended to mitigate or overcome these market failures.

Figure 2 – Global FDI flows in the agricultural and food sector (2006-2016)



Source: Investment Consulting Associates – ICA (2017), based on data from fDiMarkets.com (2017)

1.2.3 Government Intervention in Agricultural & Food Markets

As a result, Governments everywhere across the globe intervene in the agricultural and food sector to address market failures and realize policy objectives related to food security, food self-sufficiency, rural poverty, reasonable and equal food prices, competitiveness, industrialization, and rural economic development, thereby complementing and facilitating private sector participation.

Market failures in agricultural markets can have especially acute consequences compared to other markets, since it can be difficult to achieve contradictory policy objectives such as guaranteeing high producer prices on the one hand (i.e. to support farmers' incomes and as an incentive to increase production) and low intermediate or consumer prices on the other hand (i.e. to provide food at reasonable and stable prices to poorer segments of society and to make value-added food processing commercially viable). Agricultural market failures include information asymmetries, high transport and transaction costs, and unclear or limited property rights[12], all of which limit markets' ability to provide the desired social benefits,

[12] Ibid

which in addition to food security often include attracting large-scale investment in agriculture and agro-processing, linking smallholders to global market systems, and enabling domestic agro-food producers to compete with imports and succeed in export markets.

Government interventions - and the market institutions that implement them - are in most cases a Government response intended to mitigate or overcome these failures. It is important to emphasize again that non-Government institutions and interventions (e.g. private sector participation as explained in Section 1.2.2) also can play an important part in overcoming some market failures, especially when they are coordinated with public sector interventions and institutions. Moreover, the nature of these Government interventions in a given country is determined by high-level political and economic objectives and development strategies.

The nature of Government intervention in the agri-food sector can be classified into five forms of market intervention:

1. Input subsidization and taxation mechanisms

Inputs such as planting seeds, fertilizers, pesticides, machinery, and other agricultural equipment may be (partly) subsidized by Governments to ensure equal and fair access to high-quality inputs to improve the agricultural market system's performance – both in quantity as well as in quality. Input subsidization practices have a long tradition across the globe but take many different shapes and forms. Examples include Malawi, provided fertilizer subsidies since the mid-1970s, which were suspended in the early 1990s as part of liberalization efforts.[13] However, the Government of Malawi introduced targeted starter packs of seed and fertilizer in the late 1990s, complemented by universal subsidies on fertilizer in 2005 and 2006. Sri Lanka has subsidized the cost of fertilizer since 1962 with a short interruption in the early 1990s. India initially introduced subsidies in the 1960s to support the implementation of the green revolution, with major subsidies to keep down the costs of fertilizer, irrigation water from public systems, and rural electricity.

2. Output price control mechanisms

Price supports and controls on agricultural commodities are also common. The OECD estimates that output price controls and similar mechanisms account for about 60% to 70% of total agricultural assistance in OECD countries while countries like Brazil and Pakistan and a number of North African and Transition Countries apply price support mechanisms to control consumer prices.[14] Governments may fix or control prices, through price caps or price support mechanisms complemented by quantity restrictions (e.g. customs tariffs and trade restrictions), depending on whether their objective is to guarantee low consumer prices, provide low-cost inputs to domestic food processors, or encourage domestic production of primary commodities. It is common for countries to apply one set of instruments to one commodity and a different set of instruments to another.

[13] Wiggins, S. & Brooks, J. (2010), "The Use of Input Subsidies in Developing Countries," *OECD Working Paper*, presented to the Working Party on Agricultural Policy and Markets, 15-17 November 2010, pp. 10-14.
[14] Lundberg, M. (2005), "Agricultural Market Reforms," in World Bank Group (eds.), *Analyzing the Distributional Impact of Reforms*, pp. 145-153, Wageningen: World Bank Group.

3. Quantity restrictions

Quantity restrictions can be imposed on both supply and demand side. These restrictions typically include customs tariffs, trade restrictions, and import quotas fixed by the Government. The Government of Sri Lanka operates a coupon distribution program in response to the situation where domestic demands exceed domestic supply while import is restricted through quantity restrictions.[15] A number of African countries (e.g. Ethiopia, Guinea, and Mozambique) and Transition Countries still impose quantity restrictions on domestic production.

4. Public Sector Market Operations

Governments of many countries intervene in their agricultural markets through direct operation of some elements of the agricultural market system. Governments, in order to ensure food security, often develop, and operate, warehouses to store staple commodities as well as essential inputs such as seed and fertilizer to ensure stability of supply and moderate price fluctuations in times of shortage. Such activities may also include actual production (typically through state-owned economic enterprises such as Government farms and plantations), collection and consolidation of agricultural produces, transport, distribution, and trade. Direct market activities also concerns the creation of marketing boards, which were involved in marketing, processing, trade, transport, and logistics, and which enjoyed different degrees of monopoly and monopsony power. Direct market operations – especially marketing boards – are frequently implemented around the globe. For instance, countries in Sub-Sahara Africa have a particular strong legacy when it comes to direct market interventions as many countries were characterized by Government-controlled agricultural and food market systems. Government intervention in marketing and production of basic staple food crops was strong in Eastern and Southern Africa while export-orientated marketing boards ware particularly dominant in Western Africa.[16] Examples of countries where such intervention practices were common include Benin, Cameroon, Ghana, Ethiopia, Kenya, Malawi, Mali, Uganda, Zambia, and Zimbabwe where marketing boards ranged from relatively small and weak ones to strictly nationalized industries, where private trade was banned altogether.[17]

Such direct market interventions are intended to - either directly or indirectly - fulfill policy objectives such as food security, food self-sufficiency, moderate and stable food prices, and support to rural incomes.

5. Public Support to Producers and Intermediaries

Governments typically provide a wide range of services to agricultural producers and other market participants. These include market intelligence, agricultural research, quality assurance, establishment and application of standards, quality certification. Nearly every country provides such a form of public support to producers and intermediaries. For instance, most Governments supported the creation of agricultural-specific research centers and departments, typically under the supervision of the Ministry of Agriculture and part of a

[15] Ibid
[16] Sarris, A. & Morrison, J. (2010), Food Security in Africa: Market and Trade Policy for Staple Foods in Eastern and Southern Africa, pp. 79-80, Cheltenham: Edward Elgar.
[17] Lundberg, M. (2005), "Agricultural Market Reforms," in World Bank Group (eds.), *Analyzing the Distributional Impact of Reforms*, pp. 145-153, Wageningen: World Bank Group.

university or college, typically mandated to provide extension and training services to small-scale farmers. Moreover, most Governments established dedicated food quality certification bureaus, services, and organizations to certify domestic food producers (e.g. for Halal and organic food), complementing international certification bureaus in order to comply with global food safety initiative schemes.

Governments implement these five types of agricultural market interventions to achieve agriculture and food policy objectives. To administer these interventions, Governments have established market institutions such as state-owned economic enterprises, marketing boards, commodity regulation authorities, extension services, animal health and plant protection services, public warehouses, the union of Chambers of Commerce, commodity exchanges, and state-owned agricultural finance institutions. Many Arab countries, especially those with persistent food production deficits and high import requirements, have historically had Ministries of Supply or similar Government bodies responsible for purchase, storage, and sale of (mainly agricultural) commodities. Indonesia has a Ministry of State-Owned Enterprises which, among others, is responsible for managing agricultural market institutions, while Turkey also has specific Government agencies to administer its state-owned economic enterprises. More recently, however, many countries have phased out these institutions in favor of more market-based mechanisms as will become clear in Chapter 2.

1.3 Introduction to Agricultural & Food Market Institutions

The first two Sections of this Chapter framed the context of agricultural and food market institutions in they introduced the characteristics of *general* markets, market systems, and market participants (Section 1.1), after which the nature of *agri-food* markets, market systems, and market participants (Section 1.2) are explained, as well as the motives and forms of Government intervention in agri-food markets.

This Section specifically elaborates on this background as it explores what kind of agricultural market institutions are used by Governments to implement the five forms of market intervention as identified in Section 1.2.3 (i.e. input subsidization and taxation mechanisms, output price control mechanisms, quantity restrictions, public sector market operations, and public support to producers and intermediaries). It briefly describes nine key groups of agricultural market institutions, after which six are selected given their exact purposes with respect to market intervention.

1.3.1 Purpose and Types of Agricultural & Food Market Institutions

Agriculture and food market institutions may directly intervene in markets in several ways. Regulatory authorities can set and enforce the rules by which markets operate while other institutions ma act as direct input suppliers, commodity producers, exporters, importers, wholesalers, or warehouse operators. They often provide a wide range of facilitation services and market platforms, including agricultural research, extension services, standards bureaus, inspection and protection services, commodity exchanges, financial institutions, and marketing boards. And they often intervene in markets by directly producing, imposing price controls, and providing price supports and subsidies, which often constitute the bulk, in monetary terms, of Government intervention in agricultural markets.

In addition, institutions such as cooperatives, producers' associations, and exporters' associations, often serve to increase the market power of producers, exporters, traders, and transporters and to advocate for market reforms. They may also set quality standards and develop and maintain brand images for certain products, sometimes in cooperation with public sector trade or import promotion organizations.

The composition of these agricultural and food market institutions depends on their objective, mandate, legal form, and organizational structure they take. These agricultural market institutions can be classified into nine types:

- **Commodity market regulation authorities** – Commodity market regulation authorities directly shape the agricultural and food market through rules and regulations on, for instance, property protection, governance, accountability systems,[18] quality standards and grade, anti-monopoly regulation, and price controls.[19]

- **Cooperatives** – Cooperatives have the potential to reduce market and transaction costs by coordinating production, transportation, improving bargaining power (and hence counterbalancing imperfect competition), and distributing credit or subsidized inputs. Cooperatives may also provide training and education to members,[20] but their main purpose is to carry out collective commercial activities such as common processing, branding, marketing, and distribution; development and application of quality standards; and purchase of inputs).[21]A number of OIC Member Countries' Governments actively intervened and supported the development of cooperatives but which failed to deliver their expected roles. In response, cooperatives have been privatized and operate more autonomously. A key to success for cooperatives is control, by the primary producers, through direct ownership or contractual arrangements backed by the producers' common market power, of the downstream processing, marketing, and distribution elements of the market system. Without such control, the producers are price-takers and their share of the overall proceeds from the market systems tend to be much smaller. US cooperatives such as Land o' Lakes (dairy), Ocean Spray (cranberries), Welch's (grape jams and juices), and Blue Diamond (tree nuts), in which growers/farmers control, through the cooperative, the entire downstream market system, illustrate this principle. Within these principles, cooperative members generally receive a share of the profit from the cooperative's commercial activities.

[18] Shiferaw, B. & Muricho, G. (2011), "Farmer organizations and collective action institutions for improving market access and technology adoption in subSaharan Africa: Review of experiences and implications for policy," in ILRI (eds.), *Towards Priority Actions for Market Development for African Farmers*, pp. 293-313, Addis Ababa: International Livestock Research Institute.
[19] Mangisoni, J. (2006), "Markets, Institutions and Agricultural Performance in Africa," *ATPS Special Paper Series*, No. 27, pp. 2-7.
[20] FAO/INRA (2016), *Innovative markets for sustainable agriculture - How innovations in market institutions encourage sustainable agriculture in developing countries*, p. 2, Rome: Food and Agriculture Organization of the United Nations and Institut National de la Recherche Agronomique.
[21] Shiferaw, B. & Muricho, G. (2011), "Farmer organizations and collective action institutions for improving market access and technology adoption in subSaharan Africa: Review of experiences and implications for policy," in ILRI (eds.), *Towards Priority Actions for Market Development for African Farmers*, pp. 293-313, Addis Ababa: International Livestock Research Institute.

- **State-owned economic enterprises** – Enterprises and organizations wholly or partly owned, financed, and operated by the Government, carrying out producing, processing and wholesale activities. The degree of autonomy may vary as some decision require approval from the responsible Minister while more operational decisions (e.g. recruitment and finance) may be taken autonomously.[22] Examples include state-owned rubber and palm oil plantations in Indonesia.

- **Marketing boards** – Marketing boards are commodity-specific organizations supervised or operated by Government, which control much of the commodity's market system, from production through to processing, distribution, transport, and trade. Marketing boards may have been granted state monopoly power on trade in a specific commodity, enabling them to set commodity prices, or they may have less extensive powers and act mainly in a facilitative capacity to promote production, consumption, production, and exports, often through the application of voluntary quality marks or certifications. Examples of marketing boards include the Uganda Coffee Development Authority, Dairy Development Authority, and Cotton Development Organization as well as Tunisia's National Oil Board, Cereals Board, and Sugar Company.

- **Licensed public warehousing companies** – A system of licensed warehouses can provide storage, handling, and transportation of agricultural and food products. The main objective of such a system is to link food producers and processers with consumers to improve market range, market coverage, and price consistency.[23] Many developed countries, but few developing countries, have privately-run warehouse systems, principally because agro-food markets in less developed countries are more fragmented and generate insufficient volumes to make private warehouses profitable, as well as lacking the capacity to ensure proper quality control and standardization.[24] Public licensed warehouses can help overcome this challenge. Warehouse facilities can be either be owned and operated by a Government entity or may be developed, owned, and operated by independent private sector entities under license from a Government regulatory authority such as a Ministry of Agriculture. Licensed warehouses, operating under strict Government guidelines, can help ensure uniform quality standards and storage conditions, thus increasing financial liquidity in the market system. Uganda Warehouse Receipt System Authority (UWRSA) and Indonesia's Commodity Futures Trading Regulatory Agency (COFTRA) both are responsible for implementing and administering public warehousing systems in their respective countries.

- **Commodity exchange platforms** – As a market exchange, where agricultural and food commodities are exchanged and traded, commodity exchanges can further reduce risk and inject liquidity into agricultural markets by enabling farmers to lock in a price and profit margin far in advance of harvest, which in turn enables them to purchase

[22] International Livestock Research Institute (1995), *Livestock Policy Analysis*, pp. 111-148, Addis Ababa: International Livestock Research Institute.
[23] Ulas, D. (2007), "EU Market Access: The Way Of Licensed Warehousing System for Turkish Food Producers and Exporters," *Poster Paper prepared for presentation at the 105th EAAE Seminar 'International Market and International Trade of Quality Food Products*, Bologna, Italy, March 8-10, 2007.
[24] Warehouses, whether publicly or privately operated, must be able to ensure uniform standards to stored commodities or, alternatively, to classify them into different grades according to size, quality, or similar dimensions. Without this, commodities cannot be commonly stored but must be segregated into separate storage for each producer's consignment, which makes storage far more expensive and difficult, and financially unviable.

inputs with far less risk. Commodity exchanges typically function well only in markets in which a sufficiently high volume of commodities is produced and traded. Without this, the exchange will lack adequate liquidity and the bid and ask prices will diverge to the extent that a futures contract provides minimal risk protection to the farmer. Regional commodity exchanges can potentially overcome these volume limitations, but it can be difficult to establish effective regulation and oversight among multiple national Governments. Côte d'Ivoire, however, in the early 1990s established a regional securities exchange to serve issuers in the eight West African Economic and Monetary Union (WAEMU) Member Countries, which has been fairly successful (in 2014 it was integrated into MSCI and S&P Dow Jones indices), but this success is based in part on sharing a common currency (the Euro-backed CFA franc) and similar legal and regulatory systems based on French law and reinforced by the OHADA regulatory framework.[25] With similar underlying conditions, a regional commodity exchange could also prove successful, as has for instance been suggested for the Uganda Commodity Exchange.

- **Associations and federations** – Associations and federations are typically non-profit organizations[26] representing companies and other stakeholders active in the agricultural and food sector, improving access to services and facilitating exchange of information. They often work in concert with cooperatives. Such organizations typically conduct policy advocacy in order to improve the business environment, but they also provide research, market intelligence and information as well as training and skills development to members.[27] Such organizations include chambers of commerce, industry, and agriculture, as well as agricultural or farmers' unions, and exporters' associations.

- **Education and research institutions** – Public and private institutions that conduct agricultural research and, often, provide agriculture extension and advisory services and counselling.[28] These may include universities and technical institutes, and agricultural research stations, and they may often work together with international partners**.**

- **Development organizations and donors** – A variety of domestic and international development organizations are active in the agro-food sector. These include UN agencies such as FAO and the World Food Programme (WFP), as well as the Consultative Group on International Agricultural Research (CGIAR), a global partnership of international and national agricultural research institutions funded by a wide range of national Governments, bilateral and multilateral donors, private foundations, and multinational enterprises. These, and many other foundations, Governments, donors, and companies, partner with global, regional, and national

[25] BRVM (2017), A propos, available at http://www.brvm.org/ [Accessed July 2017].
[26] Shiferaw, B. & Muricho, G. (2011), "Farmer organizations and collective action institutions for improving market access and technology adoption in subSaharan Africa: Review of experiences and implications for policy," in ILRI (eds.), *Towards Priority Actions for Market Development for African Farmers*, pp. 293-313, Addis Ababa: International Livestock Research Institute.
[27] FAO/INRA (2016), *Innovative markets for sustainable agriculture - How innovations in market institutions encourage sustainable agriculture in developing countries*, p. 2, Rome: Food and Agriculture Organization of the United Nations and Institut National de la Recherche Agronomique.
[28] FAO/INRA (2016), *Innovative markets for sustainable agriculture - How innovations in market institutions encourage sustainable agriculture in developing countries*, p. 2, Rome: Food and Agriculture Organization of the United Nations and Institut National de la Recherche Agronomique.

agriculture and climate change research institutions on overall research programs and specific research projects.

There is, finally another category of institutions that are not specifically focused on agriculture or food but which strongly influence the operation of agro-food markets. These include Ministries of Finance and associated tax and customs administrations, which set and implement fiscal policies, and apply tariffs and quotas on imported agricultural and food commodities. They include Ministries of Trade and Industry and/or Ministries of Investment, which negotiate and implement multilateral and bilateral trade and investment agreements, and which govern industrial and agricultural investment and are usually responsible for company registration. They include Ministries that govern land use planning, rural development, water, and local Government. They also include Central Banks, which set and execute monetary policies that may cause a currency to appreciate or depreciate, either of which may affect the price of imported agro-food commodities and agricultural inputs and the competitiveness of agro-food exports. They may also include Ministries of Transport or transport regulatory authorities, which may influence the cost-competitiveness of domestic and international road, sea, rail, and air transport of commodities.

This study, however, will only focus on a specific classification of six agricultural market institutions that are the direct institutions used to implement agricultural and food policies and also the main focus of this Study:

1. Commodity market regulation authorities
2. Cooperatives,
3. State-owned economic enterprises
4. Marketing boards
5. Licensed public warehousing companies
6. Commodity exchange platforms

These six types of agricultural market institutions are actively engaged in agricultural markets to concentrate the bargaining power of agricultural and food producers, produce and disseminate market intelligence, develop and administer infrastructure and facilities, support technological improvement, encourage and support agricultural investment and trade, increase the competitiveness of domestic and international agri-food market systems, mitigate price and financial risk to producers, stabilize commodity prices and ensure adequate food supplies.

As mentioned in Section 1.2, agri-food market institutions are instruments to implement, apply, and administer Government interventions in the agricultural market, which, in turn, are needed to address market failures and imperfections. The six selected agricultural and food market institutions have been typically established with the purpose to respond to address specific market risks, failures, and vulnerabilities:[29]

- **Price volatility** – Government agricultural market institutions seek to minimize the effects of volatile commodity prices on farmers' income and productivity.

[29] Lundberg, M. (2005), "Agricultural Market Reforms," in World Bank Group (eds.), *Analyzing the Distributional Impact of Reforms*, pp. 145-153, Wageningen: World Bank Group.

- **Supply volatility** – Trading volumes may be small in thin domestic markets, and supply may be volatile due to seasonal and cyclical variation of products. Market institutions seek to guarantee a stable and sufficient domestic supply of agricultural produce while also moderating price fluctuations and increasing small farmers' market power relative to that of traders, transporters, processors, and other intermediaries.

- **Protecting farmers' income and risk exposure** – Market institutions have been established to ensure or generate sufficient demand to guarantee farmers a reasonable price for their produce, thus also reducing their risks. This can encourage them to invest in future production and more readily adopt new farming techniques and technologies. Market institutions, especially non-Government institutions such as cooperatives, can be instrumental in increasing the collective bargaining power of small-scale agricultural and food producers, enabling them to reduce transaction and transport costs and increase their share of proceeds from the market system. Pineapple producers in Ghana, through growers' and exporters' associations, managed to wrest control of domestic transport and sales from traders and small transporters by collectively negotiating better prices and transport tariffs. This enabled them to establish their own cold stores and packing facilities adjacent to the port and to negotiate competitive tariffs with shipping lines, which in turn enabled them to set up a cooperatively-owned storage and distribution center in France, supplying to supermarkets across Europe.

- **Encouraging agricultural value-addition** – Efficient agricultural market systems may also promote domestic agricultural value-addition and increased production. For instance, agricultural market institutions in Uganda and Rwanda have led to higher value coffee production and the ability to obtain higher prices for Uganda- or Rwanda-branded coffee in export markets. In Côte d'Ivoire and Ghana, market institutions – including some established and controlled by cocoa growers – have helped growers obtain higher prices through exports of Fair Trade certified cocoa beans and also through establishment of companies making chocolate confectionary for domestic consumption and export.

- **Ensuring food for urban consumers** – With increased urbanization, providing secure food supplies to urban consumers and mitigating price fluctuations has become an important function of market institutions, typically achieved through a combination of price controls and food subsidies and/or storage and importation of buffer stocks of essential commodities.

This is where the six selected market institutions can be distinguished from the other three remaining agricultural market institutions, being associations and federations, education and research institutions, and development organizations and donors. The selected six agricultural market institutions have a considerably larger impact on addressing market imperfections and failures while the impact of associations and federations, education and research institutions, and development organizations and donors is more indirect.

1.3.2 Roles, Duties, and Responsibilities of Agricultural & Food Market Institutions

These six selected agricultural and food market institutions may serve different roles, which can be roughly classified as follows:[30]

1. **Exchange functions** – Activities where agricultural goods and products are transferred from one market participant to another. This is the most common notion of a market system as it mediates market transactions, connects buyers and sellers through physical market infrastructure, and facilitates exchange through market intelligence, information, and communication. Exchange functions also include market interventions via subsidies, price controls, import and distribution of buffer stocks, commodity marketing boards, and development and regulation of warehousing systems and commodities exchanges, all intended to reduce price and supply volatility. Market institutions may shorten supply chains or make them more efficient by linking small-scale producers directly to end-consumers, thereby providing an efficient channel in the absence of efficient third party market participants.

2. **Physical functions** – Support to activities where agricultural goods and products are physically moved through space and time. These functions generally involve improvements to or maintenance of physical market infrastructure (roads, transport, storage, warehousing), together with technical support in areas such as post-harvest handling. These functions often involve value addition, by improving the quality of a product (washing of green coffee beans, for example), reducing or eliminating loss and wastage through improved storage and handling, application of quality standards or classifications, packaging, or transformation from a raw into a processed product (cocoa into chocolate, for example, or grapes into wine).

3. **Facilitating functions** – Activities that facilitate the physical and exchange functions and coordinate the market. This is tied to connecting demand and supply through market intelligence and dissemination of market information, provision of working capital and risk-bearing mechanisms (e.g. insurances guarantees, and loans), and facilitation of enforcement mechanisms related to property rights and contracts. Facilitating functions enable producers to respond to market signals and anticipate on customized products and goods desired by consumers. This function also includes training and skills development.[31]

These functions collectively make up the market framework of the agricultural and food sector. This includes the physical facilities and infrastructure connecting the various market participants, market intelligence and information, and the institutional and regulatory framework (e.g. regulations, quality standards and grades, and relevant legislation and policies).[32]

[30] International Livestock Research Institute (1995), *Livestock Policy Analysis*, pp. 111-148, Addis Ababa: International Livestock Research Institute.
[31] FAO/INRA (2016), *Innovative markets for sustainable agriculture - How innovations in market institutions encourage sustainable agriculture in developing countries*, p. 2, Rome: Food and Agriculture Organization of the United Nations and Institut National de la Recherche Agronomique.
[32] International Livestock Research Institute (1995), *Livestock Policy Analysis*, pp. 111-148, Addis Ababa: International Livestock Research Institute.

The market institutions execute these functions across the agricultural market system's channels or stages, including:

- **Production** – Activities concerning the production of agri-food products, such as planting, sowing, spraying, irrigating, fertilizing, cultivation, growing, tapping, tillage, and harvesting. Key market participants include smallholders, farmers associations, and input providers.
- **Handling and storage** – Post-harvest and collection activities required to prepare the transformation of agri-food produce. Key market participants include large agro-enterprises; smallholders; farmers' associations; logistics, storage, and warehouse companies; transporters; and traders.
- **Processing and packaging** – Includes primary and secondary value-addition activities such as shredding, drying, washing, roasting, blending, brewing, grinding, milling, creping, assembling, and packaging, Key market participants include processors and machinery suppliers.
- **Distribution and market** – Includes distribution and transport activities to exchange the processed agri-food products from processors to the market. Key market participants include logistics companies, distributors, wholesale markets, and exporters.
- **Consumption and trade** – Includes the final consumption of the product by rural and urban consumers as well as exportation. Key market participants include domestic and international consumers, retailers, logistics companies, and trading companies.

Finally, market institutions have specific roles and responsibilities with regards to the adoption of more innovative, sustainable, productive, and efficient agri-food practices and techniques. An organized and coordinated network of institutions and market participants is required to facilitate their adoption, in which the role of agricultural market institutions is to provide information, reduce information asymmetries, mitigate conflicts, and institutionalize cooperation in the context of innovation systems.[33]

Institutional innovation is typically characterized by three stages:[34]

- Emerging institutional innovations – Piloting, testing, and pioneering with innovative institutions. Nigeria's Community-Based Farming Scheme (COBFAS) of the Federal University of Agriculture, Abeokuta (FUNAAB) functions as an example of an innovative program, which has been designed with the aim to link sustainable agricultural practices with markets. COBFAS was established by FUNAAB, a specialized agriculture-based universities with mandates of teaching, research and extension, in December 2010. COBFAS revolves around a new approach of training agricultural students by exposing them to current agricultural challenges through lectures, practical skills acquisition sessions, practical attachments with farmers, and operation of an organic produce kiosk where trainees' products are sold. More than 60 modern future farmers have been trained under the COBFAS.

[33] FAO/INRA (2016), *Innovative markets for sustainable agriculture - How innovations in market institutions encourage sustainable agriculture in developing countries*, pp. 57-280, Rome: Food and Agriculture Organization of the United Nations and Institut National de la Recherche Agronomique.
[34] Ibid

- Developing institutional innovations – Developing the innovation so that it can be taken to a next level and they can be distinguished from traditional institutional approaches. The Islamic Republic of Iran introduced Integrated Pest Management (IPM) as an approach in the 1960s in response to addressing the negative effects associated with applied intensive agriculture technologies and the impacts of the green revolution on human health and the environment. The initial attempt was not successful and led the Government of Iran to further develop IPM according to the Farmer Field School (FFS) concept as the solution to the socio-technical and institutional shortcomings of conventional approaches in Iran. The first IPM/FFS was established in 1999 and empowered farmer communities to acquire necessary decision-making skills for individual and group action towards sustainable production.

- Converging institutional innovations – Innovative institutions gain momentum through a critical mass of participants implementing the innovative institutions. In Benin, the Songhai Centre's integrated production model is an example of a converging institutional innovation. This production model is considered innovative in the sense it creates a solid and integrated network of regional hubs that excel in sustainable production and which have established local markets for sustainably produced goods that are accessible and affordable for the majority of Benin's population.

1.4 Conceptual Framework for the Study

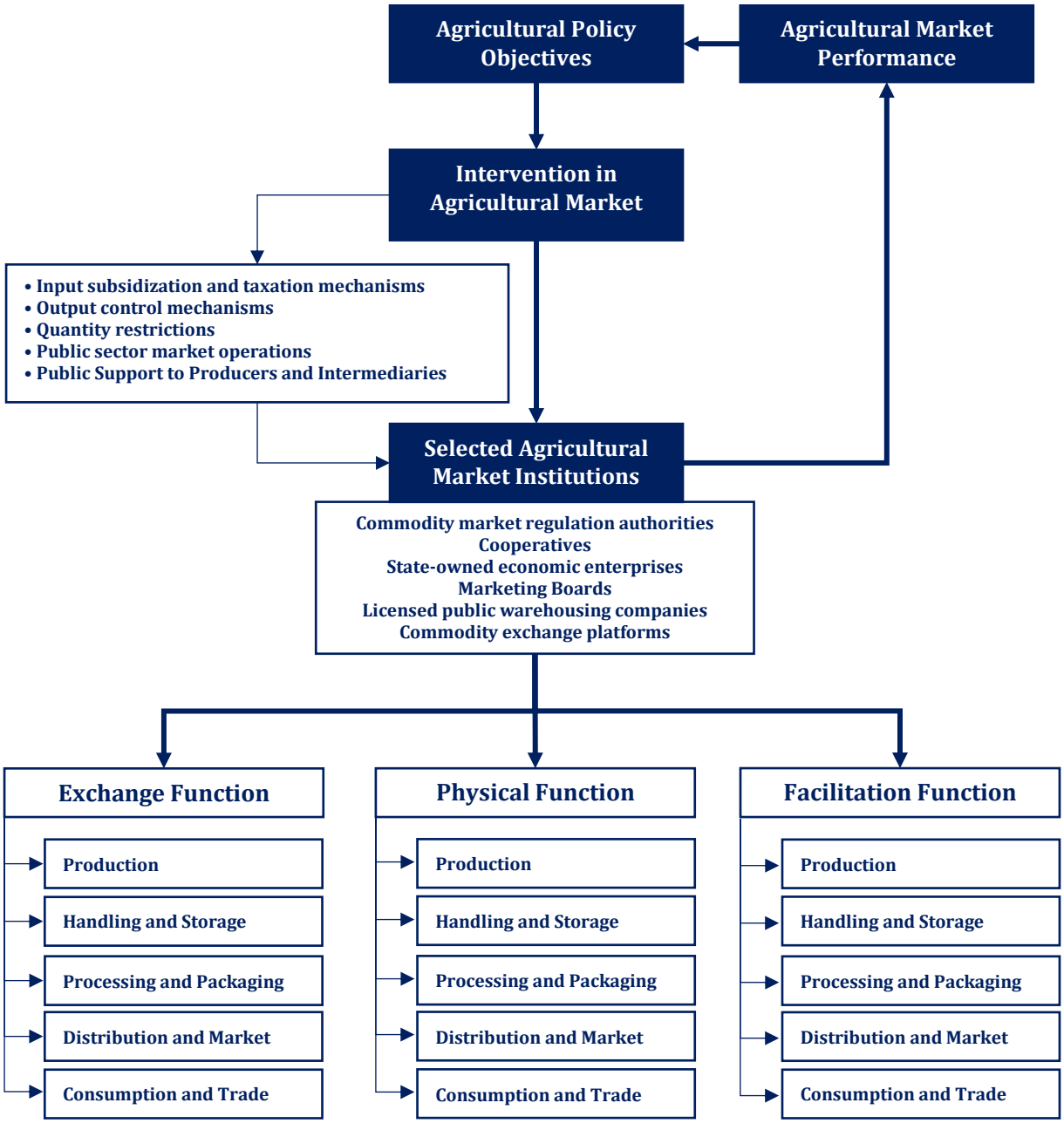
Bringing together the previous sections on market systems, the agricultural and food market, and the position of agricultural market institutions leads to the Conceptual Framework of this study (**Figure 3**). The agricultural and food market is a strategic sector for nearly all OIC Member Countries given its potential to address some of the most pressing concerns. A well-functioning agricultural sector can support Governments to realize (agricultural) policy objectives such as food security, food self-sufficiency, food stabilization, equal and fair access to food, and reasonable prices. In a broader sense, a well-functioning agricultural sector may support policy objectives such as competitiveness, industrialization, and rural poverty alleviation. Therefore, it is not surprising improving agricultural market performance is the heart of the economic growth in most of the OIC Member Countries and is a fundament of the COMCEC's strategy.

Governments rely on a number of agricultural market institutions to actively carry out these types of agricultural market interventions. These market institutions are classified and defined as follows:

1. **Commodity market regulation authorities**, which directly shape the agricultural and food market through rules and regulations on, for instance, property protection, governance, accountability systems, quality standards, and grades.
2. **Cooperatives**, which coordinate production, transportation, improve bargaining power (and hence counterbalancing imperfect competition), and distribute inputs.
3. **State-owned economic enterprises**, which carry out producing, processing and wholesale activities on behalf of the Government.
4. **Marketing boards**, which are commodity-specific organizations responsible for various parts of the commodity's market system such as production, processing, distribution, transport, and trade, as well as promotion of domestic consumption and exportation.

5. **Licensed public warehousing companies**, which provide stocking, warehousing, storage, handling, logistics and transportation of agricultural and food products.
6. **Commodity exchange platforms**, which are market exchange places where agricultural and food commodities are exchanged, traded, monitored, and supervised.

Figure 3 – Conceptual Framework of Market Institutions



Source: Investment Consulting Associates – ICA (2017)

The Conceptual Framework, including the classification of the market institutions presented above, is the basis for the analysis presented in the remainder of this study. Subsequent chapters will explore how institutions have been created with the aim of improving both the efficiency of agricultural markets and their ability to fulfill important social objectives, in both OIC Member and non-Member Countries. The discussion will include analyzing the rationale for their creation, their structure, and their operations. It will explore how these have evolved over time, and will also identify and discuss the underlying reasons for successes and failures of selected institutions and market interventions.

The study also provides an overview of the current situation of agricultural and food market institutions in all OIC Member Countries, including identification of the key institutions and their enabling legislation, administrative structures, and operations.

Following this, the study assesses the relationship between market institutions market performance, in both positive and negative ways. This discussion is supported by with examples from experiences in both OIC member and non-OIC countries.

The study then undertakes an in-depth analysis of market institutions and interventions in four countries: OIC Member Countries Indonesia, Tunisia, and Uganda, as well as South Africa, a non-member country.

The study finally presents the key findings and observations from the preceding chapters and offers conclusions regarding the effectiveness of different forms of market institutions and interventions, and presents recommendations on measures that OIC Member Countries may adopt both individually and jointly.

Chapter 2 – Developments of Market Institutions in the World

The motivations driving state interference and associated development of market institutions in order to improve the efficiency and efficacy of (agricultural) markets as explained in the Conceptual Framework has changed considerably across space and time. Market institutions have been created with different reasons and ideas to address different challenges and realize different policy objectives. Therefore, their functions and features also evolved differently.

The following Chapter discusses the developments of (agricultural) Government intervention and (agricultural) market institutions in a historical context and shows how these have enhanced – or impeded - the efficiency and efficacy of (agricultural) markets. It concludes with presenting some best practice models for country and commodity groups to demonstrate the latest trends and ideas on the creation and development of market institutions.

2.1 Historical Development of Market Institutions

Government intervention or "economic intervention" in order to correct for market failures, as mentioned in the previous Chapter, and to promote economic growth and welfare has historically been one of the key responsibilities of Governments and is certainly not limited to just the agricultural sector. The first records of the development of markets and market institutions, which have can be traced back to as early as Babylon and the early empires in the Middle East and Mediterranean regions.[35]

However, Government intervention accelerated particularly during the period of Industrialization and introduction of a capitalist market economy. These developments required intervention, which was more aligned with the changing scope, speed, and scale of capitalist economic activities and its impact. Government intervention shifted from more moral obligations such as reducing income inequalities, ensuring equal access and reasonable prices to facilitating fair competition in an industrialized economy. Market institutions such as regulatory authorities developed along with this increasing Government intervention in economic markets, as they had to be re-shaped in response to the growing amount of market information, larger volumes of trade, and more transactions.

The degree of market intervention by Governments and, hence, the development and creation of market institutions, generally reflects changes in political and philosophical perspectives on Government intervention and market economies, and forms the key factor which transforms the attitude towards market institutions. The more liberal perspective, which prevailed at the beginning of the 20th century, perceived Government intervention as unnecessary and impeding market forces, creating economic distortions, and avoiding an optimal allocation of production resources. This view is characterized by a "laissez-faire" approach with minimal Government intervention and, therefore, a minimal number of market institutions.

The ideals of a Welfare State in combination with Keynesian economics, which emerged across the globe after the Second World War, led to a considerable increase of Government intervention and associated market institutions to plan, regulate, facilitate, and manage

[35] Casson, M. & Lee, J. (2011), "The Origin and Development of Markets: A Business History Perspective," *Business History Review*, 85(1), pp 9-37.

economic markets and sectors, provide public goods, and set prices for goods, products, and services.

2.2 Historical Development of Agricultural & Food Market Institutions

The first records of market institutions specifically interfering in the agricultural and food market on behalf of authorities can be traced back to early Medieval Europe.[36] The Dutch city of Gouda, for instance, was granted feudal rights to establish a food market to exclusively trade cheese, which was actually not produced in Gouda itself but in the surrounding country side. The growth of agricultural and food market institutions was driven by rapid urbanization and economic growth, which forced fragmented and inefficient small-scale institutions (e.g. fairs, markets, and travelling tradesmen) to transform into fixed and interconnected institutions with a legal and statutory framework.

Early forms of agricultural market institutions secured low food prices and stable food supplies – especially in times of harvest failure and food shortages - and regulated the exchange of agricultural products for services and manufactured goods, with local institutions licensing marketplaces where such trade of agricultural commodities was allowed. A strong moral duty existed for these market institutions to ensure producers of agricultural commodities did not hoard more than their immediate needs, preventing from excess profits or monopoly power. Early market institutions also introduced and ensured compliance with uniform weights, standards, and grades. An example is the "Assize of Bread," which determined the price of grain vis-à-vis the weight of a standard loaf of bread, and which is one of the earliest examples of a law regulating the agricultural and food market.

Political stability and integration of early modern states as well as a centralization of power (and, hence, market institutions) led to increased integration of agricultural markets, more stable supplies of food, and to improved controls of price volatility. Indeed, many early modern states actively implemented regulations through market institutions for controlling and guiding the benefits of trade, while supporting market development too.

The introduction of capitalism and mass production during this era also impacted the agricultural and food market system, transforming the nature, volume, specialization, geographical range, and size of market channels, particularly food retail, distribution, and wholesale. Supplying large centers of consumers encouraged traders to respond to price differences.

Indeed, modern forms of agricultural market institutions date back to the mid-19th century. In Europe, farmer-owned cooperatives came to dominate dairy production in Scandinavia by the 1890s, having crowded out most capitalist firms,[37] and Government-sponsored agriculture extension services emerged in France, Italy, and the U.K., starting in the 1870s.

In the United States, the Morrill Act of 1862, signed by President Lincoln during the Civil War, created state colleges "of agriculture and the mechanic arts" in the northern United States,

[36] Casson, M. & Lee, J. (2011), "The Origin and Development of Markets: A Business History Perspective," *Business History Review*, 85(1), pp 9-37.
[37] Persson, K. (2010), *An Economic History of Europe: Knowledge, Institutions, and Growth, 600 to the Present,* pp. 85-87, New York: Cambridge University Press.

funded by land-grant provisions that enabled the states to establish and fund their colleges. Subsequently, and also in the United States, the Smith-Lever Act, of 1914 established the Cooperative Extension Service – a tripartite cooperation of federal, state, and local/county Governments, with the state college as the extension agency - "in order to aid in diffusing among the people of the United States useful and practical information on subjects relating to agriculture and home economics, and to encourage the application of the same."[38]

Similar market institutions were rolled out in other parts of the world with the objective to ensure enforcement of quality standards and grades, ensuring fair food prices for both consumers and (poor) producers, and rationalizing the allocation of resources.[39] In particular, the creation of agricultural market institutions such as marketing boards in Africa can be traced back to these times.[40]

The establishment of marketing boards supported agricultural production, as marketing boards were typically granted the mandate and authority to regulate pricing and market of commodities, and especially for cash crops.[41] Marketing boards had been established across the British Commonwealth (e.g. New Zealand Meat Producers Board and the New Zealand Dairy Board created in in 1922, the Australia Queensland Sugar Board created in 1923, and the Australia Wheat Board, created in 1939[42]) but were also found in similar forms in across Africa, Asia, and Latin America. Examples of such marketing boards include the Cocoa Marketing board and the Groundnut, Cotton, and Palm Produce Marketing boards, which were established in Nigeria in 1947 and 1949, respectively.[43]

Such marketing boards were strongly monopolistic in nature, concentrating buyer-side market power and enabling Governments to regulate market prices and facilitate agricultural exports.[44] These marketing boards possessed monopoly power to buy commodities from farmers and involve in exporting with the objective to guarantee low prices for consumers and increase the supply of agricultural products for foreign demand and export purposes. Marketing boards levied high taxes on the agricultural sector to finance industrialization. Cooperatives emerged as market institutions, joining marketing boards. For instance, the cooperative movement in Uganda gained momentum around the 1900s.[45]

Intervention in the agricultural sector remained strong following the Great Depression and the Second World War. Many Governments of new states established in the aftermath of World War II maintained their marketing boards while the US and EU intervened strongly in their agricultural markets. The International Monetary Fund (IMF) and other donor organizations offered funding to countries to intervene in their agricultural sectors in order to

[38] Jones, G. & Garforth, C. (1997) "The History of Agricultural Extension Services," in FAO (eds.), *Improving agricultural extension. A reference manual*, pp. 7-18, Rome: FAO.
[39] Casson, M. & Lee, J. (2011), "The Origin and Development of Markets: A Business History Perspective," *Business History Review*, 85(1), pp 9-37.
[40] Lovelace, J. (1998), Export Sector Liberalization and Forward Markets: Managing Uncertainty During Policy Transitions, available at http://www.africaeconomicanalysis.org/articles/gen/financialmarketshtm.html [accessed May 2017].
[41] Ibid
[42] Barrett, C. & Mutambatsere, B. (2008), Marketing boards, in Blume, L. & Durlauf, S. (eds.), *The New Palgrave Dictionary of Economics*, pp. 2-6, London: Palgrave Macmillan.
[43] Iweze, D. (2014), "A Critique of the Establishment of the Marketing boards in Nigeria in the 1940s," Journal of History and Diplomatic Studies, 10(1), pp. 17-35.
[44] Barrett, C. & Mutambatsere, B. (2008), Marketing boards, in Blume, L. & Durlauf, S. (eds.), *The New Palgrave Dictionary of Economics*, pp. 2-6, London: Palgrave Macmillan.
[45] Uganda Cooperative Alliance (2009), Development of the Cooperative Movement in Uganda, available at http://www.uca.co.ug/publications/coophist.pdf [Accessed May 2017].

counterbalance volatile commodity prices and stabilize food supplies and prices. Such intervention schemes included buffer-stock schemes, buffer funds, and monopolistic marketing boards.[46]

These (monopolistic) marketing boards were implemented as a tool to regulate and control agricultural market,[47] the distribution of agricultural inputs, and for political purposes,[48] while involving in all stages of agricultural market. This includes provision of inputs (e.g. fertilizers, pesticides, seeds, and credit), guaranteed buyer for output, state-owned processing facilities, monopoly on imports and exports, administered domestic prices, and stock-building activities.

In fact, next to export crop marketing boards, staple food commodity marketing boards complemented the (quasi-)Government-led agricultural market system.[49] Strong Government intervention in the agricultural and food market of OIC Member Countries continued in the 1970s though many of these interventions increasingly became perceived as impediments to an efficient agricultural market system as many market institutions, particularly marketing boards, were ineffective, unsustainable, and heavy-handed.[50]

2.3 Recent Trends in the Development of Market Institutions

More recently, market institutions and their function as a market regulatory instrument have been subject to dramatic changes in ideologies. The ebb and flow of mandates, resources, and strategies allocated to market institutions reflected evolving thinking on the role of institutions in improving imperfect markets and addressing inefficiencies.[51]

The 1960s and 1970 have been characterized by strong Government intervention in order to address market failures. Governments were motivated to intervene in the market by means of the development of market institutions to overcome market inefficiencies such as high transaction costs, inaccurate contract enforcement and monitoring, and unclear property rights.

Following the strong Government intervention, more market-orientated liberalization policies emerged in the 1980s, particularly in response to inefficient institutions and Government interventions, which failed to address market failures and, in fact, created distortive incentives, thereby favoring market relaxation over state compression. Many developing countries implemented economic liberalization policy reforms in line with loans provided by the World Bank and IMF, which looked to overcome economic crises by restoring their fiscal balance and public spending with a focus on the private sector. Hence, many Governments withdrew from market interference, consequently leading to a withdrawal of market institutions which had been set up with Government support or which were publically owned.

[46] Varangis, P., Larson, D., & Anderson, J. (2002), "Policies on Managing Risk in Agricultural Markets," *The World Bank Research Observer*, 19(2), pp. 199-230.
[47] Barrett, C. & Mutambatsere, B. (2008), Marketing boards, in Blume, L. & Durlauf, S. (eds.), *The New Palgrave Dictionary of Economics*, pp. 2-6, London: Palgrave Macmillan.
[48] Lovelace, J. (1998), Export Sector Liberalization and Forward Markets: Managing Uncertainty During Policy Transitions, available at http://www.africaeconomicanalysis.org/articles/gen/financialmarketshtm.html [accessed May 2017].
[49] Barrett, C. & Mutambatsere, B. (2008), Marketing boards, in Blume, L. & Durlauf, S. (eds.), *The New Palgrave Dictionary of Economics*, pp. 2-6, London: Palgrave Macmillan.
[50] Lundberg, M. (2005), "Agricultural Market Reforms," in World Bank Group (eds.), *Analyzing the Distributional Impact of Reforms*, pp. 145-153, Wageningen: World Bank Group.
[51] Barrett, C. & Mutambatsere, B. (2008), "Agricultural Markets in Developing Countries," in Blume, L. & Durlauf, S. (eds.), *The New Palgrave Dictionary of Economics*, pp. 2-3, London: Palgrave Macmillan.

This overlapped with policy liberalization and deregulation of global trade. The proliferation of international trade agreements under supervision of the World Trade Organization (WTO) in the 1990s further opened up global markets and facilitated the integration of developing countries into global market systems. This resulted in increased private sector investment and FDI across various stages of market systems, thereby partly substituting the role of traditional market institutions and the vacuum which emerged after withdrawal from Government intervention.

However, the openness of markets to international investors in combination with withdrawal of Government-supported market institutions has resulted in the emergence of large enterprises that dominate various stages of market systems (e.g. intermediary, distribution, and wholesale). The result is non-competitive market channels, where the Government is not in full control, but rather the private sector is.

Hence, more awareness has recently emerged for the need to balance Government intervention through market institutions with private sector involvement. This is also in response to the awareness of consumers and companies concerning sustainable development, reflected in adoption of CSR principles.[52] This brings considerable opportunities and need for agricultural market institutions as to facilitate the implementation of CSR principles.

2.4 Recent Trends in the Development of Agricultural & Food Market Institutions

Recent trends in the development of these institutions reflect the general trends of market institution development as described in the previous section. Promoting agricultural market was a typical Government activity throughout much of the early 1980s.[53] Expansion of public sector involvement in agricultural market has been undertaken through the creation of new market institutions.[54] Indeed, this strong Government interference in agricultural markets is shown by the proliferation of Government (-supported) institutions such as marketing boards, cooperatives, unions, and commodity regulation authorities.[55]

Objectives of these market institutions primarily concerned regulating inputs (e.g. fertilizers, seeds, and equipment) through price controls and subsidies, as well as controlling a stable supply and demand of food commodities with fixed commodity pricing (i.e. below market levels), public storages and processing, and minimum price guarantees. Imposing quality standards and grades and regulating (rather "limiting") private commercial agricultural activities also belonged to the responsibilities of many agricultural market institutions.

This strong Government interference in the agricultural market and the role of agricultural market institutions eventually discouraged agricultural producers from innovating as fixed commodity prices and guarantees created a disincentive for agricultural producers to remain competitive and operate efficiently. Agricultural production and exports stagnated. Moreover,

[52] Van Trijp, H. & Ingenbleek, P. (2010), "Markets, market and developing countries: Where we stand and where we are heading", pp. 9-16, Wageningen: Wageningen Academic Publishers.
[53] Ibid
[54] Poole (2010), "From 'market systems' to 'value chains': what have we learnt sinc the post-colonial era and where do we go?," in Van Trijp, H. & Ingenbeek, P. (eds.), *Markets, market and developing countries: Where we stand and where we are heading*, pp. 17-22, Wageningen: Wageningen Academic Publishers.
[55] Barrett, C. & Mutambatsere, B. (2008), "Agricultural Markets in Developing Countries," in Blume, L. & Durlauf, S. (eds.), *The New Palgrave Dictionary of Economics*, pp. 2-3, London: Palgrave Macmillan.

these agricultural market institutions and interventions – particularly the pricing control policies – became under increased scrutiny given their pressure on Governments' budgets and adverse impact on the efficiency of market channels.

IMF and World Bank programs required Governments to retreat from agricultural market intervention in an attempt to address fiscal imbalances and to redefine the roles of the agricultural market institutions[56] in order to align local prices with world market prices.[57] It became widely acknowledged subsidizing farmers and food for urban consumers simultaneously conflicted, just as achieving food self-sufficiency and promoting exporting commodities.[58] Such agricultural market intervention was fiscally unsustainable. In response, Governments searched to lower production prices, which, in turn, encouraged farmers to undertake other non-agricultural activities or to move into illegal or parallel markets.[59]

Most countries, among many OIC Member Countries, started to reform their agricultural market intervention. Hence, institutional development in the agricultural market of the 1980s and 1990s is characterized as "getting the price right" as opposed to "getting the markets right" sentiment which prevailed throughout the 1970s and early 1980s. The focus shifted to free markets and reducing involvement and interference of Governments in agricultural market.[60]

Uganda's development path is a good example in this regard. Uganda's agricultural marketing system became liberalized[61] and is now particularly private-sector led, as the interference of the Government is limited to regulation, providing extension services, quality assurance, standardization, research, and provision of inputs in order to improve market access.[62] The liberalization of Uganda's agricultural sector started with large-scale privatization of its agricultural state-owned economic enterprises in the early 1990s. Examples include the Agricultural Enterprises Ltd, Uganda Tea Corporation Ltd, Uganda Fisheries Enterprises, Uganda Meat Packers Ltd, Uganda Meat Packers Ltd, Uganda Grain Milling, and the Dairy Corporation.

In Indonesia, a similar pattern can be witnessed, though to a lesser extent. The privatization of Indonesia's state-owned enterprises can be witnessed though only for a number of industries (e.g. cement, telecommunications, mining, energy, pharmaceuticals, construction, highways, steel manufacturing, airlines, and banking). The natural resource sector is exempt from state-owned enterprise privatization. Previous state-owned economic enterprises have merged, however, as is the case with Perkebunan Nusantara III, the holding company of fourteen state-owned subsidiaries engaged in the agricultural sector. Indonesia's National Logistics Board

[56] Poole (2010), "From 'market systems' to 'value chains': what have we learnt sinc the post-colonial era and where do we go?," in Van Trijp, H. & Ingenbeek, P. (eds.), *Markets, market and developing countries: Where we stand and where we are heading*, pp. 17-22, Wageningen: Wageningen Academic Publishers.
[57] Barrett, C. & Mutambatsere, B. (2008), "Agricultural Markets in Developing Countries," in Blume, L. & Durlauf, S. (eds.), *The New Palgrave Dictionary of Economics*, pp. 2-3, London: Palgrave Macmillan.
[58] Lundberg, M. (2005), "Agricultural Market Reforms," in World Bank Group (eds.), *Analyzing the Distributional Impact of Reforms*, pp. 145-153, Wageningen: World Bank Group.
[59] Ibid
[60] Van Trijp, H. & Ingenbleek, P. (2010), "Markets, market and developing countries: Where we stand and where we are heading", pp. 9-16, Wageningen: Wageningen Academic Publishers.
[61] Interview conducted with Ministry of Trade, Industry & Cooperatives in Kampala, June 7, 2017
[62] WTO (2012), *Trade Policy Review: East African Community*, Geneva: World Trade Organization.

(BULOG) exclusive monopoly on importing rice, soybeans, sugar, wheat, wheat flour, and garlic,[63] which can also be tied to liberalization and privatization efforts.

Instead of regulating input and output markets, labor, land, and credit markets were liberalized in combination with abolishing inefficient farmer credit schemes, input subsidies, price control mechanisms, and agricultural extension, which were typical rationales for the creation of agricultural market institutions in previous periods.[64] Hence, monopoly power of state-owned economic enterprises, marketing boards, cooperatives, commodity regulation authorities, unions, and other agricultural market institutions became heavily restricted while private sector firms (e.g. traders, wholesalers, supermarkets, and retailers) and, particularly, multinational corporations increased their presence. The rise of these market participants fundamentally changed the structure and organization of agricultural market systems as they filled the void left behind by the market institutions in certain countries (e.g. Chile, South Africa, and India), controlling the entire market system from farming to retail, increasing contract farming and outgrow schemes.

However, these agricultural market systems functioned inefficiently due to the absence of market institutions, input financing and credit, hardware (e.g. physical infrastructure), and software (e.g. rules and regulations), especially limiting the market access of rural areas, increasing transaction costs, and the hampering efficient market systems. Consequently, market-led growth has only been partially successful[65] as most policy reforms have been incomplete or only partially implemented while some market institutions remained active, impeding the full withdrawal of Government intervention. Examples include the maize sector in southern Africa, the cotton sector in western Africa, and food distribution done by BULOG in Indonesia.[66]

The agricultural policy reforms and the roles market institutions occupied gradually shifted from "getting the prices right" to "getting the institutions right" in response to the deficiencies of the economic development programs through the late-1990s and early 21st century. Agricultural market institutions re-emerged to mitigate market failures, improve market information, reduce transaction costs, and enhance the market system's efficiency, while not exclusively focusing on increasing food production[67] but also addressing concerns of food security, oligopolistic multinational market power, and a dual market system, where an efficient agricultural market system is only accessible for market participants with the right size, scale, and skills. In Uganda, the reconstitution of the Uganda Development Corporation in 2008 is an example of the re-emergence of Government interference though its intervention remains limited and certainly does not concern price controlling (e.g. funding of PPP projects in fruit processing).[68]

[63] FAO (2003), WTO Agreement on Agriculture: The Implementation Experience - Developing Country Case Studies, available at http://www.fao.org/docrep/005/y4632e/y4632e00.htm#Contents [Accessed June 2017].
[64] Barrett, C. & Mutambatsere, B. (2008), "Agricultural Markets in Developing Countries," in Blume, L. & Durlauf, S. (eds.), *The New Palgrave Dictionary of Economics*, pp. 2-3, London: Palgrave Macmillan.
[65] Van Trijp, H. & Ingenbleek, P. (2010), "Markets, market and developing countries: Where we stand and where we are heading", pp. 9-16, Wageningen: Wageningen Academic Publishers.
[66] Barrett, C. & Mutambatsere, B. (2008), "Agricultural Markets in Developing Countries," in Blume, L. & Durlauf, S. (eds.), *The New Palgrave Dictionary of Economics*, pp. 2-3, London: Palgrave Macmillan.
[67] Tollens (2010), "The neglect of food market in developing countries," in Van Trijp, H. & Ingenbeek, P. (eds.), *Markets, market and developing countries: Where we stand and where we are heading*, pp. 23-32, Wageningen: Wageningen Academic Publishers.
[68] Interview conducted with Ministry of Finance, Planning and Economic Development in Kampala, June 7, 2017

Indeed, the neglect of agriculture and agricultural market of the past decades has made way for the revival of the sector and its market system. Global market systems, connecting agricultural markets of developing countries, and their potential as instrument for sustainable developing, poverty reduction, and realizing the Sustainable Development Goals (SDGs) have been widely recognized and have received priority on the international policy-making agendas.

It is in this context - which brings considerable new opportunities for agricultural market - where market institutions have received substantial attention.[69] This particularly concerns their more moral function[70] by providing business development services to individuals, facilitating linkages between (foreign) agro-processors and individuals, and improving the wider business environment[71] to integrate small-scale famers into global market systems, ensuring fair, equal, and accessible food at reasonable prices, and improving the livelihood of small-scale farmers.[72]

As an example, the revival of agricultural market systems is driven by the need for cooperatives, farmer associations, and Government-sponsored cooperatives to increase bargaining power of individual small-scale farmers in order to negotiate contracts with multinational corporations, optimize the market system's efficiency, and realize economies of scale to efficiently purchase inputs and organize extension and training services.[73]

2.5 Selected Good Practices of Agricultural & Food Marketing Institutions

This section reviews some of the best practices for the mandates, structures, and operations of different kinds of market institutions, together with some examples of less successful institutions, which illustrate some of the common failures that such institutions should seek to avoid.

This section has focused largely on African countries**.** More than half the OIC member states are in Africa, and Africa is the region which, given its fragile food security, low agricultural productivity, high population growth, inadequate infrastructure, and poor business climate, as well as its vulnerability to climate change, has the greatest need for well-conceived and well-managed market institutions and the appropriate policies for them to implement. It is important, therefore, to identify agricultural market institutions, both in and outside Africa, that can serve as best practice examples that could be adopted by African OIC Member Countries. It is also important to identify market institutions, especially in Africa, which have failed, and to explore the reasons for their failures. These examples can help governments, in Africa and elsewhere, avoid future failures and adopt good practices.

[69] Van Trijp, H. & Ingenbleek, P. (2010), "Markets, market and developing countries: Where we stand and where we are heading", pp. 9-16, Wageningen: Wageningen Academic Publishers.
[70] Casson, M. & Lee, J. (2011), "The Origin and Development of Markets: A Business History Perspective," *Business History Review*, 85(1), pp 9-37.
[71] Poole (2010), "From 'market systems' to 'value chains': what have we learnt sinc the post-colonial era and where do we go?," in Van Trijp, H. & Ingenbeek, P. (eds.), *Markets, market and developing countries: Where we stand and where we are heading*, pp. 17-22, Wageningen: Wageningen Academic Publishers.
[72] Van Trijp, H. & Ingenbleek, P. (2010), "Markets, market and developing countries: Where we stand and where we are heading", pp. 9-16, Wageningen: Wageningen Academic Publishers.
[73] Barrett, C. & Mutambatsere, B. (2008), "Agricultural Markets in Developing Countries," in Blume, L. & Durlauf, S. (eds.), *The New Palgrave Dictionary of Economics*, pp. 2-3, London: Palgrave Macmillan.

Policy failures, perhaps more than any other factor, have hampered the development of productive agriculture in Africa. "Africa desperately needs the scientific innovations in drought-resistant seeds, in higher-yielding varieties and in water use, fertilizer and pesticide that helped to transform agriculture in other regions. Returns on investments in these key areas will be diminished if deep-rooted policy failures are not tackled. These range from exorbitant transport costs for farm produce to underinvestment in storage and market infrastructure and barriers to intraregional trade."[74]

But the failures do not begin and end with policies. Infrastructure and limited access to finance are also binding constraints to development of effective agro-food markets in many, if not most, African countries. The Africa Progress Panel (APP) has identified the main constraints to food security and growth in agricultural production, productivity, trade, and investment as:

1. **Infrastructure:** "No region has less-developed road networks and energy systems than Africa. Changing this picture will require significant up-front capital spending, prefaced by the development of bankable proposals and the emergence of new business models. The current financing gap has been estimated at around US$48 billion."

2. **Financial Systems:** "No region has a lower level of access to financial services [than Africa]. Only one in five Africans have any form of account at a formal financial institution…Lacking access to insurance, Africa's farmers have to put their meagre savings into contingency funds to deal with emergencies, rather than investing them in boosting productivity. Similarly, lacking access to loans and saving institutions, they are often unable to respond to market opportunities."

It would be misleading, however, to concentrate only on negative experiences and policy and institutional failures. The APP report notes, "It is possible to double Africa's agricultural productivity within five years… African countries can end hunger and malnutrition and become major players in global food markets. It is also vital to unleash the potential of sustainable agriculture and aquaculture to provide food, jobs and export earnings. Some of the requirements for achieving a breakthrough in agriculture are financial. Now is the time for Governments to act on their pledge to spend at least 10% of budget resources on agriculture. But Governments also have to create the right market conditions."[75]

The tremendous interest on the part of some of the wealthier OIC member states in investing in African agriculture[76] is evidence that improving Africa's agricultural productivity is essential not only for the well-being of Africans but also for the food security of many other OIC member states.

[74] Africa Progress Panel (2014), "Grain, Fish, Money: Financing Africa's Green and Blue Revolutions," *Africa Progress Report 2014*, p. 15, Geneva: Africa Progress Panel.
[75] Ibid
[76] COMCEC (2013), "Increasing Agricultural Productivity: Encouraging Foreign Direct Investments in the COMCEC Region," Prepared by Investment Consulting Associates for the COMCEC coordination Office, Ankara: COMCEC.

2.5.1 Commodities Exchanges

"Commodity exchanges are highly efficient platforms for buyers and sellers to meet; primarily to manage their price risks better, but also to improve the marketing of their physical products. They have significant, well-documented development benefits, making economies more inclusive, boosting the links between agriculture and finance, and making the commodity sector more efficient and competitive. Derivatives and commodities exchange markets can help deliver an improved market transparency, financing of commodity chain and financial market participants, hedging, and risk management…As a secondary effect, derivatives and exchanges can result in job creation and enhanced cross-border economic integration by offering venues for the mitigation of key financial and trade risks."[77]

Many African countries have launched commodities exchanges, including OIC members Nigeria, and Uganda. They have all failed or underperformed except for South Africa's, which is the only exchange that does not depend on Government support. They all "suffered from the same flaw: a top-down approach that's better at attracting foreign aid than at improving farming practices and developing transportation and communications networks."[78]

These failures all "suffered from the same flaw: a top-down approach that's better at attracting foreign aid than at improving farming practices and developing transportation and communications networks."[79]

According to the International Food Policy Research Institute in Washington, "Under the right circumstances, exchanges can make sense. But the problem is that conditions for success, such as large trading volumes, a strong financial sector, and a commitment to transparency, don't yet exist in most countries."[80]

Many countries, in Africa and elsewhere, lack the financial sector strength or the critical mass of potential users and transactions needed to support an exchange. Even in South Africa, which has highly developed financial markets, "the agricultural futures market in South Africa remains narrow – in 2009, SAFEX [the South African Futures Exchange, part of the Johannesburg Stock Exchange] reported a total of 12,000 clients for its agricultural platform. As of 2009, it was estimated that hedgers accounted for 60% of open positions– with as largest users commercial farmers and processors. Speculators and arbitrageurs accounted for the remainder; this is a very low percentage, compared to global commodity futures markets."[81]

Speculators and arbitrageurs, who try to profit from discrepancies between spot market and futures prices or between options premiums and theoretical options prices, can play a crucial role in maintaining market liquidity and price discovery. In countries with less-developed financial markets, few funds or individual investors are likely to fill this function.

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[77] African Development Bank (2013), *Guidebook on African Commodity and Derivatives Exchanges*, pp. 85-91, Tunis: African Development Bank.
[78] Bjerga, A. & Davison, W. (2015), "Trading Floors Can't Feed Africa: Exchanges aren't helping farmers as foreign backers hoped," *Bloomberg Business Week*, available at https://www.bloomberg.com/news/articles/2015-04-02/africa-s-commodity-exchanges-fail-to-bring-hoped-for-benefits [Accessed June 2017].
[79] Ibid
[80] Ibid
[81] African Development Bank (2013), *Guidebook on African Commodity and Derivatives Exchanges*, pp. 85-91, Tunis: African Development Bank.

SAFEX has proven successful, however, for several reasons:

1. Most of the large-scale cereals producers use the exchange because the commercial lenders require them to hedge their price risk.

2. SAFEX widely disseminates its market data, and the SAFEX price is widely used as the reference price in forward contracts, including for grain trade in other countries in Southern Africa. "In 2005, this enabled Malawi's government to use SAFEX options to protect itself against the risk of future price increases of its maize imports [and] after this, [when] Malawi became a maize exporter, it used options to protect its export prices. Also, using related financial instruments, it replicated a maize buffer stock,"[82] which made it unnecessary to maintain physical buffer stocks.

3. SAFEX, which was created in 1988 as a currency-trading platform, introduced agricultural futures in anticipation of liberalization of agricultural markets and commodity prices. When agricultural futures trade started in South Africa, there were no applicable laws and regulations, and the exchange essentially operated as a self-regulating organization. This enabled procedures and rules to evolve to meet the needs of the exchange's users.

4. From its inception, SAFEX accompanied its futures trading platform with a strong system for delivery of physical commodities, using transferable silo receipts. It subsequently integrated auctions of physical commodities into its trading platform and later introduced a mechanism that enables buyers to bid for grain deliveries at specific silo locations, thus reducing transaction and transport costs. Together, these innovations created a favorable environment for both spot and futures trades.

Zambia Agricultural Commodity Exchange

The Zambia Agricultural Commodity Exchange (ZAMACE), was started in 2007 by a group of 15 grain traders and brokers. It failed to take off, however, because:

1. "It had a limited capacity to enforce contracts. In the high-risk trading environment in Zambia, market participants had invested in long-term relationships as a way to manage market risk. The exchange had to be able to offer at least the same perceived level of risk mitigation," by screening market participants and enforcing contracts entered into on the exchange, but it was unable to do this.

2. All the brokers on the exchange were also traders in the physical commodity, causing a potential conflict of interest, while "the visibly low volumes on the exchange" discouraged third parties such as banks and brokerages from offering commodity brokerage service**.**

3. "The costs of operating on the exchange exceeded the benefits for many potential participants." An exchange typically has high fixed costs and low variable costs. Because of the low transaction volume, and because ZAMACE had to recover its costs,

[82] African Development Bank (2013), *Guidebook on African Commodity and Derivatives Exchanges*, pp. 85-91, Tunis: African Development Bank.

membership fees and trading fees "had to be kept high in relation to the actual business that members and users could do on the exchange."

4. Low trade volumes and domination of the exchange by a small number of traders caused other operators that might otherwise have joined to fear collusion and to view the exchange as a vehicle for price manipulation.

5. Substantial Government intervention in the maize market, such as import and export restrictions and procurement and sale of grain at non-market prices by the Food Reserve Agency created uncertainty in the physical market.[83]

Bursa Malaysia Berhad

Bursa Malaysia Berhad**,** the Malaysian Securities Exchange, is an exchange holding company under the regulation of the Securities Commission and the Ministry of Finance, under several laws governing the trade of different securities and the respective roles and responsibilities of the Exchange and its regulators. Bursa Malaysia is descended from the Malayan Stockbrokers' Association, founded in 1937, and the Malayan Stock Exchange, established in 1960. It launched its first commodity futures contract, for crude palm oil, in 1980. Today it offers commodity futures contracts for metals and for crude and refined palm oil. The standard crude palm oil futures contract is for 25 MT, and the exchange specifies maximum weight variance; product quality specifications; locations, procedures, and fees for physical delivery. Traders and clearing houses must be licensed and meet minimum capital requirements. Bursa Malaysia has stringent compliance regulations and can impose fines and other sanctions on brokers and clearing houses that breach these regulations.

2.5.2 Marketing Boards

Many countries have had – and many still have – marketing boards, which play varying roles in the production and marketing of agricultural commodities. As has been discussed in previous Sections, several countries, though they have not abolished these institutions, have reformed them to play more of a facilitative rather than a directive or controlling role. Examples in the context of this study include Uganda's Coffee Development Authority and Tunisia's National Oil Board and Cereals Board.

Such marketing boards can play a vital role in assuring domestic food supplies and product quality for both internal and export markets. In countries with well-developed market systems and infrastructure, these functions are often handled by private associations or cooperatives. In countries with less-developed market systems and infrastructure, public sector boards or state-owned economic enterprises often carry out these functions. But it is precisely in these countries that institutional capacity is most limited, thus preventing marketing boards and similar structures from imparting stability to markets. Examples from The Gambia and Cote d'Ivoire, shown below, illustrate such failures. Examples provided elsewhere in this study, from Tunisia and Uganda, among other countries, show how such institutions can succeed if their function is to facilitate effective market operations rather than to control and participate directly in those markets.

[83] Sitko, N. & Jayne, T. (2011), "Constraints to the Development of Commodity Exchanges in Africa: A Case Study of ZAMACE," *FSRP Working Paper*, No. 53, pp. 13-14.

Gambia Produce Marketing Board (GPMB)[84]

Larger than all other Gambian state-owned marketing boards put together, the Gambia Produce Marketing Board (GPMB) had been a mainstay of the Gambia's economy, dating back to pre-independence times. GPMB, established in 1973 from predecessor entities, possessed a monopoly on groundnut marketing, decortication and oil pressing. Throughout the mid-l970s the company amassed huge cash reserves due to the high prices received for its exports and the relatively low prices paid for inputs. GPMB became a cash cow, providing up to 45% of Government revenues and 30% of total domestic investment during the 1970s. The Government expected GPMB to make loans or grants to the Government, to maintain reserves and price stabilization funds, and to provide credit to groundnut producers.

Groundnut prices rise by 142% from 1971 to 1977, but instead of raising producer prices GPMB built up its cash reserves, which it deposited with the Central Bank. Until the mid-1980s, when an economic recovery program sponsored by the World Bank and other donors was launched, GPMB had been obliged to make uneconomic investments and provide various subsidies and guarantees. These included:

- Investments in cotton ginning, soap making, citrus production and feed milling;
- Loans to government;
- Consumer subsidies on rice, fertilizer and local groundnut oil sales;
- Interest on bridging loans obtained by the central bank; and
- Credit in kind to the GCU and the department of agriculture for fertilizer and seed.

Groundnut prices fell in the late 1970s and 1980s and domestic production also fell as a consequence of the Sahel drought. Government, however, directed GPMB to subsidize producer prices by the difference between GPMB's breakeven producer price and the actual price paid to farmers. For example, by the 1982/83 growing season, the export price for decorticated nuts had fallen from a peak of US$356 a ton to US$275, and GPMB's breakeven price had dropped from US$134 to US$90. But on the instructions of Government, GPMB was required to maintain a producer price of US$173 per ton, and so incurred a loss of US$83 on every ton of groundnuts it purchased.

By 1991, shortly after Government, under pressure from donors, decided to privatize it, GPMB's cash reserves were fully depleted and its domestic debt stood at US$7.1 million.

The 1992 privatization of GPMB, now renamed Gambia Groundnut Corporation (GGC), in concert with liberalization of the agriculture sector, was far from perfect. The privatization process lacked transparency and the management contract with the foreign investor incentivized maximization of short-term profit, which hurt farmers' incomes and encouraged smuggling of groundnuts to Senegal, where they could fetch a higher price. But it did produce several beneficial effects, including:

[84] Krakoff, C. & McKeon, K. (1994), "Privatization in the Agricultural Sector in Africa: The Case of the Gambia Produce Marketing Board," Draft Report, PAD Case Studies, Price Waterhouse LLP/Abt Associates Inc., available at http://pdf.usaid.gov/pdf_docs/pnabz237.pdf [Accessed July 2017].

- Increased competition as the Government-dominated Gambian Cooperatives Union (GCU) now had to compete with private traders in the purchase, marketing, and export of groundnuts;
- Increased efficiency resulting from the foreign investor's operational changes and US$3 million in capital investments;
- Improved product quality as the foreign investor revamped equipment and assisted farmers in production and handling techniques.

Produce Marketing Boards in Côte d'Ivoire

In December 2011, a Presidential decree established the rules governing the commercialization of coffee and cocoa and regulation of the cocoa and coffee sector, and in January 2012 a second decree created the Conseil du Café-Cacao as the "body responsible for management, development, and regulation of the coffee-cocoa sector and for stabilization of coffee and cocoa prices."[85,86]

Cocoa and coffee are the most important crops in Côte d'Ivoire, which is the world's largest producer of cocoa, accounting for about 30% of global production by weight, and the 14th-largest producer of coffee, also by weight..[87]

Prior to creation of the Conseil du Cafe-Cacao, CAISTAB (Caisse de Stabilisation des Prix des Produits Agricoles) was responsible for maintaining price stability in coffee and cocoa markets (as well as those for other agricultural commodities). Unlike marketing boards in Ghana and Nigeria, CAISTAB did not handle tasks such as inspection, purchasing, transport, quality control, storage and export. Instead, it paid farmers, through private agents or traders, a preset price and sold the output on the world market, leaving most of the intermediate steps between production and export to authorized traders. CAISTAB also allowed some private exporters to operate under a system of quotas. By regulating farm gate and export prices, CAISTAB effectively profited from arbitrage between the two. The difference between world and producer prices, net of marketing costs, was the CAISTAB surplus (the revenue from cocoa and coffee export taxes). This surplus was an important part of Government revenue: through the early 1980s, cocoa and coffee tax revenue comprised 20 to 40% of Government revenue, but by 1988 world prices had dropped below producer prices and the CAISTAB surplus had turned into a deficit.[88]

Côte d'Ivoire began to liberalize its cocoa market in 1999, lagging substantially behind Nigeria (1986) and Cameroon (1991). The main strands of liberalization were restructuring of the tax regime, elimination the CAISTAB, and allowing some backward integration by multinational firms such as ADM, Barry Callebaut, Cargill, and Nestle.

The results of liberalization were mixed. The abolition of CAISTAB gave more power to exporters and, theoretically, to farmers, and reduced direct state control over both farmers'

[85] Presidency, Côte d'Ivoire (2011), "Ordonnance n° 2011-481 du 28 decembre 2011 fixant les regles relatives a la Commercialisation du Cafe et du Cacao et a la Regulation de la Filiere Cafe-Cacao."
[86] Presidency, Côte d'Ivoire (2012), Decret n° 2012-06 du 16 janvier 2012 portant denomination de l'Organe de Gestion, de Developpement, de Regulation de la Filiere Cafe Cacao et de Stabilisation des prix du Cafe et du Cacao."
[87] Benjamin, D. & Deaton, A. (1993), "Household Welfare and the Pricing of Cocoa and Coffee in Côte d'Ivoire: Lessons from the Living Standards Surveys," World Bank Economic Review Vol. 7, No. 3, pp. 293-318.
[88] Benjamin, D. & Deaton, A. (1993), "Household Welfare and the Pricing of Cocoa and Coffee in Côte d'Ivoire: Lessons from the Living Standards Surveys," World Bank Economic Review Vol. 7, No. 3, pp. 293-318.

and exporters' activities, so that, "Exporters are now free to purchase direct from farmers. The system of débloquage – the need to have Government approval before making a sale in the export market – has also been scrapped."[89]

"The main advantage to farmers of the free market system is that they tend to receive a higher proportion of the prevailing international market price. The margin taken by intermediaries and exporters is relatively small as they are in competition with each other. Generally, farmers in countries with free market systems have been getting, typically, anything from 80% to 85% of the FOB price for their cocoa, while those working under a caisse or board system have usually received less (and sometimes far less) than 50%."[90]

Although liberalization enabled farmers to capture a larger share of export proceeds from their crop, it also increased their vulnerability when prices declined. With the abolition of CAISTAB, the cocoa trade "reverted to a spot market, which led to increased volatility."[91]

Abolition of CAISTAB had other adverse consequences, which included:

- A decline in quality of product delivered to exporters, since the authorities did not provide adequate time and support for other mechanisms or entities (either a state or a private quality control and certification agency, such as an exporters' association) to emerge to replace the quality control function previously exercised by CAISTAB;
- Potential exposure of buyers to greater risk of contract non-performance absent the performance guarantees previously provided by CAISTAB;
- Greater risk of exploitation of farmers by traders, especially in areas where the quantities of cocoa produced are insufficient to support more than one intermediary…"Farmers may…be enticed by intermediaries to take generous advances as credit against future crop deliveries, and thus become indebted to them."[92]
- Research by Wilcox and Abbott (2004) indicates an increase in market power exercised by multinational exporters following liberalization. "It appears that the Government continues to extract rents from its large world market share, but following liberalization those rents are shared with multinational exporters. The markups, [which] include export taxes, range from 30 to 36%... similar to actual export taxes charged by the Ivory Coast Government prior to structural reforms…[Data] suggest the Government still sees and seeks to exploit market power, but that it is now shared with the multinationals."[93]

If true, these findings would indicate that large companies are the main beneficiaries of liberalization and that neither farmers nor Government have benefited to any great extent. In the event, Côte d'Ivoire's experiment with liberalization was short-lived: just 12 years after it

[89] INTRACEN (2001), *Cocoa: A Guide to Trade Practices,* pp. 27-28, Geneva: International Trade Center.
[90] Ibid
[91] Arvanitis, Y. (2014), "Building commodity trade infrastructure in West Africa: bringing "price" back to its source," available at https://www.afdb.org/en/blogs/measuring-the-pulse-of-economic-transformation-in-west-africa/post/building-commodity-trade-infrastructure-in-west-africa-bringing-price-back-to-its-source-13320/ [Accessed July 2017].
[92] INTRACEN (2001), *Cocoa: A Guide to Trade Practices,* pp. 27-28, Geneva: International Trade Center.
[93] Wilcox, M. & Abbott, P. (2004), "Market Power and Structural Adjustment: The Case of West African Cocoa Market Liberalization," Selected Paper prepared for presentation at the American Agricultural Economics Association Annual Meeting, Denver, Colorado, August 1-4, 2004, available at http://www.agecon.purdue.edu/pdf/Wilcox%20Abbott%20%20Market%20Power%20and%20Cocoa%20Markets.pdf [Accessed July 2017].

had abolished CAISTAB and liberalized cocoa and coffee markets, Government created the Conseil du Café-Cacao (CCC) and endowed it with sweeping authority over the entire cocoa and coffee market systems, which in many instances exceed those previously exercised by CAISTAB. Its powers include:

- The ability to act not only as regulator of cocoa and coffee markets but also as a participant. Article 2 of the December 28, 2011 Act state that authorized coffee buyers, in addition to sector associations, individual traders, and companies engaged in trade, include the CCC itself. Yet all other buyers and exporters must have a trading permit, which can be granted only by the CCC;
- To fix prices paid to farmers; and
- To set export prices.

Although the 1999 market liberalization was only partly successful, its abolition has also created problems in the market.[94]

In March 2017, the CCC lowered the guaranteed minimum price for raw cocoa beans by more than 60%, from 1,100 FCFA (approximately US$1.85 per kg.) to 700 FCFA (approximately US$0.34 per kg.), the first significant fall since the 2012 reforms. This resulted in loss of some 300 billion FCFA (about US$500 million) in Government revenues from the cocoa sector. These losses included 43.4 billion FCFA (about US$72.2 million) in export taxes, which Government had reduced in order to support the sector.

The purpose of the 2012 reforms was precisely to avoid this kind of shock, which reminded observers of the failure of CAISTAB to support prices during the 1990s. The creation of the CCC after a decade of turbulence in the cocoa sector introduced what was intended to be a more stable and transparent system of advance cocoa purchases during an entire year leading up to the harvest, covering some 80% of total production. Knowing in advance how much money they would receive for their crop provided security to some 800,000 growers, enabling them to invest with confidence. What caused the system to fail in such spectacular fashion?

The 20% of cocoa production reserved for sale on the spot market directly by CCC was intended to provide a reserve to be used to stabilize producer prices. But the amount of this reserve fund was never made public, and after the 2012/13 season the required annual audit of the fund was never carried out.

More fundamentally, the system was flawed, in that it exposed exporters to price risk. Exporters could sign fixed-price contracts with European and American buyers by paying a 2.5% performance guarantee to CCC, an amount that was lowered to 1% for SME exporters and cooperatives.

These facilities, intended to open cocoa exportation – hitherto dominated by multinational enterprises – to Ivoirian companies, in practice had the opposite effect. Ivoirian enterprises were able to purchase 500,000 MT during the 2016/17 season, as compared to only 30,000 in 2015/16, but they were able to fulfill contracts for only 150,000 MT.

[94]Douet, Y. & Mieu, B. (2017) "Côte d'Ivoire : le Conseil du café-cacao au cœur du chaos," *Jeune Afrique,* , available at http://www.jeuneafrique.com/mag/455359/economie/cote-divoire-conseil-cafe-cacao-coeur-chaos/ [Accessed July 2017].

This failure has been attributed to a lack of controls on and vetting of purchasers, so that small firms or individuals without the means to pay could sign contracts to buy tens of thousands of tons of cocoa. For CCC, "these verification procedures were seen as a cost rather than as insurance, even though CCC had the means to pay for them…Also, in the euphoria then prevailing in the world cocoa market (world prices had shot up from about US$2,100 per ton in 2011/12 to US$3,300 in 2015/16, before falling to less than US$2,000 in 2016/17), no one expected the bottom to fall out of the market, not even Government, which was collecting annual revenues of more than 500 billion FCFA (US$830 million) from cocoa."

When some buyers defaulted on their contracts CCC had to find other buyers at current market prices, which by that time were much lower than the previously contracted prices. Observers also say that CCC failed to act, even as it became apparent that world cocoa prices were in freefall. In January 2017 CCC firmly denied press reports that it would have to cancel contracts for 200,000 to 300,000 tons awarded to buyers who could not honor them. It was not until February that the CCC admitted that some contracts might have to be cancelled, without specifying the quantities involved. This was left to the Ministry of Agriculture, which several weeks later stated that the volume of cancelled contracts would be around 350,000 tons.

At the same time, CCC denied that the replacement of these contracts would entail any reduction in producer prices, but on March 31, the farm gate price was lowered to 700 FCFA per kg. According to some analysts, CCC was hoping for world prices to rebound before the harvest, thus limiting the losses to farmers, and only lowered the producer price when it became clear that this would not happen. In effect, CCC, rather than stabilizing prices, had become an active speculator in the market.

To reduce the losses incurred by some exporters, CCC gave formal notice to all the companies and cooperatives involved, demanding payment of penalties ranging from FCFA 2 billion to 10 billion (US$3.3 million to US$16.5 million), threatening to deny them access to future cocoa purchases unless they made an immediate payment of 10% of the penalty, the balance to be paid over five years. But in negotiations between CCC and PMEX-Coopex, the largest cooperatives association, no agreement was reached.

The risk of future defaults by exporters remains, and by extension so does the price risk to producers. According to some analysts, CCC is taking a speculative position, betting on a rebound in world market prices. These analysts estimate contractual risks for the 2017/18 season at about 200,000 MT.

CAISTAB together with its successor, the CCC, is an example of a produce marketing board that produced opposite effects to those that a produce marketing board is intended to – and sometimes may be able to – produce. Instead of mitigating price fluctuations and protecting market participants from price risk, CAISTAB and CCC interventions amplified price volatility and increased participants' exposure to price risk.

There are many reasons for the failure of these institutions to stabilize markets but some of the main ones are:

- Allowing CCC to act as both regulator and market participant, which led to breach of its fiduciary duty and irresponsible directional bets on prices in an effort to make up for past losses;

- Liberalization in the period between 1999 and 2012 also failed, because it was conducted in a disorderly fashion. Rather than preserve an institution with some power to regulate markets, control quality, and provide some price stability, Cote d'Ivoire abolished its cocoa and coffee market institutions entirely.

- Abolition of CAISTAB removed the surplus reserve that was used to moderate price volatility, while also reducing government receipts from coffee and cocoa exports, proceeds that instead went mainly to multinational enterprises.

2.5.3. Public-Private Collaborations

Cocoa Development Centers in Indonesia

Indonesia is the world's third largest cocoa producer, after Côte d'Ivoire and Ghana. Production has fallen, however, from a peak of nearly 850,000 MT in 2009 to about 350,000 MT in 2016.[95] This decline is attributed mainly to aging cocoa plants, which has led to lower productivity. 95% of the country's cocoa plantations are smallholdings, whose owners lack funds to invest in replacing aging plants, inputs, and better production techniques. Very few of these farmers ferment their cocoa, thus reducing its market value.[96]

Various low-cost methods to address declining cocoa productivity and unsustainable farm practices have been introduced by numerous public and private sector organizations across Indonesia since the 1990s have sought to improve cocoa productivity, with limited success. Indonesian plantations suffer from cocoa borer infestation, and farmers have adopted the intensive use of insecticides, creating sustainability challenges, since the intensive use of agrochemicals has led to soil degradation. "The apparent failure of past technology transfer programs to drive a shift towards more sustainable cocoa farm practices suggests a demand for innovative approaches to farmer-oriented knowledge exchange systems".[97]

Most of Indonesia's cocoa is produced on the island of Sulawesi, where it is a fairly recent introduction, dating only to the 1980s. "When initially planted, cocoa required little management: soils were fertile, hybrid cocoa planting material was available, and pest and disease problems were insignificant, thereby resulting in high yields averaging 1,700 kg/ha. Good financial returns led to expansion of the crop by smallholders who frequently migrated from more densely populated regions of Indonesia to participate in the boom, inevitably encroaching upon what were previously forest lands… the initial boom in cocoa planting [was] facilitated by the "hands-off" approach of the Indonesian Government, allowing space for smallholder dynamism and a highly competitive marketing system. Farmers generally obtained knowledge on farming practices and planting material through informal social networks and the Government did not develop the effective capacity to deliver agronomic or technical support to most farming communities."[98]

Over time, however, soil fertility declined, cocoa plants started to age, and pest and disease problems surfaced. Although the Government promoted integrated pest management techniques, they were labor intensive, and most farmers turned instead to chemical pesticides and synthetic fertilizers, or cleared forest land for new plantations, neither of which could ensure sustainability. By the late 2000s, yields had fallen to about 400 kg/ha.[99]

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[95] Global Business Guide Indonesia (2016), Overview of Indonesia's cocoa industry: lack of supply still hampers growth and investment, available at http://www.gbgindonesia.com/en/agriculture/article/2016/overview_of_indonesia_s_cocoa_industry_lack_of_supply_still_hampers_growth_and_investment_11670.php [Accessed June 2017].

[96] Sikumbang, Z. (2012), "Revolution of Cocoa Industry in Indonesia," Indonesia Cocoa Association, available at http://www.ina.or.id/images/stories/publication/eibd-FB-17Oct12/ASKINDO-REVOLUSI-INDUSTRI.pdf [Accessed July 2017].

[97] Neilson, J. & McKenzie, F. (2016), "Business-oriented outreach programs for sustainable cocoa production in Indonesia: an institutional innovation," in FAO/INRA (eds.), *Innovative markets for sustainable agriculture – How innovations in market institutions encourage sustainable agriculture in developing countries*, pp. 17-32, Rome: Food and Agriculture Organization of the United Nations and Institut National de la Recherche Agronomique.

[98] Ibid

[99] Ibid

Numerous initiatives by donors, which included IFC and USAID, as well as several NGOs, sought to address this problem, with some success. USAID, for example, claimed to have trained 100,000 smallholders on Sulawesi in integrated pest management between 2000 and 2005. The Government, through the Ministry of Agriculture, in 2009 launched its first significant support program to the cocoa sector, the National Cocoa Rehabilitation Program (GERNAS), intended to improve productivity and revitalize the cocoa sector. The program, which operated until 2014 at a cost of about US$100 million per year, aimed to improving 450,000 ha of smallholder cocoa through replanting, rehabilitation (side grafting) and intensified use of fertilizer. However, poor-quality planting material and the absence of well-trained technical support limited its success.

The limited success of these programs in revitalizing the cocoa sector called for a new institutional approach. Previous programs had blamed their lack of success on farmers' "unwillingness" to adopt the new practices and technology and on their lack of awareness of the assistance available to them. A new program, based on a more participatory and business-oriented approach, has proved a more successful collaboration between the Australian Centre for International Agricultural Research (ACIAR) and Mars, Inc., with subsequent involvement of other multinationals, set up a system of Cocoa Development Centres (CDCs), which are knowledge hubs linked to Cocoa Village Clinics (CVCs), in a business-oriented farm extension outreach system that motivates growers to adopt sustainable practices that will increase productivity.

CDCs are established as outreach centres for training, experimentation and demonstration of latest technologies, for developing regionally appropriate techniques, and to test the local suitability of improved planting material. In Sulawesi, CDCs are supported and linked together by a Mars-funded Cocoa Academy, a sort of clearinghouse for technologies and good practices. "CDCs, which cost approximately US$35,000 to set up, are operated by large cocoa buyers and employ farmer facilitators, who are usually local villagers with advanced agricultural education or training. "Unlike previous donor-funded initiatives in Sulawesi, and indeed various 'project-oriented' Government interventions, the companies tend to have a longer-term interest in sustainable supply, and consequently appear committed to longer-term investments. CDCs are responsible for identifying potential 'cocoa doctors' [knowledge/extension agents] living within cocoa communities to establish CVCs as business-oriented spokes. Unlike some other extension approaches, such as FFS, CDCs provide the cocoa doctors with ongoing access to cocoa expertise and ensure continued engagement with farmers. Critically, CDC facilitators are demand-responsive to the specific needs of the cocoa doctors. CVCs themselves are designed to be economically self-sustaining rural enterprises, with continuous technical support from CDCs. Initial costs for establishing a CVC are approximately US$11,000, which is commonly provided in partnership with microfinance institutions, although risk-minimizing mechanisms implemented by CDCs ensure that effective risk exposure is less than US$3,000. CVCs are managed and owned by a cocoa doctor, who is trained by a CDC in both technical and business skills, and who demonstrates the financial benefits of applying an improved productivity package on their own farms."[100]

[100] Neilson, J. & McKenzie, F. (2016), "Business-oriented outreach programs for sustainable cocoa production in Indonesia: an institutional innovation," in FAO/INRA (eds.), *Innovative markets for sustainable agriculture – How innovations in market institutions encourage sustainable agriculture in developing countries*, pp. 17-32, Rome: Food and Agriculture Organization of the United Nations and Institut National de la Recherche Agronomique.

The strength of the model lies in its ability to align incentives among different actors in a way that has typically not occurred in more top-down programs. "In a broader social landscape where cocoa production is declining, and where farmers are exposed to various other livelihood options, cocoa buyers are increasingly conscious of the need to intervene to encourage cocoa farming as part of an attractive livelihood strategy. As a result, important actors along the cocoa and chocolate market system are motivated to invest in the establishment of CDC training centres as a means to ensure long-term supply sustainability."[101]

Sulawesi cocoa has historically been traded on the global market as unfermented, bulk beans, mainly for their butter content. Processors and manufacturers use Sulawesi beans mainly as a filler and blend them with other, more flavourful fermented beans. There has historically been insufficient price differentiation to encourage farmers to invest in producing higher-quality cocoa beans (e.g. through fermentation). Nevertheless, intense competition among buyers meant that, even in the 1990s, Indonesian cocoa farmers were receiving a much higher share of the international price (89%) than farmers in Côte d'Ivoire (50%) and Ghana (63%).[102]

In 2010, Indonesia introduced an export levy on cocoa, ranging from 5% to 15% of export value, to encourage a shift from raw cocoa exports to domestic grinding and processing. In 2009, 77% of the crop was exported, but by 2012 an estimated two-thirds of the crop was processed domestically. Though this caused a number of traders and exporters to go out of business, but domestic employment in the processing industry has more than made up for these losses. The increase in domestic grinding capacity has led to a shortage of domestic supply, despite the export levy, and an increase in imports. In 2016 Indonesia imported 61,000 MT of unprocessed cocoa beans, representing an annual increase of 27% by weight and 34% by value. This, despite a 5% import tariff applied to all imports except those from other ASEAN countries, principally Malaysia, which is the second-largest supplier after Ecuador.[103]

Research in the Polewali district of Sulawesi found that the share of the world price received by farmers increased from 67% in 2008 to 79% in 2012, *primarily as a result of increased competition among domestic processors since the introduction of the 2010 export tax*.[104]

Several multinationals, including Barry Callebaut, Cargill, and Olam, have made substantial investments in processing facilities in Indonesia. This is partly because of the export levy, but that is not these companies' principal concern. The principal motivation of these companies is to improve product quality and guarantee supply, but their investments are also motivated by international efforts to promote better labor practices and more environmentally sustainable production, which they can better guarantee through greater integration of the market systems and closer relationships with farmers and farmer organizations. Several of these companies have promoted sustainability initiatives in Indonesia as well as in other countries: Cargill's Cocoa Promise program, Barry Callebaut's Cocoa Horizons Foundation, and Olam International's Grow Cocoa Program (in collaboration with the Blommer Chocolate Company).

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[101] Ibid
[102] Ibid
[103] Trademap.org (2017), Trademap, available at http://trademap.org/Country_SelProductCountry.aspx?nvpm=1|360|||1801|||4|1|1|1|1||2|1|, [Accessed July 2017].
[104] Neilson, J. & McKenzie, F. (2016), "Business-oriented outreach programs for sustainable cocoa production in Indonesia: an institutional innovation," in FAO/INRA (eds.), *Innovative markets for sustainable agriculture – How innovations in market institutions encourage sustainable agriculture in developing countries*, pp. 17-32, Rome: Food and Agriculture Organization of the United Nations and Institut National de la Recherche Agronomique.

In 2009, Mars committed to buying 100% sustainable cocoa by 2020, and Hershey and Ferrero have since made the same commitment.

Indonesia's Partnership for Indonesian Sustainable Agriculture (PISAgro)

The Partnership for Indonesian Sustainable Agriculture (PISAgro), founded in 2012, is a network of public and private institutions, which aims to link food security, environmental sustainability, and economic opportunity. Its membership includes four Indonesian Government Ministries, 20 international and Indonesian companies (including multinationals such as Nestle, Unilever, Bayer, and Cargill), the World Economic Forum, IFC, the Australian Department of Foreign Affairs and Trade, the IDH Sustainable Trade Initiative, Swisscontact (a business-oriented independent foundation for international development cooperation active in 34 countries), Mercy Corps, the John Deere Foundation, and UTZ, an international sustainability certification organization.

PISAgro has 12 working groups, covering Agricultural Finance, Beef Cattle, Cocoa, Coffee, Corn, Dairy, Horticulture, Palm Oil, Potato, Rice, Rubber, and Soybean and expert international advisors to support each group. These groups work closely with farmers' organizations to increase productivity and incomes. As of 2016 PISAgro had worked with nearly 450,000 smallholder farmers cultivating some 350,000 ha., increasing productivity and incomes by more than 12%.

2.5.4 National Coordinating Agencies

In many countries, market institutions are concentrated on a single sector or market system. The examples cited above, from Indonesia, Côte d'Ivoire, and The Gambia, illustrate this principle. There is much to be said for this, since the technical challenges and needs of different commodity groups may differ widely, and a focused approach may be more appropriate. But in some cases, especially in countries in which infrastructure, administrative capacity, and business climate constraints are prevalent, a more widely focused agency may be more appropriate, especially when it functions as part of an integrated and coordinated network of Government and private institutions.

Ethiopia's Agricultural Transformation Agency (ATA)

Ethiopia's Agricultural Transformation Agency (ATA) is one example. The ATA is the apex institution for implementation of the national Agricultural Transformation Agenda. Ethiopia has modeled its agricultural transformation approach and agenda on the success of countries such as Taiwan, Korea and Malaysia. "The two main features in those countries' models were: 1) a clear set of prioritized interventions to address the critical bottlenecks in a particular part of the economy; and 2) a dedicated institution that supports senior policy makers and key institutions with strategic input on planning, coordinating, implementing, tracking, evaluating, and refining prioritized interventions to address identified bottlenecks."[105]

One innovative intervention by the ATA was the creation in 2014, in collaboration with the Ministry of Agriculture, the Ethiopian Institute of Agricultural Research, and Ethio Telecom, a

[105] Agricultural Transformation Agency (2017), Overview, available at http://www.ata.gov.et/ta/the-agricultural-transformation-agenda/ [Accessed June 2017].

free, automated information hotline to smallholder farmers across Ethiopia access to best-practice agronomic advice, "revolutionizing traditional agricultural extension." Within the first three months of the program the hotline had received about 1.5 million calls from 300,000 farmers.[106]

Ethiopia's ATA has learned from early failures attributed to "(i) Weak and disjointed links between selected projects and interventions, which are doomed to failure because of lack of impact, and; (ii) Absence of skills and operational capacities to implement projects and programs… "Even projects that are well designed and well-resourced often fail to meet objectives due to a lack of strong project management and systematic implementation." It now focuses on three main areas:

1. Crop and livestock market systems, which are the main sources of livelihood for rural households and which are critical for food security;
2. Systems areas (such as seeds, cooperatives, and soil health), which are treated as the main pillars of crop market systems, and which "must be addressed at a structural level…to…help ensure sustainable transformation of agriculture, eliminating the problem of coherence and thus the lack of overall impact."
3. Crosscutting initiatives (such as gender mainstreaming and climate change), which help strengthen market systems and systems program areas and avoid unintended consequences."

ATA has also made it a priority to link farmers to markets, for example by working with agricultural cooperatives to help producers of injera (Ethiopian bread) source tef grain directly from farmers, using forward delivery contracts, and helping brewers source some 1,000 tonnes of barley by providing pre-financing of inputs as well as extension services to farmers.[107]

Nigeria's Growth Enhancement Support (GES) Program

Launched in 2012, the GES entailed a fundamental policy shift from considering agriculture expansion as a development obligation to treating it as a business opportunity. Though it did not end provision of subsidized agricultural inputs, the GES transferred responsibility for their supply from the state to the private sector.

The new system was based on three main pillars:

1. A profit-oriented network of agricultural input dealers to supply farmers;
2. Commercial lending to agro-dealers, underwritten by the Central Bank of Nigeria; and
3. A system of cashless e-wallets (electronic vouchers) used by farmers for their transactions.

By 2015 the GES had registered 10.3 million smallholder farmers, produced 15.5 million metric tonnes of food annually, and increased food security for 30 million people. By creating a

[106] Addis Ababa Standard (2014), Ethiopian Agricultural Transformation Agency Creates a Hotline to Help Smallholder Farmers Nationwide, available at http://allafrica.com/stories/201409181595.html [Accessed June 2017].
[107] Gebremedhin, K. (2013) "Ethiopia's progress in agricultural development & the role of Bill Gates-initiated ATA," available at https://ethiopiaobservatory.com/2013/07/28/ethiopias-progress-in-agricultural-development-the-role-of-bill-gates-initiated-ata/#more-17436 [Accessed June 2017].

market-based system for provision of agricultural inputs, the GES also led to attraction of over US$5 billion in new investment commitments for fertilizer production.

Guyana Agriculture Research and Development Board

The two most important crops in Guyana are rice and sugar, and each subsector has dedicated institutions. For all other agriculture activities, the main market institutions are:

1. The National Agricultural Research Institute (NARI), under the Ministry of Agriculture, whose functions are to advise on, and develop, appropriate systems to promote balanced, diversified and sustained agricultural development and optimize agricultural production through adaptive and investigative research; and to facilitate the use of improved production technology by agricultural producers, and establish adequate feedback systems for them in order to achieve and maintain national self-sufficiency and export capacities in food and fiber.

2. The National Dairy Development Programme (NDDP) was established in 1984, with a mandate to achieve national self-sufficiency in fresh milk by 1988. Subsequently, its mandate was expanded to include development of the cattle industry and the production and export of dairy, beef, and beef products.

3. The original Guyana Marketing Corporation (GMC) was created in 1963. The Corporation operated like marketing boards in many developing countries at the time. It bought all farm products offered to it at a predetermined price, and then sold the produce to consumers at various outlets and from trucks going from house to house. It incurred substantial losses from these activities, and in 1985 it ceased all buying and selling operations, and exercised a new mandate to provide market facilitation services to the private sector for the export of non-traditional agricultural produce, facilitate local market development, develop and disseminate post-harvest technology, conduct market research and provide market intelligence services to farmers. In 1997, it resumed buying farmers' produce, but at prices negotiated directly with them.

    a. GMC has a Technology Transfer Unit, which develops and provides training on grading, storage, packaging and transportation requirements for quality produce; promotes the production of non-traditional crops for the export market; assists and advises on documentary requirements and standards for exporting perishables; and provides market extension services.

    b. GMC also has a Commercial/Market Policy Unit, the aims of which are to provide a one-stop documentation service for exporters of agricultural produce; carry out market research for the private sector for a fee; make available certain kinds of approved packaging for exporting produce; and advise the Government on agricultural marketing policy for non-traditional produce.

4. In addition, there are the Guyana School of Agriculture (GSA), the Regional Educational Programme for Animal Health Assistants (REPAHA), the Agriculture Faculty of the University of Guyana, and Neighborhood Democratic Councils (NDCs), which are meant to be an institutional structure through which plans and decisions regarding the

needs of farmers and communities in general, can be coordinated. There are, in addition, several quasi-governmental entities (e.g. SIMAP) as well as non-governmental and other organizations (co-operatives, producer associations, etc.) which operate at the community level.

The problems of this system, as identified by Guyana's National Development Strategy are:

- Poor definition of the roles of the many public and private sector agricultural institutions, leading to the fragmentation of planning, policy analysis and product implementation capacity.

- A dualistic institutional structure characterized on the one hand, by well-organized marketing and other support arrangements for the major export products of rice and sugar; and by fragmented, under-funded and ineffective arrangements for non-traditional crops and livestock, on the other.

- A lack of infrastructure and non-agricultural services on which the effectiveness of agricultural institutions depend. This lack of an integrated approach leads to the poor absorption of technology.

- Limited interface between Government services and clients in the agriculture sector, resulting in poor feedback and, consequently, a lack of relevance of plans and programs.

- Provision of public agricultural services, including livestock/animal health and post-harvest handling, to all farmers, regardless of means. More well-off farmers can afford to, and do, bring in their own private extension advisers, which poorer farmers cannot. Since extension services are provided free of charge, poorer farmers should have priority, and/or fees charged to more prosperous clients.

- NARI: inadequate contact between NARI and farmers; poor linkages with agricultural extension and other related organizations; inadequate evaluation of research impact; disconnect between research programs and the needs of the farming community; insufficient consideration to the economic and marketing components of production; ineffective validation of research findings before transferring them to the farmer; absence of agribusiness and socio-economic marketing experts on the staff.

- Lack of agricultural credit.

In view of these weaknesses of the system of agricultural market institutions, Guyana in its National Development Strategy resolved to create a new entity, the Guyana Agricultural Research and Development Board to perform the functions of NARI, NDDP, NGMC and the Crops and Livestock and Fisheries Departments of the Ministries. The membership of the Board was designed to be broad-based, and include all interests that are involved in the sector: local Government bodies; community organizations; representatives of the rice and sugar sectors, and representatives of training institutions.

In the event, this transformation did not take place as initially planned. NARI, however, renamed the National Agricultural Research and Extension Institute (NAREI) was given

additional responsibility and a mission to "promote greater efficiency in the crops and agricultural product industry; provide enhanced services in Agricultural Research and Extension and Crop Protection; and allow effective administration and regulation of trade, commerce and export of crops and agricultural products."[108]

In addition, the GMC was revamped and its mission expanded, with a primary focus on expanding agricultural exports through technical and business advisory services, market intelligence, increasing value added, and export promotion.

Combined, the transformation has been successful: in 2005, rice and sugar were the main agricultural exports, with rice exports of US$46.2 million and sugar exports of US$118 million. Sugar exports depended on preferential quotas, most of which have eroded, so sugar is no longer a significant export. Rice is still important, with 2016 exports of US$242 million, or 15% of total exports. But non-traditional exports, including vegetables, fruit, and animal products, were valued at US$532 million.

Brazilian Agricultural Research Corporation

The APP report cites Brazil as an example, a country where "agricultural Gross Domestic Product (GDP) growth has tended to exceed overall GDP growth over the past two decades… Brazil's success was the result not of a quick fix, but of long-term policies and the development of institutions, notably the Brazilian Agricultural Research Consortium, or EMBRAPA, and institutions aimed at strengthening the productivity of family farms." EMBRAPA was founded in 1973 as a public company under the aegis of the Brazilian Ministry of Agriculture, Livestock, and Food Supply. Governance has been critical to its success: EMPRAPA is overseen by a National Advisory Board (CAN), which analyzes the public policy and institutional arrangements needed to maximize Brazilian technological innovation in Brazilian agriculture. The Board also helps define priorities and goals for the corporation's research programming and technology transfer.

The National Advisory Board has 40 members representing both public and private entities, including: the Brazilian Academy of Sciences, the Brazilian Association of Rural Market & Agribusiness, the Brazilian Supermarket Association and Brazilian Agribusiness Association, the National Confederation of Workers in Agriculture, the Brazilian Cooperative Organisation, financial institutions, and several national commissions and councils responsible for food security, scientific and technological development, and environment and renewable energy.

EMPRAPA's activities and programs include:

- Agropensa, a strategic intelligence system, aimed at producing and disseminating knowledge and information to support the formulation of research, development, and innovation strategies for the company and for partner institutions. Agropensa works towards mapping and supporting the organization, integration and dissemination of agricultural information and databases;

[108] National Agricultural Research and Extension Institute (2016), About Us, available at http://narei.org.gy/about-us/ [Accessed July 2017].

- Coordination of the National Agricultural Research System, which comprises Embrapa, state agricultural research organizations, universities, national and state research institutes, and other public and private organizations directly or indirectly linked to agricultural research activities;

- Research and consulting/extension work on a wide range of themes that include:
    - Low-carbon agriculture
    - Biological Control
    - Coping with droughts
    - Integrated Crop Livestock Forestry Systems - ICLFS
    - Mechanization and precision agriculture
    - Food waste and food loss
    - Fisheries and aquaculture
    - Basic rural sanitation
    - Environmental Services
    - Food security, nutrition and health
    - Agro-ecological zoning

2.5.5 Lessons Learned

From these, and many other examples of successful and unsuccessful agricultural market institutions we can conclude:

1. Effective agricultural market institutions require active participation of farmers. Top-down approaches rarely work as effectively as those based on farmers' understanding of their own requirements, as the example of the Indonesian community development centers in the cocoa subsector illustrates;

2. Public-private coordination tends to produce better outcomes than either public or private institutions alone. A joint public-private approach tends to ensure that business activity serves national development objectives and benefits producers, while also ensuring that market interventions make economic and business sense;

3. There is no evidence that sector-specific institutions are more or less effective than those that deal with all or most of the agriculture market system. There are advantages and disadvantages to both. There is, however, strong evidence that coordination among institutions is essential, whether or not they are formally attached to one another.

4. Institutions must be accountable and transparent. The example of CAISTAB in Côte d'Ivoire illuminates the risk of a lack of accountability and transparency.

5. Incentives for public and private institutions alike must be aligned with national development objectives. The example of the Gambia Produce Marketing Board illustrates the adverse effect of poorly designed incentives, as does that of the CCC in Cote d'Ivoire.

6. Institutions should not act as both regulator and market participant. CCC in Cote d'Ivoire is a cautionary example of an institution that took unacceptable risks to cover

its own losses in commodity markets, thus amplifying, rather than mitigating, the effects of commodity price swings.

7. Successful commodity exchanges should be closely linked to systems for physical storage and delivery of commodities as well as for standardizing and grading the quality of commodities on which futures contracts are based.

8. Countries with small populations and a small number of potential market participants are unlikely candidates to establish successful commodities exchanges. The example of SAFEX, however, is a potential model as a regional exchange, which trades contracts for delivery in other countries, as the example of Malawi maize futures illustrates.

9. Appropriate use of technology is likely to make cross-border futures trading more common, though this may entail potential regulatory and enforcement risks. Nevertheless, to the extent that cross-border futures contracts can reduce the need or temptation for governments to maintain buffer stocks of food staples or to act as market participants rather than regulators, it is worth pursuing mechanisms to increase their use.

2.6 Reflection

Governments have used market institutions as instruments to administer, regulate, coordinate, and optimize agricultural market systems. These market institutions have been implementing various policies, ranging from price and quantity restrictions (e.g. through marketing boards) to direct intervention in the market (e.g. through public warehousing systems, and state-owned economic enterprises) with the objective to realize policy objectives related to equal access to and distribution of food, reasonably-priced food, food security, and general efficient and coordinated agricultural market system.

This Chapter has furthermore shown the way Governments have used market institutions as tool to intervene has changed, particularly from the mid-19th century onwards. Government intervention reached its peak in the 1970s. It became more paramount in the late 1970s and 1980s that many of these inefficient and unsustainable market institutions actually impeded and restricted agricultural market systems. Many Governments started reforms, withdrew from agricultural market systems, and liberalized their agricultural market systems.

However, the economic and political liberalization of the agricultural market system did not always realize the desired improvement. As such, the paramount view moved towards "getting the institutions right" through the late-1990s and early 21st century, also in response to excesses created by private-sector led market systems in combination with the emergence of CSR, SDGS, and sustainable corporate practices. Government intervention and agricultural market institutions re-emerged to mitigate market failures and to address issues related to food security, oligopolistic multinational market power, and a dual market system, where an efficient agricultural market system is only accessible for market participants with the right size, scale, and skills, leaving out smallholders.

However, the success, degree, and scope to which these market institutions have revived differ from country to country:

- Commodities exchanges typically suffer from a top-down approach that's better at attracting foreign aid than at improving farming practices and developing transportation and communications networks while large trading volumes, a strong financial sector, and a commitment to transparency – necessary for the success of commodities exchanges - don't yet exist in most (African) countries. South Africa's SAFEX has proven successful, however, for several reasons, which includes innovations which created a favorable environment for both spot and futures trades, the wide dissemination of SAFEX market data, the fact SAFEX price is widely used as the reference price in forward contracts, and procedures and rules which evolved along to meet the needs of the exchange's users.

- Marketing boards frequently fail due to limited institutional capacity, preventing them from imparting stability to markets, their conflicting roles as both regulator and market participant, disorderly liberalization, and removal the surplus reserve that was used to moderate price volatility as the Côte d'Ivoire example showed. However, marketing boards can succeed if their function is to facilitate effective market operations rather than to control and participate directly in those markets.

- Two public-private collaborations have been established in Indonesia: the Cocoa Development Centers and PISAgro. The strength of the model, particularly the Cocoa Development Centers, lies in the ability to align incentives among different actors in a way that has typically not occurred in more top-down programs.

- In many countries, market institutions are concentrated on a single sector or market system in order to anticipate on technical challenges and needs of different commodity groups. But in some cases, especially in countries in with limited infrastructure, administrative capacity, and business climate, a more widely focused agency may be more appropriate, especially when it functions as part of an integrated and coordinated network of Government and private institutions. Such national coordination agencies have been established in Ethiopia, Nigeria, Guyana and Brazil, and have generally become successful despite some initial challenges.

Chapter 3 – Overview of Agricultural & Food Market Institutions in the OIC

A true regional agricultural and food market is made up of both a tradition of trade as well as the institutions that enable, support and enhance that trade. As explained in the Conceptual Framework, the focus of this study concerns agricultural and food market institutions created and developed in OIC Member Countries with the objective to directly intervene in their agricultural markets to contribute to a stable supply of food with reasonable prices and, eventually, food security and self-sufficiency. Agricultural and food market institutions thus contribute to overall policy objectives of industrialization, rural poverty alleviation, and providing for the needs of increasing urban populations.

This Chapter of the study presents an overview of current relevant market institutions in the OIC Member Countries by following the classification of the agricultural market institutions based on the Conceptual Framework:

1. Commodity market regulation authorities
2. Cooperatives
3. State-owned economic enterprises
4. Marketing boards
5. Licensed public warehousing companies
6. Commodity exchange platforms

The remainder of this Chapter focuses on the roles, duties and responsibilities of agricultural and food market institutions in the OIC, their legislative and administrative frameworks, how these contribute to coordination of agriculture and food markets across the OIC, as well as challenges and opportunities ahead in creation and development of market institutions in the OIC.

It should be noted, however, the application of such market institutions across the OIC Member Countries is very heterogeneous. Various OIC Member Countries already have a legacy of such institutions, and it is possible that several of these may be altered or adapted to function across part or all OIC Member Countries. The following presents an overview of the current situation of the agricultural markets in the OIC Member Countries and examines the channels in the agriculture and food sector consisting of production, handling, storage, transporting, processing, packaging and retailing. In this way it will be possible to identify the agricultural and food market institutions and to show the impacts on the supply and demand side of products.

Market control of agriculture varies across the nations of the OIC. Several OIC Member Countries have been strong, long-term members of the global agricultural economy for some time, and have the institutions to enable this. Countries such as Nigeria appear to have a comprehensive approach to addressing food safety, and have even established specific agencies for that purpose. Some nations, such as Tunisia, have gone beyond the concepts of food safety and regulation by creating institutions specifically to aid industry compliance with national regulations and for improving the state of food infrastructure. Indonesia's focus on realizing self-sufficiency for a number of agricultural commodities (e.g. rice, maize, soybeans, sugar, and beef) is, among others, facilitated by its market institutions.

Still other nations establish market legislation if and only as needed. Mozambique is one example, and has a slate of different Ministerial orders addressing individual foodstuffs such as wheat, corn, and even sunflower oils.

3.1 The Problems Agricultural Market Institutions Seek to Address

The OIC group of countries, consisting of 57 Member Countries and five observers, is highly unequal in size, per capita GDP, and food security. The OIC includes some of the wealthiest countries in the world, including Qatar, the UAE, Kuwait, and Saudi Arabia; several solidly upper- or upper-middle income countries such as Turkey, Kazakhstan, Gabon, and Malaysia; and some of the world's poorest countries, including Sierra Leone, Mozambique, Mali, and Burkina Faso.

The concerns of these countries with respect to agricultural production, market development, and food security vary accordingly. However, agricultural and food market institutions generally seek to address the following concerns, as outlined in the Conceptual Framework of Chapter 1:

- Combatting price volatility in order to provide both reasonable income for smallholders and affordable prices for domestic consumers;
- Stabilization of domestic markets by mitigating seasonal or cyclical fluctuations in prices or supply, and also preventing exploitation and oligopoly;
- Demand generation to protect farmer income and risk exposure (rural poverty alleviation), while simultaneously promoting industry development; and
- Ensuring food for increasing populations of urban consumers.

GCC Member Countries, which have great mineral wealth but limited agricultural production capacity, have sought to reinforce their food security by acquiring large tracts of farmland in other regions, especially Africa, though their ability to buy food commodities in international markets remains unthreatened.

By contrast, food security in the poorest countries remains precarious. Undernourishment in Mozambique, though lower than a decade ago, still affects more than one-fourth of the population. The same is true of Uganda and Tajikistan. In many other countries, including Bangladesh, Pakistan, Burkina Faso, Guinea, Guinea-Bissau, Sierra Leone, undernourishment remains stubbornly high, affecting between 15% and 25% of the population[109].

Political developments and climate change – including severe drought in the Sahel region of Africa – play a significant part in food insecurity. Senegal, where undernourishment fell from more than 28% to just over 14% between 2000 and 2012, saw its rate climb back to nearly 25% in 2015. Afghanistan, Iraq, Sudan, Somalia, Chad, and Yemen, beset by chronic armed conflict, have persistent food insecurity and rates of undernourishment well over 20%.

On the other hand, Mali has experienced both drought and armed conflict, experienced a fall in undernourishment from more than 12% in 2000 to less than 5% in 2015.[110]

[109] FAO (2015), *The State of Food Insecurity in the World 2015*, pp. 45-46, Rome: Food and Agriculture Organization of the United Nations: Rome.
[110] Ibid

At the same time, the 2015 FAO figures on food insecurity may understate the gravity of the current situation, especially in sub-Saharan Africa, where certain regions of any country may be at far greater risk than national statistics might indicate. According to a recent report these countries include Djibouti, where severe drought now threatens more than one-fourth of the population with food insecurity; Mozambique, where a cyclone in April 2017 destroyed more than 27,000 hectares of crops in the Inhambane Province and placed more than a half million people in the region at heightened risk of food insecurity; and Uganda, where two consecutive years of poor rains have placed nearly 400,000 additional people at risk, especially in northern and northeastern areas of the country.[111]

Given the disparity in economic conditions and food security among the different OIC Member Countries, as well as a difference in outcomes between countries with similar economic, climatic, and political/security conditions, it is worth exploring how and to what extent agricultural market institutions may play a positive or negative role in improving or worsening food security.

Many countries, including some of the poorest countries in sub-Saharan Africa, have liberalized their economies and have sought to harness market mechanisms and institutions, especially in the rural and agricultural sector, to reduce poverty. The results, however, have been mixed. Although in some countries and agriculture subsectors large commercial agribusiness concerns have organized smallholders into successful out-grower schemes, a large percentage of smallholder farmers continue to engage in semi-subsistence agriculture and cannot benefit from liberalized markets. The challenges of improving conditions for smallholders have been compounded by poor infrastructure and weak institutions.[112]

In the poorer OIC Member Countries, (largely though not exclusively in Africa), the market suffers from several endogenous risks including high transaction costs, high risks, missing markets and lack of social capital or collective action.[113] In these countries, the incomplete and non-strategic implementation of market interventions has resulted in only partial success. Additionally, the resulting instability has meant that the private sector has been reluctant to step in and address any resulting shortcomings.[114]

In short, the challenges of price volatility, seasonal or cyclical fluctuations in prices or supply, exploitation and oligopoly, farmer income and risk exposure (rural poverty alleviation), industrial development, and generally providing food for increasing populations of urban consumers remain.

[111] IRIN (2017), Drought in Africa 2017, available at https://www.irinnews.org/feature/2017/03/17/drought-africa-2017 [accessed May 2017].
[112] Shiferaw, B. & Muricho, G. (2011), "Farmer organizations and collective action institutions for improving market access and technology adoption in subSaharan Africa: Review of experiences and implications for policy," in ILRI (eds.), *Towards Priority Actions for Market Development for African Farmers*, pp. 293-313, Addis Ababa: International Livestock Research Institute.
[113] Mangisoni, J. (2006), "Markets, Institutions and Agricultural Performance in Africa," *ATPS Special Paper Series*, No. 27, pp. 2-7.
[114] Shiferaw, B. & Muricho, G. (2011), "Farmer organizations and collective action institutions for improving market access and technology adoption in subSaharan Africa: Review of experiences and implications for policy," in ILRI (eds.), *Towards Priority Actions for Market Development for African Farmers*, pp. 293-313, Addis Ababa: International Livestock Research Institute.

3.2 Agricultural & Food Market Institutions in the OIC

To address these challenges requires substantial change to policies and the institutions that administer them. The market system of the food and agriculture sector is unique because of social concerns intrinsically tied to the sector's success or failure. As a result, the policies and institutions are not confined to agriculture and food but encompass broader social protection measures, as well as the business environment and investment climate and associated institutions, and fiscal and monetary policies and institutions.

There is considerable variation on the scope, depth, and comprehensiveness in the administration of food and agricultural markets. To some degree, this variation is correlated with the size of the nation and the corresponding organizational capacity of its administrative capabilities, as well as of the nation's general capacity as an agricultural producer. **Appendix A** – Overview of Line Ministries & Market Institutions per OIC Member Country contains a full listing of the Member Countries of the OIC, their line Ministries, and their key market institutions according to the classification outlined in the Conceptual Framework of Chapter 1. While these are of course not the *only* institutions that affect the function of markets within and between nations, they are the primary institutions that are directly controlled by the state, and therefore deserve special attention.

3.2.1 Line Ministries and Regulation Authorities

- **Ministries of Agriculture** – Specific Ministries of Agriculture are present in almost all members of the OIC, although sometimes the ministries' mandates are combined with other areas of interest, such as water, the environment, and forests. In the case of maritime nations (such as Maldives), the Department of Agriculture functions are housed within the Ministry of Fisheries and Agriculture.

  Ministries of Agriculture have as their mandate not only the regulation of agricultural processes and markets, but also has the mission of promoting the agricultural sector and – in many cases – of supporting agricultural development and rural areas. As such – and because of their universality - they are a key Government sector partner in the development of food and agricultural markets. Examples of nations in which ministries' mandates are combined with other areas of interest include:

  - Burkina Faso's Ministry of Agriculture and Water Infrastructure is responsible for crop agriculture, rural development, and water affairs, and there is a separate Ministry of Livestock and Fisheries.
  - Algeria has a Ministry of Agriculture, Rural Development, and Fisheries, which is also responsible for the livestock sector, as well as a Ministry of Water Affairs.
  - In the UAE, agriculture falls under the responsibility for the Ministry of Climate Change and Environment, whose portfolio includes environment, water resources, agriculture, livestock, fisheries, countering desertification, and biodiversity conservation.

- **Ministries of Supply** – Most Arab countries have historically had a Ministry of Supply, or a Supply Directorate within a Ministry of Commerce or Economy. Where in place, the Ministry of Supply is usually in addition to and not a replacement for the Ministry

of Agriculture. The function of these Ministries or directorates has typically been to control prices and quality of food staples as well as to distribute subsidized commodities.

- Palestine had a Ministry of Supply, which was merged into the Ministry of National Economy as the Consumer Protection Department.
- Egypt has a Ministry of Supply and Internal Trading, which in addition to the functions mentioned above, also operates retail stores where subsidized commodities are sold.
- Jordan's Ministry of Supply was established in 1974 to administer subsidies on politically sensitive goods. Its main activity was to regulate the price of bread by selling discounted wheat to millers, who then sold flour to bakeries at a subsidized price, regulated by the Ministry. Though it began to reduce the subsidy in 2008, Jordan's 2016 budget included US$300 million, or about 4% of total spending for bread subsidies alone.[115]
- Pakistan Storage and Supplies Corporation (PASSCO), is responsible for procuring wheat up to a target amount, after which the private sector may procure wheat. "The Trading Corporation of Pakistan (TCP), under the federal Ministry of Commerce, on advice from the Ministry of Food, Agriculture, and Livestock (MINFAL), imports wheat, fertilizers, and occasionally other food commodities such as sugar and pulses."[116]

- **Ministries of Health and Safety** – As noted in the earlier section of this Chapter, food institutions in many nations began with the establishment of either or both safety or agriculture legislation. As a result, these two usually have the most established Government institutions with regards to food markets.

  - Well over half of the nations of the OIC (but not all) have one or more of the following:

    - Ministry of Food & Consumer Protection
    - Ministry of Environment
    - Ministry of Health/Public Health Directorate

  - In each case, the Ministry to a greater or lesser extent translates legislation into executable regulations with regards to food production and testing. The institutional bandwidth for carrying out this mandate varies greatly among the OIC Member Countries.

- **Inter-Ministerial Bodies** – These are often tasked with coordinating policies and strategies across multiple Ministries and, often, other Government institutions.

  - Burkina Faso's Secrétariat Permanent de la Coordination des Politiques Sectorielles Agricoles (SP-CPSA) or Permanent Secretariat for Coordination of Agriculture Sector Policies is an interministerial body charged with

[115] Khraishy, M. (2015), "Exporter Guide: Market Overview and Guide to Jordanian Market Requirements," U.S. Department of Agriculture, Foreign Agriculture Service, available at https://gain.fas.usda.gov/Recent%20GAIN%20Publications/Exporter%20Guide_Amman_Jordan_12-29-2015.pdf [accessed May 2017].
[116] USAID (2009), Pakistan's Food and Agriculture Systems, available at http://pdf.usaid.gov/pdf_docs/PNADO507.pdf [Accessed May 2017].

coordination of policies for a wide range of subsectors, including crop production, livestock, water management, forests, wildlife, fisheries, and environment. It is one of two coordinating bodies for the agriculture sector the other being the Committee for Coordination of Agricultural Policies (CC-PSA).

  - Pakistan's Federal Committee on Agriculture was set up in 1972 under the direction of the President and headed by President's Special Assistant for Agriculture. The committee initially included the Deputy Chairman of the Planning Commission, Secretaries of the Ministries of Finance, Industry, Commerce, Economic Affairs, and Food and Agriculture. The Committee was subsequently placed under the chairmanship of the Federal Minister for Food and Agriculture, but its membership includes federal and provincial Ministries and departments, the Indus River System Authority, the Meteorological Department, State Bank of Pakistan, ZTBL (formerly Agriculture Development Bank), commercial banks and heads of the attached departments of the Ministry of Food and Agriculture. The Committee's main purpose is to evaluate the preceding season's crops and, based on this evaluation, to set the targets for the next season's production, considering the availability of irrigation water, agricultural credit, chemical fertilizers, improved and certified seed, and plant protection measures.

- **Ministries of Commerce and Industry** – While present and effective to a greater or lesser level across the Member Countries – these Ministries play a particularly important role in the importation and in supporting the export of agri-foods. On import, Customs and Commerce assess tariffs and also determine what foodstuff are permitted into the country. On export, the Commerce Ministry often provides direct foreign trade or promotional assistance as well as technical assistance.

3.2.2 Market Institutions

Appendix A includes an overview of market institutions and their main classification(s) per OIC Member Country based on desk research (as opposed to the country case studies of Indonesia, Tunisia, and Uganda). Some market institutions have overlapping classifications, roles, mandates, and responsibilities, and, hence, the classification should be perceived as hybrid.

While the appendix outlines the regulatory and some market institutions, it is worthwhile to highlight some specific examples of how the hybridization of roles occurs. The list below demonstrates a variety of such institutions:

- **State-owned economic enterprises** engaged with regional economic development and agricultural intervention. Examples include:
  - Cameroon - Cameroon Development Corporation (CDC)
  - Senegal - River Delta Land Management and Development Company (SAED)

- **State-owned economic enterprises**, which function as credit or loan provider specifically for the agricultural sector, include:
  - Egypt - The Principal Bank for Development and Agricultural Credit

- Iraq – Agricultural Cooperative Bank of Iraq
- Jordan - Agricultural Credit Corporation (ACC)
- Kazakhstan – KazAgro National Management Holding
- Kyrgyz Republic - Kyrgyz Agricultural Finance Corporation (KAFC)
- Libya - Agricultural Bank of Libya
- Morocco - Moroccan Agricultural Credit Bank
- Nigeria – Bank of Agriculture Limited
- Pakistan – Zarai Taraqiati Bank Limited (Formerly Agricultural Development Bank of Pakistan)
- Turkey – Ziraat Bank (Agricultural Bank of the Republic of Turkey)
- Yemen - Credit and Agricultural Cooperative Bank

- **State-owned economic enterprises,** which actively engage in production and trade (some enjoy monopoly on import and/or trade of certain commodities):

  - Benin - State plantations
  - Brunei-Darussalam – State-owned agro-processing
  - Chad - Slaughterhouse in N'Djamena
  - The Gambia - Gambia Agricultural Marketing Company (GAMCO)
  - Indonesia – Perkebunan Nusantara III (PTPN3)
  - Iran - Government Grain Trading Agency
  - Kyrgyz Republic - Agri-processing and agri-business
  - Malaysia - Padiberas Nasional Berhad (BERNAS)
  - Maldives - State Trading Organization
  - Mali - Cattle, Meat and Services Trading Company (SOCOBVI)
  - Morocco – State farms
  - Niger - Niger Rice Company (SRN)
  - Turkmenistan - State-owned dairy farms

- **Licensed public warehousing companies** and state-owned economic enterprises responsible for keeping a strategic stockpile of particular commodities and/or to ensure national food security:

  - Afghanistan - Storage facilities for pistachios (planned)
  - Burkina-Faso - National Stock Management Company (SONAGES)
  - Djibouti - Djiboutian Food Security Company (SDCA)
  - Kazakhstan - Grain warehouse receipt system
  - Pakistan - Pakistan Agricultural Storage and Services Corporation (PASSCO)
  - Saudi Arabia - Saudi Grain Organization (SAGO)
  - Somalia – Public storage facilities
  - Togo - National Food Security Agency (ANSAT)

- **Cooperatives** have been registered for a wide variety of OIC Member Countries in different forms and shapes:

  - Azerbaijan - Agricultural cooperatives and cooperative unions
  - The Comores - Agricultural cooperatives
  - Indonesia - Dewan Koperasi Indonesia (DEKOPIN)
  - Kazakhstan - Agricultural service cooperatives

- Jordan - Village cooperative societies
- Mali - Co-operative associations (SCPC)
- Mauritania - Savings and Loan Cooperatives
- Somalia - Agricultural cooperatives
- Sudan - Agricultural cooperatives
- United Arab Emirates - Fishery marketing cooperatives
- Uzbekistan - Agricultural production cooperatives
- Yemen - Agriculture Cooperative Union

- **Commodity exchange platforms** are prevalent in a limited number of OIC Member Countries:

  - Côte d'Ivoire - Coffee Cocoa Exchange (BCC)
  - Indonesia - Commodity Futures Trading Regulatory Agency (COFTRA)
  - Iran - Iran Mercantile Exchange (IME)
  - Kazakhstan - Eurasian Trade System Commodity Exchange JSC (ETS)
  - Tajikistan - Universal Commodity Exchange (UCE)
  - Turkmenistan - State Raw Material and Commodity Exchange

- **Commodity market regulation authorities,** which are typically commodity-based. Some examples include:

  - Côte d'Ivoire - Authority for the Cotton and Cashew Nut Subsector (ARECA)
  - Kuwait - Public Authority for Agricultural Affairs and Fish Resources (PAAF)
  - Nigeria - National Agency for Food and Drug Administration and Control (NAFDAC)
  - Senegal - Market Regulation Board (ARM)

- Though many OIC Member Countries still operate **Marketing Boards** (e.g. sugar, coffee, cotton, and palm oil), many Governments have replaced their state marketing boards with more liberalized non-Government structures:

  - Nigeria dissolved its Cocoa Board in 1986. The Cocoa Association of Nigeria (CAN) and the exporters now provide advice and technical assistance to farmers on the appropriate use of chemicals and on good practices for the fermentation and drying of cocoa beans. Producers have increasingly turned to voluntary quality certification bodies such as UTZ, rather than relying on Federal and State inspectors, who "pay attention more to revenue capture rather than to the graded cocoa quality." Nigeria has also fully liberalized cocoa production, prices, and trade.[117]
  - Côte d'Ivoire in 2011 established a new cocoa marketing board, reasserting state control over cocoa production, pricing, and exports.
  - The Saudi Grain Silos and Flour Mills Organization (GSFMO) was established in 1972 to: i. Establish and operate flour mills, flour production, and animal feed factories; ii. Establish food industries related or complementary to the

[117] Nzeka, U. (2014), "Nigeria Hikes Target on Cocoa Production," U.S. Department of Agriculture, Foreign Agriculture Service, available at https://gain.fas.usda.gov/Recent%20GAIN%20Publications/Nigeria%20Hikes%20Target%20on%20Cocoa%20Production_Lagos_Nigeria_5-8-2014.pdf [Accessed May 2017].

Organization's products; iii. Market the products of the Organization inside the Kingdom; iv. Purchase grains and maintain reserve stocks to meet emergency needs; v. Implement Government agriculture policies. GSFMO was replaced in 2015 by the Saudi Arabian Grains Organization (SAGO) whose mandates remain the same in the near term but which has bundled the mills into four companies, each of which will be privatized. SAGO will become the industry regulator, responsible for quality standards and competition.

3.2.3 National Agricultural Research Organizations

Research laboratories form another key foundation for enhancing safety, supporting innovation and otherwise nurturing a well-functioning agricultural sector. In some countries these are independent agencies, while in others they are attached to the Ministry of Agriculture. Some are focused on technical research (seed and plant varieties, animal health, etc.) and education, while others are more concerned with policy advocacy.

In some countries, research and education organizations are independent agencies, while in others they are attached to the Ministry of Agriculture. Some are focused on technical research (seed and plant varieties, animal health, etc.) and education, while others are more concerned with policy advocacy.

- Tunisia's Observatoire National de l'Agriculture (ONAGRI), attached to the Ministry of Agriculture, Water Resources, and Fisheries, has the following mandates: i. to put in place a national information system to analyze the national and international situation of agriculture and fisheries, based on reliable and current data; ii. To disseminate data, information, and analysis to decision-makers, planners, researchers, producers, and exporters.

- The Pakistan Agricultural Research Council (PARC), is the apex national organization, which works with other federal and provincial institutions to provide science-based agriculture solutions. PARC has five technical divisions: Plant Sciences, Animal Sciences, Social Sciences, Natural Resources, and Agricultural Engineering, and two services divisions: Finance and Coordination & Monitoring. PARC operates ten research centers throughout the country and collaborates with provincial research institutes.

3.2.4 Development Organizations & Donors

There is a tremendous variety of Development organizations, donors, and NGOs in the agro-food sector, which range from smallholder producer association and cooperatives to associations like Senegal's Conseil National de Concertation et de Coopération des Ruraux, an apex organization, whose 26 member organizations include producers' and cooperative associations in agriculture, horticulture, fisheries, livestock, and forestry, and generalist associations like the Federation of Senegalese NGOs, the National Cooperatives Union, and the National Federation of Women's Associations.

The purpose of these development organizations and donors is generally twofold:

1. To develop and reinforce members' capacities and provide market information; and
2. To advocate for policies favorable to the agro-food sector.

3.2.5 Banking & Finance (Indirect Market Participants)

Direct financial support – either in the form of grants or loans – can be the critical piece to help a nascent agricultural and food sector progress and become a sustaining feature of the national economy. Such support may be complementary to some state-owned agricultural banks as presented in **Appendix A**. Sharia-compliant banking requirements can limit the number and means of financial products available. Apart from state-owned agricultural banks, sources of finance can be found through traditional commercial banks, agricultural companies, and international development agencies.

- Often the lack of development in some developing OIC countries carries with it an implied amount of risk that increases the borrowing cost of financing through traditional commercial banks. Still, in countries such as Pakistan and Turkey, such financing is possible. For instance, Faysal Bank and Allied Bank, both large commercial banks in Pakistan, provide agriculture financing.

- Microfinance, aimed at the alleviation of poverty, is often used to help poor farmers. Given that smallholder farmers are the majority of the globe's poorest people, agriculture has become a central focus of microfinance institutions. Grameen Bank in Bangladesh has become a model of microfinance. The Grameen Foundation was then established to help provide technical support and extend microfinance internationally to poor areas in Africa, Asia, and the Middle East.

- Thanks to Turkey's efforts to align its agricultural policy more towards that of the EU's Common Agricultural Policy (CAP), it is able to benefit from long term loans from the European Bank for Reconstruction and Development (EBRD) through the EBRD Turkey MSME Lending Programme. This program helps Micro-Small and Medium Sized Enterprises (MESMEs) obtain financing in rural areas.

- Turkey is home to large agricultural equipment manufacturers, such as Agrimir and Alpler. It is unclear whether these companies provide financing services for customers, but it could represent an opportunity. John Deere, a leading agricultural equipment manufacturer in the United States, provides extensive financing to attract and retain customers. In return, it helps lower the up-front costs of farmers and agribusinesses that may need new equipment but lack the capital to purchase it outright.

In addition to traditional financing methods, multiple Sharia-compliant banking tools are available across the region either on a national or multi-national basis. The International Trade Finance Corporation is one such example. We are unable to determine how much of the market utilized Sharia-compliant methods as a component of all lending. However, the point is that tools are generally available, whatever the lender's requirements.

3.3 Legislative Frameworks of Agricultural & Food Market Institutions in the OIC

Legislative frameworks and regulation for food markets largely concern the enabling language for Commodity Market Regulation Authorities as listed in the conceptual framework. As a result the materials covered in the following two sections are largely limited to these activities (unless otherwise noted).

Not all of the 57 OIC Member Countries have passed specific legislation for food market institutions. Those that have, have either done so piecemeal (as a result of specific commodities for which they have a market interest), or have done more comprehensively. Areas for which legislation is often in place include food safety and security. Other areas for which legislation is often in place include:

- Food safety
- Food and drug purity and additives
- Labelling and packaging
- Documentation and certification
- Import procedures
- Copyright and trademark protection

The more advance Member Countries have specifically embraced the Codex Alimentarius of the World Health Organization (WHO) and used this as the guide for establishing their regulatory universe. While Palestine is alone in being the only OIC Member state who is not also a member of the Codex, the various Member Countries have each adopted the Codex's guideline to varying levels.

While some version of legislation is in place in each of the OIC Member Countries, it is important to reinforce the point that few of the nations have a truly integrated approach to food and agricultural regulation. As an example, Pakistan does not have an integrated legal framework but has a set of laws that deal with various aspects of food safety. Food safety standards were first established and published in the Pakistan Pure Food Laws (PFL) of 1963 and revised in 2007. The PFL is the basis for the existing trade-related food quality and safety legislative framework. It covers 104 food items falling under nine broad categories. These regulations address purity issues in raw food and deal with additives, food preservatives, food and synthetic colors, antioxidants, and heavy metals. However, these laws do *not* then relate to the other areas of food markets identified above.

Other OIC Member Countries are at a far different state of regulation and integration into the global food market. For example, Turkey is well along in its process of integration into the European Union (EU) and – as a part of this process – has worked steadily to harmonize national food and agriculture laws and regulations with the EU *acquis communitaire.* The Turkish Government's Law no. 5996 on Veterinary Services, Phytosanitary, Food and Feed (2010) was a main instrument in driving this coordination by providing a comprehensive framework for protecting and ensuring public health, food and feed safety, animal health and welfare, plant health and consumer interests, as well as environmental protection. This was the first time in the nation's history that such legislation aimed to cover all stages of production, processing and distribution of food, as well as materials and articles intended to come into contact with food and feed. It also provided regulations for entry and exit

procedures for live animals and products to the country and other official controls and sanctions.

3.3.1 Food Safety

Food safety regulation pertains to controls on the purity, freshness, and potential contamination of food and other agricultural products. Some regulations can relate to the maximum amount of time between when a product is produced or harvested, time in transit, in storage, and on the market shelf before it is purchased. Still other food safety legislation and regulation can pertain to the recordkeeping to ensure knowledge of what has happened to that product throughout that journey, how the product has been stored and transported, under what conditions, and that it has been protected from spoilage and contamination throughout that journey.

As noted in the introduction to this Chapter, while most of the OIC Member Countries have some form of food safety regulation and legislation in place, few if any have approached the concept in a systematic or comprehensive way. As an example of a robust nation, Indonesia has a food safety administrative model which is – to a large degree – modeled directly on the WHO's ideal model.[118] In this model, the National Food Safety Committee supervises research and data, education, promotion of voluntary quality assurance, food control, and food safety laws.

In addition to food safety, import/export, and other related concerns, the country also provides explicit guidance on more market-focused issues such as copyright and trademark protection. Administrative frameworks in the majority of the OIC Member Countries however are somewhat more scattered, and are targeted to specific crops, activities, and/or labeling for religious reasons.

Food safety regulation can also pertain to substances added to foods during growth, processing, or packaging. These include but are not limited to:

- Pesticides
- Colorings
- Flavorings
- Preservatives
- Other Contaminants

As noted earlier, larger, more developed and globally integrated nations such as Indonesia, Pakistan, and Turkey approach food safety in a more comprehensive fashion. This is not the case for all of the nations of the OIC, and in particular those of central Africa. Indeed, the WHO in 2005 found that, "the food safety systems in most countries of the region are generally weak, fragmented and not well coordinated; and thus are not effective enough to adequately protect the health of consumers and to enhance the competitiveness of food exports. It is, however,

[118] Ministry of Foreign Affairs, Republic of Indonesia (2017), Food Safety Standards In Major Export Markets: A Readymade Guide For Agro Exporters, available at http://www.kemlu.go.id/kyiv/Documents/indonesia_food_regulations.pdf [accessed May 2017].

recognized that improving food safety systems has many short and long-term costs and can be a challenging process for many countries to undertake."[119]

3.3.2 Packaging, Containers, and Labeling

Food safety frameworks usually have a corresponding component that allows consumers to understand the contents, freshness, and provenance of the food contained. As an example of an good practice, Pakistan generally follows Codex Alimentarius rules for packaging requirements, and generally accepts packaging material if allowed in the exporting country. Pakistan does not have any packaging requirements related to environmental concerns, such as waste disposal or recycling.

For Pakistan, the following information must be placed in a durable and legible manner on all packages in the consignment or container[120]:

- The name of the product,
- The name and address of the manufacturer,
- The net contents,
- The date of manufacture and date of expiration,
- The percentage of dye contents,
- The normal storage stability,
- That the contents are free from pork and pork products,
- That the contents are fit for human consumption and that any animal product was obtained from an animal slaughtered according to 'Halal' requirements, and
- Packing may not contain any word or inscription of a religious connotation or any obscene picture that may offend the religious feeling of any sect, class or group in Pakistan.

3.3.3 Documentation & Certification

Aside from normal food safety certification standards, many OIC Member Countries also adhere to or have developed their own certification standards for Halal. Such certifications – which mean that the food is free from pork products, alcohol, certain other ingredients, and that all meat has been butchered under Islamic guidelines – is necessary for importation into Islamic countries.

In addition to certification, some Islamic countries (for example Saudi Arabia and other middle eastern countries) include lab testing of imported products to ensure that foods do not contain any forbidden components. The Halal market is a growth opportunity for OIC Member Countries, as there is a very large global market for Halal foods from both Muslim and non-Muslim consumers. This demand has spurred non-Muslim nations to accelerate their production of certified Halal foods, including the United States, Canada, Brazil, New Zealand, Australia, Thailand, the Philippines, Singapore, China, and India.

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[119] FAO (2005), *National Food Safety Systems In Africa – A Situation Analysis*, paper prepared by FAO Regional Office for Africa, Accra, Ghana, Harare, Zimbabwe, pp. 69-70, FAO: Rome.
[120] FAIRS (2017), "Pakistan - Food and Agricultural Import Regulations and Standards – Narrative," available at https://gain.fas.usda.gov/Recent%20GAIN%20Publications/Food%20and%20Agricultural%20Import%20Regulations%20and%20Standards%20-%20Narrative_Islamabad_Pakistan_12-12-2013.pdf [Accessed July 2017].

3.3.4 Copyright & Trademark

While some Member Countries (particularly the larger, more established markets) do specifically have copyright and trademark protections in place, the items covered by this protection varies. Brand and trade names and usually covered to some degree, but formulations and processing may not be. Items that are commonly not covered, even when copyright and trademark protections are otherwise in place include plan varieties and hybrids. This is of particular importance when considering genetically modified crops.

3.3.5 Trade Regulations & Procedures

Trade regulations and procedures, for instance, are also a part of the legislative or regulatory framework of agricultural markets. There may be additional certifications required to ensure that the imported food or agricultural products comply with the nation's laws. For example, Pakistan requires that:

- Importation is in accordance with regulations and the item(s) are not on the negative list.
- The terms and conditions of importation are specified in the letter of credit.
- Imports of plants and animals have the necessary approval from the Ministry of Food and Food Security and Research.
- Imports of livestock genetics must have the necessary clearance from the Ministry of National Food Security and Research.
- Pakistan currently does not allow imports of cattle from countries with reported cases of BSE, which includes the US along with several other countries.

Countries may impose trade restrictions on import or export volumes (in some cases with specific countries), they can attempt to make domestic goods more competitive by imposing tariffs on imported food and agricultural products, or seek to promote more open borders through trade agreements. Policy can even enact subsidies in order to help control food commodity prices, thereby influencing the trade competitiveness of agricultural products.

3.3.6 Other

Several countries also include regulations outside of the framework above. The largest component of these at present is the discussion regarding genetically modified (GM) products. Afghanistan for example asserts that it does not have current regulations regarding genetically modified food, due to the simple fact that it lacks the research and testing capabilities necessary to ascertain the safety of such foods. Rather than relying on other nations' testing or banning such foods outright, many currently permit the importation of GM crops and feed without additional restriction or authorization process.

Table 1 shows an overview of the regulations concerning GM products. It classifies various regimes:

- Fully Restricted – GM foods are banned from both domestic production and importation;

- Partial Restriction – GM foods go through safety assessment, have labeling requirements, and/or have import restrictions such as an authorization requirement, or imports may be banned;
- No Restriction – GM foods are not within a safety or assessment framework, do not have labeling requirements or import restrictions or authorization procedures. There are no formal limitations; and
- Unknown – Information not obtained.

It should be noted that many of the countries in the "Partial Restriction" list are actually quite open to GM foods, lacking labeling requirements and safety assessment mechanisms. They only land in this category because they require authorization prior to importation. Still others are quite restrictive by banning all GMO imports, but allow GMO development within the country.

Table 1 – Regulations on GM products per OIC Member Country

Full Restriction	Partial Restriction		No Restriction	Unknown
Not applicable	Algeria	Lebanon	Afghanistan	Gabon
	Bahrain	Malaysia	Albania	Libya
	Bangladesh	Mali	Azerbaijan	Mozambique
	Benin	Niger	Brunei	Oman
	Burkina Faso	Nigeria	Chad	Palestine
	Cameroon	Pakistan	The Comoros	Sudan
	Côte d'Ivoire	Qatar	Kazakhstan	Syria
	Djibouti	Saudi Arabia	Kyrgyzstan	Tajikistan
	Egypt	Senegal	Maldives	Turkmenistan
	The Gambia	Suriname	Mauritania	
	Guinea	Togo	Morocco	
	Guinea-Bissau	Tunisia	Sierra Leone	
	Guyana	Turkey	Somalia	
	Indonesia	Uganda		
	Iran	United Arab Emirates		
	Iraq	Uzbekistan		
	Jordan	Yemen		
	Kuwait			

Source: Investment Consulting Associates – ICA (2017)

3.4 Challenges and Opportunities for Agricultural & Food Market Institutions in the OIC

Before describing food and agricultural market institutions further, it is worthwhile to examine some of the challenges that such interventions attempt to solve, and some of the complications that can arise during the implementation of such interventions, especially when attempting to coordinate the actions and policies of a variety of institutions.

The Iranian example of subsidy reform highlights the need for, and difficulty of, coordination among a wide range of institutions, both public and private. Until 2011 Iran maintained an artificially high exchange rate, which made imported food cheaper than domestically produced commodities and served as a disincentive to domestic production. Also, although reform of subsidies was essential, it was poorly handled, so farmers were subjected to an abrupt rise in both fuel and fertilizer prices. This speaks to the need for widespread coordination within

Governments and between state and private entities. Alireza Bozorgi, a member of the Iranian Expediency Council's committee on agriculture, water and natural resources, has said that the country "lacks a strategic vision that involves all key institutions…the Ministry of Agricultural Jihad should coordinate its efforts with the Ministries of industry and trade, energy, economy and finance as well as with the Central Bank of Iran, seeing that only a coordinated strategy could pave the way for a healthy growth in the sector."[121]

The Iranian position statement represents progress of a sort, but it addresses the public sector exclusively and ignores the critical role of non-Government organizations like NOGAMU in Uganda, and PISAgro in Indonesia. These are the kinds of structures that can increase the market power of smallholder farmers and link them to the value chains of international agribusiness companies. Their success depends to a large degree on appropriate Government policy and institutional reforms.

As many countries' experience of reforms illustrates, abrupt abolition of subsidies on fuel, agricultural inputs like fertilizer, and food can lead to civil unrest as well as disruption of agricultural markets and supply chains. These reforms, though essential, need to be phased in deliberately and managed carefully. The alternative, as Iran's experience illustrates, can result in the huge savings on subsidy expenditures being siphoned off into political activities or corrupt officials' pockets rather than used to reinforce market institutions and social welfare programs. Nigeria's GES, described above is almost certainly a better model.

The difficulty of coordinating institutions and policies on a regional level is in many ways even greater than that of achieving coordination within a single country. The potential rewards, however, may be even greater. Africa is the least-integrated region of the world. Even within the major trade blocs, intraregional trade accounts for a mere 10% of the total external trade of ECOWAS and COMESA Member Countries and 15% of that of SADC countries. In North Africa, the level of integration is even lower: only 2.7% of North African countries' external trade is with other North African countries, while in Central Africa, trade among ECCAS and CEMAC countries is only 1% of Member Countries' external trade. This compares to 72% for the EU and 52% in Asia.[122]

Trade between countries belonging to different regional groups is minimal, especially since neighboring countries that are not part of the same trade bloc may impose very high tariffs on one another. Nigeria and Cameroon share a 2,000-kilometers border, but trade between the two countries is minimal. Exports from Nigeria, a member of ECOWAS, to Cameroon, a member of ECCAS and CEMAC, in 2016 amounted to US$233.1 million, or 0.7% of Nigeria's total exports of US$35.5 billion. Cameroon's exports to Nigeria were US$40.8 million, or 1.9% of its total exports of US$2.1 billion. This is largely explained by high tariffs: to pick one example, Cameroon's exports of meat products face a 34.96% tariff in Nigeria and other ECOWAS states, as against 0% in other ECCAS and CEMAC countries.[123]

[121] The Iran Project (2013), Iran's need for agricultural reform, available at http://theiranproject.com/blog/2013/07/10/irans-need-for-agricultural-reform/ [Accessed May 2017].
[122] NEPAD (2013), *Agriculture in Africa: Transformation and Outlook*, p. 43, Johannesburg: NEPAD.
[123] ITC Trade Map (2017), ITC Trade Map, available at www.trademap.org and Market Access Map – www.macmap.org [Accessed May 2017].

Even within a given trade bloc, a lack of capacity in Customs administration at border posts, as well as unofficial policies enacted at the central Government level may impede trade. For example, "Starting in 2002, Nigeria began to impose high import tariffs (up to 50%) or outright import bans on a number of important product groups, including used cars, cloth, new and used clothing, poultry and a wide range of meat products, rice, palm oil, and sugar. As formal imports were severely diminished by these restrictions, Benin began to import these same goods and re-export them through informal channels to Nigeria. Benin's imports rose from US$623 million in 2001 to US$725 million in 2002 and US$2.2 billion in 2012, a compound average growth rate of 12.15% per annum, while exports grew from US$374 million in 2001 to US$448 million in 2002 and US$1.4 billion in 2012, a compound average growth rate of 12.75% per annum. An estimated 85% of Benin's gasoline consumption is imported informally from Nigeria, and Benin also serves as a conduit to other countries for refined petroleum products.[124]

Although the African Union has announced plans to create a single African market, realization of this goal is a long way off in view of the limited volumes of trade taking place within existing regional economic communities.

While this is only a small sample of the challenges that may be encountered, the examples above provide insight into the nature of the problem of coordination and highlight the need for systematic approaches.

3.5 Coordination and Reform of Agricultural & Food Market Institutions in the OIC

Chapter 2 has already discussed how food market institutions developed over time, highlighted those that were the result of government policy, and which were the result of private action. It is now useful to examine how states in particular have worked to adapt these institutions to provide better coordination, efficiency, and to respond to a changing global market.

Only the largest or most developed of the OIC Member Countries appear to have a fully-developed and integrated approach to food market regulation and promotion. As noted earlier, many of the nations cited in this report simply do not have the administrative depth required to comprehensively address the needs and opportunities of the food market system.

Several of the larger countries have indeed worked to coordinate all the activities of the agri-food chain across bodies. As one example, all imports into Pakistan are governed by the Import Policy Order issued by the Ministry of Commerce. The Pakistan Standards and Quality Control Authority acts as the national standardization body. Pakistan's food imports are regulated by the federal Government and food safety standards are regulated by the provincial Governments. Also, Pakistan adheres to the Harmonized Coding System for classification of imported goods. The Ministry of Food Security and Research has drafted a proposed National

[124] Krakoff, C. (2014), "Benin Special Economic Zone Opportunity Assessment," unpublished report prepared for The World Bank Finance and Private Sector Development Unit Economic Sector Work on Cross-border Competitiveness Platforms along the Benin-Nigeria Border, March 30, p. ii.

Food Safety, Animal, and Plant Health Regulatory Act which formalized the National Food Safety, Animal, and Plant Health Regulatory Authority (NAPHIS).[125]

Examples of Subsidy Reform

Some Governments of OIC Member Countries have in recent years managed to address the problem of fuel and food subsidies, as well as reforming distribution systems and subsidies for agricultural inputs. The importance of subsidy reform cannot be overstated. Subsidies for fuel and food, as well as agricultural inputs, consume a large portion of the budgets of many OIC Member Countries and create perverse incentives that can reduce food production and increase dependence on imported food and inputs. Subsidy reform is often an essential precursor to reform of the agro-food sector.

1. Egypt, where subsidies for energy, electricity, and food have historically accounted for more than a quarter of Government spending, in 2014 began to cut subsidies, and in the 2016/17 budget reduced fuel subsidies by more than 40%. Government also began to cut food subsidies, which in 2013 amounted to US$4.31 billion out of a total budget of about US$80 billion. These subsidies, covering some 18 different staple food items, have been available to nearly 80% of Egyptians, regardless of income. In 2017, Government introduced reforms to food subsidies, initially by cutting members of middle- and high-income groups from the ranks of recipients and eventually by replacing subsidies with cash transfers to poorer Egyptians. The subsidies, and the ensuing reforms, have been the responsibility of Egypt's Ministry of Supply and Internal Trading.

2. Nigeria in 2012 abolished fuel subsidies, which in 2011 had amounted to US$8 billion, or 30% of Government expenditure, 4% of GDP, and 118% of the capital budget.

3. Iran's Parliament in 2010 passed a sweeping subsidy reform plan, with the intention of replacing subsidies with targeted assistance to needy populations. Government estimated annual food and fuel subsidy expenditures at US$100 billion, and the 2010 plan entailed cuts of some 40% of this amount. However, poor management with insufficient data and universal coverage (an estimated 73 million of Iran's 80 million people applied) hindered the subsidy reform reduce poverty and food insecurity. Phase 2 of the plan, introduced in 2014, entailed further cuts to subsidies, raising fuel prices by 75% and further reducing food subsidies. Parliament in 2016 voted to extend the reform plan to 2021, but implementation, which would entail cutting cash transfers to some 24 million people, has met resistance from the Government.

4. Indonesia's Government, in November 2014, raised subsidized fuel prices by 31% for gasoline and 36% for diesel, and in January 2015, completely removed subsidies for premium gasoline. The price of fuel is now adjusted monthly by the Government in line with the international crude oil price. Before it reduced and then removed the fuel subsidies, the Government took steps to mitigate the impact of higher transport and food prices on poorer families. These included a monthly electronic cash transfer of IDR 200,000 (about US$16.40) to more than 15 million vulnerable households and

[125] FAIRS (2017), "Pakistan - Food and Agricultural Import Regulations and Standards – Narrative," available at https://gain.fas.usda.gov/Recent%20GAIN%20Publications/Food%20and%20Agricultural%20Import%20Regulations%20and%20Standards%20-%20Narrative_Islamabad_Pakistan_12-12-2013.pdf [Accessed July 2017].

expansion of publicly funded education and health care. The savings on subsidy expenditures has enabled the Government to increase funding for infrastructure and to upgrade and expand irrigation and mechanization in agriculture.

In fact, evidence has mounted that many market interventions (e.g. input and output subsidies and direct intervention) put in place to facilitate growth and implemented by agricultural market institutions have instead become an impediment to growth as they were inefficient, wasteful, and fiscally unsustainable, drawing enormous resources that might have been better employed elsewhere across the agricultural marketing system.[126] In this light, the reform of subsidies and distribution systems are an important and direct means by which Governments can intervene in markets overall, and particularly in agricultural markets, in an attempt to increase the markets' efficiency and performance. Types of subsidy reform concern liberalization of agricultural inputs and outputs, abolition of regulatory controls and other quantity restrictions, and restructuring of agricultural market institutions (e.g. marketing boards and state-owned economic enterprises). Such reforms may thus impact the nature, activities, and leverage of agricultural market institutions. Hence, subsidy reforms is one important and current topic within the subject of overall reform of agricultural and food markets and the ability of agricultural market institutions to intervene in these markets.

3.6 Agricultural & Food Market Institutions and Enhancing Harmony in the OIC

Agricultural and food market institutions may play a role in mitigating some of the worst effects of natural disaster or conflict by distributing foodstuffs to vulnerable populations, often in cooperation with international development partners and relief agencies. But they arguably play, or can play, a much more important role in averting such calamities by providing better services to farmers, by strengthening markets and facilitating trade in agricultural and food commodities, and by promoting non-traditional agricultural exports, which, by helping people move away from subsistence farming, can increase rural incomes and enable people to buy food.

In many countries, marketing of agricultural commodities has traditionally been run by state institutions as a monopsony (sole purchaser) and monopoly (sole seller). Private traders, to the extent that they are allowed to operate, must generally be licensed by a Ministry of Agriculture, and the attendant delays and licensing costs limit the number of traders, limit farmers' access to the best prices, increase consumer prices, and stifle innovation. Government commodity marketing boards generally have no interest in increasing farmers' access to market information. The problem is further compounded by poor post-harvest handling, storage, and transport infrastructure, which leads to substantial losses and drives up consumer prices, without necessarily improving farmers' incomes.

Many OIC Member Countries have undertaken reforms aimed at reframing the relationship between public and private sector organizations and their role in influencing the market. This has begun to change how state marketing boards and similar structures function, and also reinforcing some farmer organizations.

[126] Lundberg, M. (2005), "Agricultural Market Reforms," in World Bank Group (eds.), *Analyzing the Distributional Impact of Reforms*, pp. 145-153, Wageningen: World Bank Group.

1. In 2012 Minister of Agriculture and Rural Development of Nigeria launched the Growth Enhancement Support (GES) programme, which entailed a fundamental policy shift from considering agriculture expansion as a development obligation to treating it as a business opportunity. Though it did not end provision of subsidized agricultural inputs, the GES transferred responsibility for their supply from the state to the private sector. The new system was based on three main pillars: 1) A profit-oriented network of agricultural input dealers to supply farmers; 2) Commercial lending to agro-dealers, underwritten by the Central Bank of Nigeria; and 3) A system of cashless e-wallets (electronic vouchers) used by farmers for their transactions. By the second year of the program, 5 million farmers were using e-wallets to obtain subsidized seeds and fertilizer from 2,500 registered agro-dealers at designated redemption centers. By 2015 the GES had registered 10.3 million smallholder farmers, produced 15.5 million metric tonnes of food annually, and increasing food security for 30 million people. The program also increased annual commercial bank lending to agro-dealers by about US$200 million, and proved instrumental in attracting over US$5 billion in new investment commitments for one large fertilizer plant expansion and four projects.[127]

2. Egypt with the support of FAO, introduced a new, internet-based agricultural extension network, which currently counts more than 21,000 members. The Virtual Extension and Research Communication Network (VERCON) aims to harness the potential of the Internet and apply it to strengthening and enabling linkages among the research and extension components of the national agricultural knowledge and information system. The overall goal of VERCON is to improve, through strengthened research-extension linkages, the agricultural advisory services provided to Egyptian farmers. VERCON links domestic and international, and public and private institutions, including the Ministry of Agriculture and Land Reclamation, the Ministry of Scientific Research, Ain Shams University, Universities of Florida, Pennsylvania, and Michigan State, among others.

3. The Partnership for Indonesian Sustainable Agriculture (PISAgro), founded in 2012, is a network of public and private institutions, which aims to link food security, environmental sustainability, and economic opportunity. Its membership includes four Indonesian Government Ministries, 20 international and Indonesian companies (including multinationals such as Nestle, Unilever, Bayer, and Cargill), the World Economic Forum (WEF), International Finance Corporation (IFC), the Australian Department of Foreign Affairs and Trade, the Sustainable Trade Initiative (IDH), Swisscontact (a business-oriented independent foundation for international development cooperation active in 34 countries), Mercy Corps, the John Deere Foundation, and UTZ, an international sustainability certification organization. PISAgro has 12 working groups, covering Agricultural Finance, Beef Cattle, Cocoa, Coffee, Corn, Dairy, Horticulture, Palm Oil, Potato, Rice, Rubber, and Soybean and expert international advisors to support each group. These groups work closely with farmers' organizations to increase productivity and incomes. As of 2016 PISAgro had worked with nearly 450,000 smallholder farmers cultivating some 350,000 ha., increasing productivity and incomes by more than 12%. Its goal is to work with at

[127] Grow Africa (2016), Fertilizer Subsidy Reform Revives Nigeria's Agriculture - Case Studies on Public-Private Agriculture Investments, available at https://www.growafrica.com/sites/default/files/fertilizer-subsidy-reform-web.pdf [Accessed May 2017].

least a million farmers on two million hectares by 2020, and to raise productivity and incomes by 20%.[128]

4. **Box 1** describes the structure and effects of Uganda's national organic movement.

Box 1 - Market linkages development for smallholders in Uganda

In Uganda, since the 1980s, production and exports of non-traditional agricultural and food commodities – especially organic fruits and vegetables – have increased, based initially on the export-led growth strategy outlined in the National Trade Policy. Non-traditional exports, including fish and fish products, floriculture, horticulture, spices, hides and skins, and honey, have become more important than traditional exports such as coffee, cotton, tobacco and tea, and now account for more than 73% of national export earnings, up from 14% in 1990. Even more important, organic horticulture, growing at more than 20% annually, has proven an effective way to move smallholders out of poverty by integrating them into profitable cross-border value chains.

The central institution responsible for this development is the National Organic Agricultural Movement of Uganda (NOGAMU), which was established in 2001 as both an NGO (with the Uganda NGO Board) and as limited company with the Registrar of Companies. NOGAMU's membership includes some 270 organizations of producers, processors, exporters, together with NGOs and other institutions involved in the organic sector, and these in turn represent more than 200,000 smallholders. NOGAMU's mandate is to "coordinate and promote organic agricultural development in Uganda, through interventions in four strategic areas: (i) promotion of local and export market of organic products from Uganda; (ii) promotion of training, research, extension and education in organic agriculture systems; (iii) development and promotion of application of organic standards and certification systems in Uganda; and (iv) creating awareness and attraction of support for the organic sector through advocacy."[129]

At the local level, NOGAMU mobilizes small holder farmers into groups, focuses them towards specific enterprises, and helps them raise product quality and production volumes to meet market demand. NOGAMU then identifies suitable markets for these groups in form of local organic outlets, supermarkets, local exporters, schools, other traders and markets, and links them to these markets. At the international level, NOGAMU helps link local organic exporters to importers of organic products in different markets, mainly by profiling export companies and matching them appropriate import companies. To facilitate this process, NOGAMU has established an Organic Trade Point (OTP) to serve as a one stop centre for organic market information. The OTP has developed market profiles regarding specific export destinations for use by existing and potential exporters. The OTP data base serves as a focal point for market linkages and information on organic export companies, volumes and supply capacity, seasonality of products, and information on packaging.

NOGAMU was instrumental in establishing the Uganda Organic Certification and setting up a local company, Ugocert, to provide certification services, as well as in the establishment of harmonized East Africa Organic Products Standards (EAOPS), and a common certification standard, the East African Organic Mark, which has been registered in each of the Member Countries of the East African Community and adopted by organic producers and market organizations in those countries.

[128] PISAgro (2017), Home, available at http://www.pisagro.org [Accessed May 2017].
[129] FAO/INRA (2016), *Innovative markets for sustainable agriculture - How innovations in market institutions encourage sustainable agriculture in developing countries*, p. 2, Rome: Food and Agriculture Organization of the United Nations and Institut National de la Recherche Agronomique.

The trend that these examples illustrate is far from universal, however. In late 2011 Côte d'Ivoire established a state cocoa board, which became operational in 2012. Its stated purpose was to "bring under one body the functions of four current organizations, [including] international market of the cocoa crop…By engaging in forward selling, the new cocoa body 'aims to encourage certainty and stability in the country's cocoa industry, and help enhance the prosperity of growers'." Some critics have pointed out that instead of maintaining production and price stability this could "flood global markets, given the scale of Ivorian cocoa production…The impact of this decision on the short term…could be a drop in world cocoa prices."[130]

Though it is a non-Government entity, NOGAMU works in close coordination with several Government bodies, including the Ministry of Agriculture, Animal Industries, and Fisheries (MAAIF), the Uganda Export Promotion Board (UEPB), the Uganda National Bureau of Standards (UNBS), and the Uganda Registration Services Bureau (for registration of producer groups as corporate entities), as well as Ugandan universities. NOGAMU also works with international partners, including the International Trade Centre (WTO/UNCTAD), the Center for the Promotion of Imports from Developing Countries (CBI), and the Kenya institute of Organic Farming (KIOF).[131]

The above showcases that individual countries' approach to market regulation and support continues to be diverse and dynamic. The solutions that appear to work for a period of time in one situation may not be immediately applicable to other nations or indeed to the same nation at another point in time.

Nonetheless, the examples above provide a useful sample of approaches to discrete problems and further show how agricultural and food market institutions may play a role in strengthening markets and facilitating trade.

3.7 Reflection

Food market institutions are developed to manage, regulate, and promote the production and export and import of food and to ensure that the products themselves are safe. In effect, they are meant to improve the market system by addressing its common failures and connecting supply with demand potential. In the Member Countries of the OIC, these institutions also occasionally have the mission of encouraging the development of secure food supply networks. While the OIC Member Countries have varying levels of sophistication regarding their institutional frameworks, Ministries of Supply, Agriculture, State Marketing boards, Health and Safety, and other agencies may all play some part in the agricultural and food markets of the individual counties.

It is critical to note that different nations will take different approaches to addressing market support and regulation based upon the structure of their agricultural and food economies. Each will have different dominant commodities, export markets, and even different abilities to grow food at all. Agencies and institutions often grow out of these specific identified needs,

[130] Agritrade (2011), State cocoa board established in Côte d'Ivoire, available at http://agritrade.cta.int/Agriculture/Commodities/Cocoa/State-cocoa-board-established-in-Cote-d-Ivoire [Accessed May 2017].
[131] NOGAMU (2017), Home, available at http://www.nogamu.org.ug/index.php?page=nog_mti [Accessed May 2017].

and then grow over time into a regulatory ecosystem. This lack of comprehensive approach to restructuring of market institutions in turn can result in an inter-agency coordination problem.

The broadly varying levels of institutional capability across the OIC Member Countries extend to coordination among agencies and legislation. In many cases, not only are there segments of the agriculture and food market system for which there may be an agency of institution missing, but there may not yet be active coordination of those agencies and institutions. This can extend even to efforts to reform the institutions if there is a lack of complementarity among different participants during restructuring. This latter problem can be the case even in larger, more advanced economies.

Chapter 4 – The Link between Market Institutions and Market Performance

4.1 Overview

It can be difficult to evaluate or quantify the effects of market institutions and their interventions on market performance. This is a problem of attribution or causality: positive or negative changes in market performance may be observed, but it is often hard to establish the causes of those changes. Agro-food markets in any country, especially in internationally-traded commodities, are subject to global market forces and to the policies and market interventions of governments in other countries. A market institution may be doing the right things, but its actions may be overwhelmed by those of other market participants. The problem is compounded by the focus of many market institutions on the most highly-traded cash crops such as coffee, cocoa, palm oil, and cotton, and food commodities such as cereals and oilseeds.

International cotton markets are an example of this phenomenon, as shown in **Box 2**. It is clear that the main West/Central African cotton producing countries would have suffered from U.S. subsidies, regardless of any market interventions their institutions could have taken.

Subsidies in other countries, however, are not the only external factors that can reduce or erase the effects of market interventions. Other factors that can affect global supplies and prices for a commodity exchange rates, competition from alternative products, increases or decreases in domestic demand for imports, the entrance into global markets of new producers, and changes in regional trade preferences.

Vietnam, for example, was a minor coffee producer until the late 1980s, when the Government introduced more market-based policies, allowing farmers to keep the profits from their production, while at the same time introducing tax incentives, price supports, and subsidies. By 1998, the area planted with coffee had risen from 40,000 to 740,000 acres, annual production had shot up from about 60,000 to 550,000 tons, and the country had overtaken Colombia to become the world's second-largest coffee producer.[132] This development affected world coffee prices and disrupted markets in many countries, including OIC members Cote d'Ivoire and Indonesia.

This Chapter examines experiences of several OIC member countries – and, for comparative purposes, some non-OIC countries – with some of the more common kinds of market institutions and market interventions. The purpose is not to provide a comprehensive inventory of institutions or interventions, nor is it to contend that some kinds of institutions and interventions tend to produce poor outcomes while others produce good outcomes. Instead, this discussion seeks to identify some features of successful and unsuccessful institutions and interventions, which may help OIC member countries as they seek to set up new market institutions or improve the performance of existing ones.

[132] Hays, J. (2008), Coffee Agriculture in Vietnam, available at http://factsanddetails.com/southeast-asia/Vietnam/sub5_9g/entry-3483.html#chapter-4 [Accessed August 2017].

Box 2 - Impact of U.S. Cotton Subsidies on African Cotton Producers

Burkina Faso and Mali are among the world's leading producers and exporters of cotton. In 2016/17 Burkina Faso was the ninth-largest and Mali the 11th-largest producer, and the two countries ranked sixth and seventh among world cotton exporters, and other countries in the region, including Benin, Chad, and Senegal, are also important producers and exporters. The US, however, is the world's third-largest producer of cotton and its largest exporter, with 2016/17 production and export volumes 13 times those of Burkina Faso.[133]

The US has subsidized cotton production since the 1930s, with a wide range of price supports, loan subsidies, export credit guarantees, and a program to encourage buyers (like yarn and textile manufacturers and cotton exporters) to purchase U.S. cotton by providing a subsidy to do so when the lowest price for the cotton exceeds a benchmark price. Between 1998 and 2002, the US spent US$14.8 billion to subsidize cotton valued at US$21.6 billion, and according to the US Department of Agriculture, without subsidies, the average U.S. cotton farmer would have lost US$871 for each acre of cotton planted (about US$2,090 per hectare) from 1998 to 2004. The 2002 Farm Bill guaranteed a minimum price of US$0.71 per pound, at a time when the world market price was about US$0.40. This encouraged producers to dump cotton on international markets, driving down the world market price.

In the crop year 2002, the US Government cotton subsidies totaled US$3.4 billion, nearly the twice total U.S. foreign aid given to Sub-Saharan Africa, and more than the combined GDP at the time of Benin, Burkina Faso, and Chad [Mali only later emerged as the second-largest producer in the region]. These countries' losses from US cotton subsidies negated the aid that they received: in 2002 Burkina Faso received US$10 million in US aid and Chad received US$5.7 million, but each country lost nearly US$13.7 million in export earnings. These losses affected the countries' ability to service their debts. 2002 export revenue losses for Benin, Burkina Faso, Chad, and Mali amounted to between 21 and 33 percent of their total debt service payments.[134]

The US modified, though it did not eliminate, its cotton subsidy program following a WTO ruling in favor of Brazil, which brought a case against the US in 2004.

As noted in Chapter 1, the purpose of market institutions is often, though not always, to improve the performance of agro-food markets. Market institutions, especially government institutions, often pursue social goals that do not necessarily entail improving market performance. Indeed, many government interventions in agro-food markets, rather than seeking to harness and increase the efficiency of markets, may instead bypass markets entirely or distort market operations to achieve social or political goals. This is understandable, given the often competing among different interest groups in society.

Examples of this kind of intervention include policies that cap producer prices for commodities to ensure affordable food supplies to urban populations and policies that provide price supports or restrict imports to support farmers' incomes. It is important to note, however, that even the most studiously neutral policies – that is, policies that do not seek to privilege one social group over another – usually involve tradeoffs that will distribute benefits and costs unequally, or unintended negative consequences. This is not to suggest that these sorts of

[133] Cotton, Inc. (2017), Monthly Economic Letter – July, available at http://www.cottoninc.com/corporate/Market-Data/MonthlyEconomicLetter/pdfs/English-pdf-charts-and-tables/World-Cotton-Production-Bales.pdf [Accessed August 2017].
[134] Woodward, A. (2007), "The Impact of U.S. Subsidies on West African Cotton Production," in Per Pinstrup-Andersen & Fuzhi Cheng (eds.), *Food Policy for Developing Countries: Case Studies*, pp. 1-12, Ithaca, New York: Cornell University.

interventions are necessarily wrong: market failures are common and it typically falls to governments to correct them.

Consequently, performance of markets and of market institutions must take into account the government's high-level social and political objectives. As noted in Chapter 1, these objectives can include:

- Food security
- Food safety and quality
- Environmental protection
- Agricultural production and productivity
- Agricultural and food exports
- Domestic and foreign investment in the agro-food sector

These high-level objectives may then translate into more specific policies and actions of market institutions, such as:

- Agricultural price supports
- Agricultural finance (lending and other financial instruments)
- Agriculture producer subsidies
- Agricultural research and extension
- Produce marketing boards
- Animal hygiene and plant protection
- Food subsidies
- Public sector food storage and distribution
- Import tariffs and quotas

To be sure, other institutions and interventions also affect agro-food market performance. These include Ministries of Finance, Central Banks, Ministries of Land/Planning, Ministries of Education, Ministries of Transport and Public Works, tax and customs authorities, investment and trade promotion organizations, and many others. But this analysis , while recognizing the importance of these other institutions, concerns itself primarily, if not exclusively, with those institutions that intervene directly in agro-food markets, either by putting in place policies and policy frameworks that target the agro-food markets, or by operating in those markets.

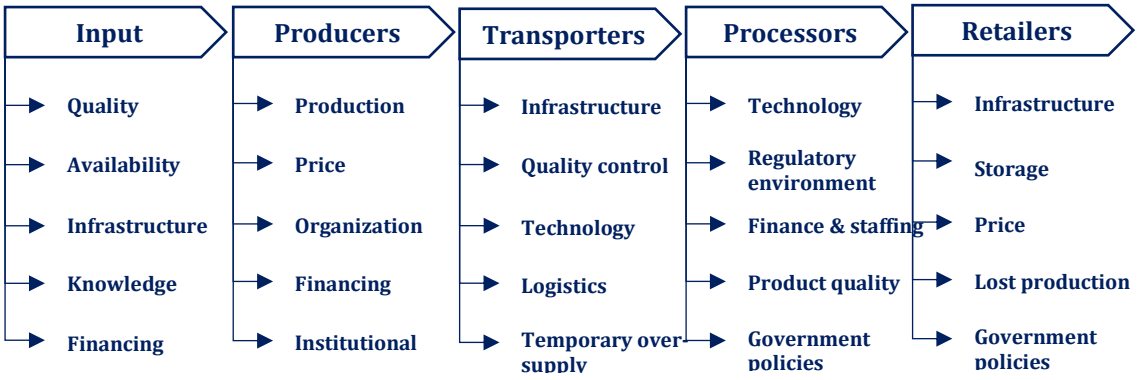
It is not possible within the scope of this analysis to assess every type of institution or market intervention. It is, however, possible, by examining the actions of several different kinds of market institutions in several countries, to draw some overarching conclusions about the links between market institutions and market performance and of the structure and actions of institutions most likely to produce positive or negative results.

These examples highlight the direct actions of institutions to shape or influence markets, and they evaluate performance based not on improvements in macroeconomic indicators but in the benefits that accrue directly to market participants and their communities. In this section, we examine institutions and initiatives in several countries, which have had positive or negative and measurable effects on market performance. These initiatives concern agricultural lending, warehouse receipt system financing, agricultural price supports, and public buffer stocks for food security.

4.2 Agricultural Lending

Lack of access to finance is an important constraint to improvement of agricultural productivity and production, which especially affects smallholders. Lacking adequate finance, small producers cannot invest in better seed varieties, fertilizers and other inputs, or post-harvest handling techniques that increase value. Without finance, they cannot increase the amount of land they cultivate. Agricultural finance entails risks specific to each stage of the value chain, as illustrated in **Figure 4**.

Figure 4 – Risks along the agricultural value chain



Source: Investment Consulting Associates – ICA (2017), based on IFC (2015)

Financial institutions, agricultural lending programs, and other financial intermediation can help reduce these constraints and improve market performance. One example of an agricultural lending institution that has succeeded in doing this is the **Nigerian Incentive-based Risk Sharing System for Agricultural Lending (NIRSAL).**

In Nigeria, previous agricultural lending schemes encouraged banks to lend, but lacked a clear strategy on how to use this activity to fix agricultural market systems and make lending more effective. The Nigerian Incentive-based Risk Sharing System for Agricultural Lending (NIRSAL), launched in 2013 as a public-private initiative sponsored by the Central Bank of Nigeria (CBN) was intended to address agriculture market systems together with agricultural financing. The US$500 million program is based on five pillars that aim to "de-risk" agricultural lending, lower the cost of lending for banks, and – through both activities – enhance the functioning of the market.

The funds are divided across the pillars as follows:

1. **Risk-sharing Facility (US$300 million).** Addresses banks' perception that agriculture is a high-risk sector, NIRSAL will share their losses on agricultural loans, up to 50% on larger loans and up to 75% on smaller ones.

2. **Insurance Facility (US$30 million)**. Expands insurance for agricultural lending to help reduce credit risks and increase lending across the entire market system. This is intended to attract new private sector insurance providers into the market in partnership with the National Insurance Commission, to expand existing coverage offered by the Nigerian Agricultural Insurance Corporation (NAIC), and to pilot and

scale up new products, such as weather index insurance, new variants of pest and disease insurance, etc.

3. **Technical Assistance Facility (US$60 million).** Provides of technical assistance to equip banks to lend sustainably to agriculture. And to producers to help them borrow and use loans more effectively, and to produce more and better-quality goods for the market.

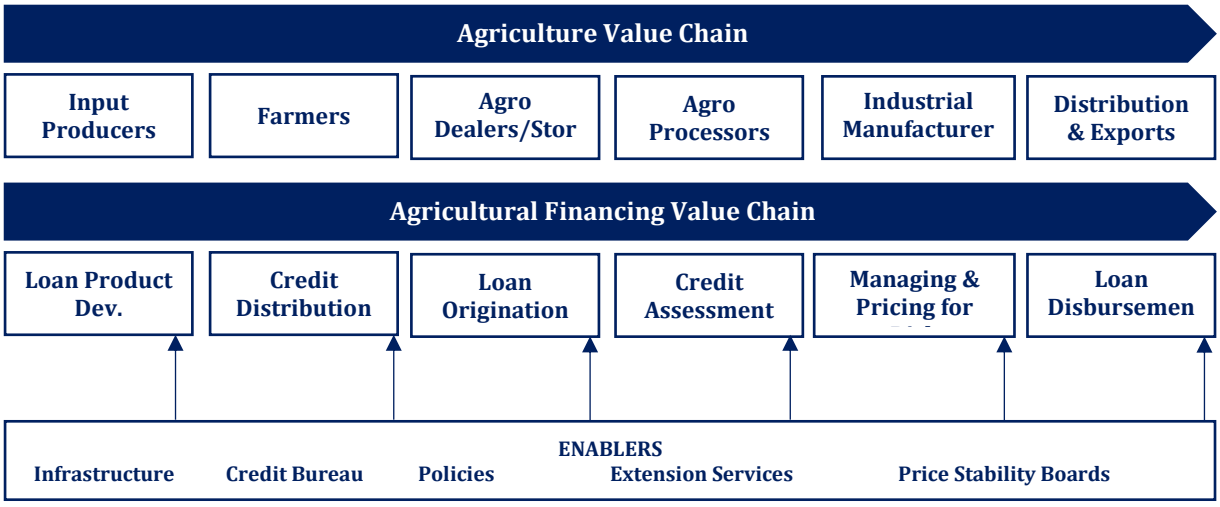
4. **Holistic Bank Rating Mechanism (US$10 million).** Rates banks based on the effectiveness of their agricultural lending and its social impact.

5. **Bank Incentives Mechanism (US$100 million)**. Complements NIRSAL's first three pillars and offers banks additional incentives to build their long-term capabilities to lend to agriculture.[135]

As **Figure 4** illustrates, NIRSAL works along the entire agro-food value chain in Nigeria, with financial instruments adapted to the needs of each set of value chain participants and delivered in coordination with other stakeholders.

NIRSAL has established partnerships with a wide range of public and private institutions, within Nigeria and internationally. These include the major commercial banks in Nigeria, the Nigerian Investment Promotion Commission, the Ministry of Agriculture and Rural Development, the Bank of Industry and the Bank of Agriculture (state-owned development finance institutions), the Nigeria Raw Materials Research and Development Council (a public agency under the Ministry of Science and Technology), IFAD, the AfDB, USAID, UNIDO, GIZ, and more than 30 private agribusiness groups.

Figure 5 – NIRSAL's agro-food value chain interventions



Source: Investment Consulting Associates – ICA (2017), based on NIRSAL (2017)

Working with commercial banks, NIRSAL provides a credit risk guarantee (CRG) of between 30% and 75% of loan value, and an interest drawback program ranging from 20% to 40.

[135] NIRSAL (2017), Our Core Focus, available at www.nirsal.com [Accessed June 2017].

In the four years since it was established, NIRSAL has catalyzed a 600% increase in agricultural lending by Nigerian banks, from 0.7% of total bank lending to 5.0%,[136] with total lending to date of about US$273 million. Lending is not confined to direct agricultural production but also targets enabling infrastructure and market-supporting activities, for example, a rail-shipping venture linking struggling livestock producers in the north to consumer markets in the south.[137] In another new venture, NIRSAL has announced a US$300 million lending scheme for young farmers, funded mainly by the AfDB.[138]

4.3 Warehouse Receipt System Financing

Warehouse Receipt System (WRS) financing is a facilitation function that can allow farmers, traders, processors, and exporters to obtain finance secured by goods deposited in a warehouse. Although the warehouse receipt mechanism is used for minerals and other commodities, its main use is in agriculture.

Typically, the warehouse operator issues a receipt for the stored goods, which can be used as a form of portable collateral to request a loan from a financial institution. Warehouse receipt financing is especially useful for rural small and medium enterprises, which often lack sufficient traditional collateral, such as immovable or movable property, to secure their borrowing needs.

WRSs have long been used in developed countries as a facilitation device, as well as in many developing countries, especially in Africa. They have not always been successful, usually because the core elements are not in place. These include:

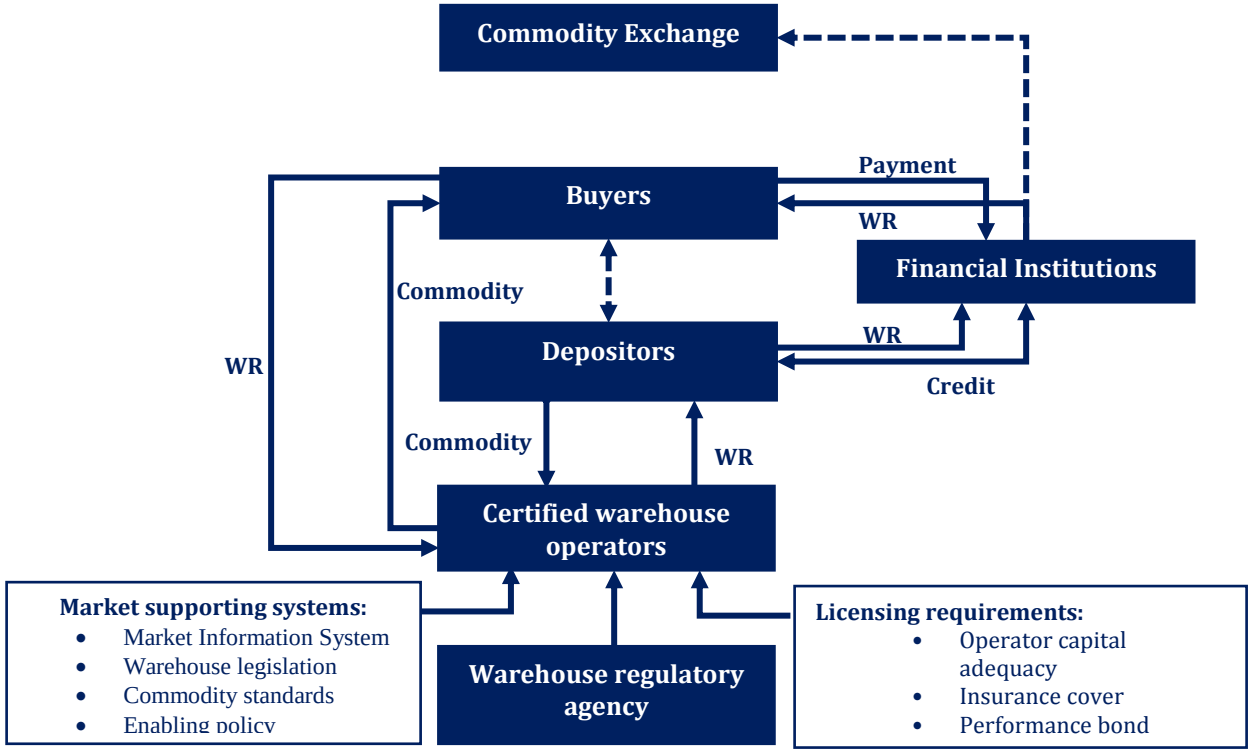
- An enabling legal and regulatory framework;
- A regulatory and supervisory agency;
- Licensed and supervised public warehouses;
- Insurance and financial performance guarantees;
- Banks familiar with the use of warehouse receipts.[139]

Additional preconditions for success include:

- The storability of a commodity;
- The existence of quality certification and grades;
- Market transparency and market information;
- Price volatility;
- Low financing costs;
- Predictable government policies.[140]

[136] African Development Bank (2016), Keynote speech delivered by President of the African Development Bank (AfDB) Akinwumi Adesina at the African Green Revolution Forum (AGRF) in Nairobi, 8 September, 2016, available at https://www.afdb.org/fileadmin/uploads/afdb/Documents/Generic-Documents/Keynote_Speech_delivered_by_Dr._Akinwumi_A._Adesina__President_of_the_African_Development_Bank_Group_at_the_Africa_Green_Revolution_Forum__Nairobi_8_September_2016.pdf [Accessed June 2017].
[137] Makinde, K. (2017), Steady progress in agriculture, potential history in the making, available at https://guardian.ng/opinion/steady-progress-in-agriculture-potential-history-in-the-making/ [Accessed August 2017].
[138] The Guardian (2017), "FG to launch $300m loan project for young farmers," available at https://guardian.ng/business-services/fg-to-launch-300m-loan-project-for-young-farmers/ [Accessed August 2017].
[139] Hollinger, F., Rutten, L., & Kiriakov, K. (2009), "The use of warehouse receipt finance in agriculture in transition countries," *FAO Investment Center Working Paper*, 6-9 June, p. 8.

Figure 6 – Operators involved in warehouse system



Source: Investment Consulting Associates – ICA (2017), based on Onumah, G. (2013)

Highly perishable commodities are unsuitable for warehousing, while the existence of a system of quality grading and certification helps ensure common valuation for warehoused goods. Commodities subject to significant price swings are more suitable, since there is an incentive to use warehouse receipts to smooth price fluctuations.

Examples of successful WRS systems in OIC countries include Kazakhstan, Tanzania, and Uganda.

Kazakhstan

Kazakhstan, one of the largest wheat producers and exporters in the world, is a country in which the warehouse receipt system has proven successful: it is estimated that international banks lend more than US$1 billion a year against warehouse receipts, and local banks even more. Local banks in Kazakhstan started financing grain traders against warehouse receipts in the early 1990s, but there were few standards and controls, and significant fraud. Banks, however, responded by setting up their own warehousing operations. In 2001 and 2002 a more formal system of warehouse receipts was developed with donor support, backed by enabling legislation governing both primary and secondary markets.

The legislation allowed banks to take possession of warehoused goods in cases of borrower default, without the need for a court order. The new legislation, by providing greater certainty

[140] Ibid

and security, sparked expansion of warehouse receipt financing, backed in part by a US$55 million EBRD credit line for domestic commercial banks. According to FAO, "[Kazakhstan's system contains all necessary elements and has been steadily gaining strength for the last six to seven years. The indemnity fund is a good example of effective organizational structure. After the success of utilizing grain warehouse receipts, the industry is investigating the introduction of a similar mechanism for cotton." [141]

Tanzania Warehouse Licensing Board

Tanzania has what may be the most developed warehouse receipt system in Africa. Virtually the entire cashew crop is marketed through the warehouse system, which introduced for cashew in 2007. Under the system, village agricultural marketing cooperatives obtain bank finance to aggregate raw cashews, which are receipted and traded through an auction system that comprises more than 30 exporters and processors and provides some US$85 million in financing per season. The success of the warehouse system has been reinforced by the auction system: in the 2007/08 season, cashew farmers in Tanzania received average farm gate prices of about US$290 per tonne. By the 2011/12 season, the minimum price paid to farmers had risen to about US$750 per tonne, and total production had doubled from 79,000 tonnes in 2008/2009 to 158,000 tonnes in 2011/2012.[142]

Features that have contributed to the success of Tanzania's warehouse receipt system (which now handle coffee, raw cashew nuts, maize, paddy, sesame, sunflower, pigeon peas and cotton) include:

- Warehouse receipt legislation and accompanying regulations;
- The Tanzania Warehouse Licensing Board, which regulates the system;
- Commodity grading system for many commodities, including coffee and cashew;
- Dedicated licensing system and standards for warehouses and warehouse operators;
- Issuance of credit not exceeding 75% of the value of the deposited commodity;
- Involvement of:
    - farmers' and financial organizations,
    - local Government,
    - local and international markets
    - crop Boards,
    - Tanzania Bureau of Standards,
    - Weight and Measures Agency,
    - Tanzania Food and Drugs Authority,
    - Tanzania Revenue Authority,
    - Tanzania Ports Authority,
    - Tropical Pesticides Research Institute.[143]

[141] Hollinger, F., Rutten, L., & Kiriakov, K. (2009), "The use of warehouse receipt finance in agriculture in transition countries," *FAO Investment Center Working Paper*, 6-9 June, p. 8.
[142] Onumah, G., (2013), Warehouse receipt financing in agriculture in Africa, available at https://agrifinfacility.org/print/290 [Accessed June 2017].
[143] TWLB (2013), The Warehouse Receipts System Operational Manual, available at http://www.wrs.go.tz/downloads/resources/operational_manual.pdf [Accessed June 2017].

Although warehouse receipts have achieved great success in Kazakhstan (as well as in Bulgaria, Hungary, Moldova, and other European and Central Asian countries), the record is decidedly less impressive in Africa. In Africa, warehouse receipt mechanisms have been used for a wide range of commodities, including barley, cars and car parts, cashew nuts, ceramics, cocoa, coffee, copper ore and metal, cotton, fertilizers, fish, logs and timber products, maize, mobile phones, paper and school books, petroleum products, pharmaceuticals and chemicals, rice, rubber, sesame, steel products, tea and vegetable oils.

As this list shows, warehouse receipts in many African countries are used to finance imports rather than supporting domestic agricultural production. In this, they resemble free trade zones, which are often used to defer payment of import duties and taxes. A large share of bulk food imports into Africa, as well as some fertilizer imports, are financed through warehouse receipts. Importers often cannot raise enough hard currency to finance a shipment of fertilizer or food commodities. Local banks often do not have enough international credit lines to fund such imports, while local funding is often far more expensive than international funding. To overcome these constraints, international traders extend their own credit lines to importers, warehousing products in bulk in the importing country and delivering in smaller quantities to the importers.

According to FAO, an important factor in the lack of success of donor-sponsored African warehousing schemes may be the selection of smallholder farmers as the major target beneficiary group. This was understandable, since larger players have access to other sources of finance. A WRS is unlikely, however, to respond adequately to credit access problems of small farmers, since it is the larger producers that have larger surpluses to deposit as collateral. "Experiences with well-functioning warehouse receipt systems around the globe show that warehouse receipts are initially used by larger and more financially viable entities. As the system expands, the effects gradually spread over to smaller producers and operators. The major driving forces behind a sustainable warehouse receipt system are traders, large producers and processors."[144]

This is confirmed by findings from our case studies, particularly in Indonesia, where the WRS is challenged by the lack of guaranteed farmers' incomes during periods of storage and processing.[145] Indonesia's WRS has also failed to change behavior of farmers to encourage them to sell at later stages, when market prices are higher, rather than immediately following the harvest, when prices are lower. Since one of the main benefits of WRSs is to allow farmers to defer sales until prices are higher, while enabling them in the interim to obtain financing against warehouse receipts, Indonesia's WRS has clearly failed to achieve this.

Uganda Warehouse Receipt System

Uganda's WRS experience also illustrates some of the potential difficulties such systems can encounter. In 2000, a WRS was established under the Ministry of Trade, Industry, and Cooperatives (MTIC), in collaboration with the Uganda Coffee Development Authority and the Cotton Development Organization. In its pilot phase the system focused on coffee in Masaka and southwestern Uganda and in Kasese for cotton, though it subsequently expanded to

[144] Gourichon, H., & Pierre, G. (2017), "Améliorer l'efficacité et l'efficience de la stratégie de stockage public au Mali, " *Partie 2: Diagnostic. Rapport d'analyse de politique, SAPAA* (Projet de Suivi et analyse des politiques agricoles et alimentaires), FAO: Rome.
[145] Interview conducted with Ministry of Agriculture in Jakarta, July 13, 2017

include cereals and pulses. The project sought to promote privately-run warehouse systems, improve assurance services for coffee and cotton, and develop a system of commodity trade finance. A WRS Law was enacted in 2006 and accompanying regulations in 2007. Project implementation was guided by the Uganda Commodity Exchange (UCE). In 2015 a regulatory body, the Uganda Warehouse Receipt System Authority (UWRSA) was established.

4.4 Agricultural Price Supports

Price supports are one of the most common forms of market intervention. They account for a high proportion of total public expenditure on agricultural market interventions worldwide, in developed and developing countries alike.

The case study on South Africa in Chapter 5 is one example of this. According to OECD figures, the average rate of "producer support estimate"[146] for the most heavily supported commodities (accounting for about half of total agricultural production) in the United States "ranges from about 55 percent of the value of production for sugar to about 22 percent for oilseeds and accounts. For less-supported commodities the rate is typically below 5 percent." For the aggregate of OECD member states, the producer support estimate averages 31% of production value. The forms of subsidy vary by country and commodity…but they include:

- Direct payments to farmers and landlords;
- Price supports implemented with government purchases and storage;
- Regulations that set minimum prices by location, end use, or some other characteristic;
- Subsidies for such items as crop insurance, disaster response, credit, marketing, and irrigation water;
- Export subsidies; and
- Import barriers in the form of quotas, tariffs, or regulations.

As Sumner (2008) points out, "Supporters of farm subsidies have argued that such programs stabilize agricultural commodity markets, aid low-income farmers, raise unduly low returns to farm investments, aid rural development, compensate for monopoly in farm input supply and farm marketing industries, help ensure national food security, offset farm subsidies provided by other countries, and provide various other services. However, economists who have tried to substantiate any of these benefits have been unable to do so…

Farm subsidy programs typically transfer income from consumers and taxpayers to farm operators, especially to owners of farmland and other resources used in farm production. Evidence shows…for example, that farm subsidies increase the rental rate on land to which rights to receive those payments are attached. In other words, subsidies to farming are often simply subsidies to landowners."[147]

Agricultural price supports and similar subsidies also can distort international trade, a famous example being U.S. cotton subsidies, which have disadvantaged African cotton producers.

[146] "Producer support estimate" is a figure that incorporates into single index a large range of government programs, including price supports and trade barriers, that transfer benefits to farm producers and landlords. This index measures the size of the transfer in money terms but does not attempt to assess the programs' effects on production or net income.
[147] Sumner, D. (2008), Agricultural Subsidy Programs, available at http://www.econlib.org/library/Enc/AgriculturalSubsidyPrograms.html [Accessed August 2017].

4.5 Public Buffer Stocks for Food Security

Agricultural policies in many countries include the use of public buffer stocks of essential agricultural commodities, with the twin objectives of food security and price stability. Beaujeu (2016) cites "studies [that] tend to show that buffer stock policies are rarely effective in achieving their objective of price stabilization and, even where they are, the effect on food security for vulnerable households is weak at best. Such programs generally also represent a significant cost to the public budget, and crowd out private sector activity in the storage market.

Moreover, buffer stocks programs have given rise to major concern in multilateral negotiations on agricultural trade liberalization in view of their potential effects on international markets."[148]

One problem with use of buffer stocks for price stabilization is that "most of the benefits derived from price stabilization are…received by non-poor consumers and producers and are 'leaked' to high-income individuals."[149]

Mali's system of public buffer stocks illustrates some of the shortcomings of such an approach to food security and price stabilization. Although food prices in Mali are overall less volatile than in some neighboring countries, there are huge price swings between the pre-harvest period (known as the "hunger season"), when food stocks are scarce and prices consequently rise, and the post-harvest season, when food floods into markets and prices dip. There can be as much as a 30% difference between prices in the two seasons. Imports can smooth price fluctuations for commodities like maize and rice, which are widely traded internationally, but not for sorghum and millet, the staple foods for a large segment of the rural population.

Mali's national food and nutritional security policy (PoINSAN) is implemented by the Food Security Council (CSA), the National Security Stockpile (SNS), which is largely responsible for assuring food security in rural areas, and the State Intervention Stockpile (SIE), which is responsible for guaranteeing supplies to urban and peri-urban areas.

A 2017 diagnostic study carried out by FAO[150] indicated a lack of clear and well-conceived policies and strategies and a predictable set of consequences.

- Rather than concentrate on millet and sorghum, the SNS has insisted on stocking a diverse range of commodities.
- The SNS stockpile capacity of 35,000 tonnes is insufficient to meet the need in a crisis.
- A high volume of losses attributable to poor controls. Operating costs represent 13% of the value of SNS purchases and 7% of that of SIE purchases.
- SNS makes one-third of its purchases in March, but sorghum and millet prices are at their lowest between November and January. If purchases had been concentrated in

[148] Beaujeu, R. (2016), "Alternative Policies to Buffer Stocks for Food Security", *OECD Food, Agriculture and Fisheries Papers*, No. 97, p.4, Paris: OECD Publishing.
[149] Beaujeu, R. *(2016), "Alternative Policies to Buffer Stocks for Food Security", OECD Food, Agriculture and Fisheries Papers, No. 97, p.4, Paris: OECD Publishing.*
[150] Gourichon, H., & Pierre, G. (2017), "Améliorer l'efficacité et l'efficience de la stratégie de stockage public au Mali, " *Partie 2: Diagnostic. Rapport d'analyse de politique, SAPAA* (Projet de Suivi et analyse des politiques agricoles et alimentaires), FAO: Rome.

the season when costs are at their lowest the overall cost of SNS purchases would have been 11% lower – i.e., a saving of about US$400,000 per annum.

- SIE operations are concentrated in Bamako, the capital, which accounts for between 65% and 70% of total volume of rice put into or taken out of stocks. Purchasing decisions for rice also appear not to take account of seasonal price fluctuations: most purchases take place between January and July, but prices are at their lowest between December and March. Though there is some overlap in purchasing schedules, FAO calculates that if SIE had concentrated its purchases when prices were at their lowest it would amount to annual savings of more than US$600,000. Put another way, concentrating purchases in the seasons of lowest grain prices would bring in far more grain to feed hungry people.
- SIE and SNS have had a minimal effect on price volatility for rice, millet and sorghum: just 0.3% to 0.4%.

4.6 Reflection

OIC Member Countries and other countries have experimented with a wide range of tools and mechanisms to stimulate agricultural productivity and production and to ensure food security and price stability. Several main conclusions emerge from the foregoing discussion and examples:

1. It is far more effective to treat agricultural market systems and financing mechanisms in tandem, since reinforcing market systems increases the financial strength of farmers, producers, processors, and traders, while improvements in agricultural financing has a beneficial effect on the viability of the market systems. Furthermore, the importance of interventions to mitigate risks throughout the value chain rather than focusing on a single stage, such as primary producers, should not be underestimated. Nigeria's NIRSAL demonstrates both these observations.

2. Indeed, an integrated approach, involving multiple private and public sector entities and treating the agro-food sector as a single, if complex system rather than as a collection of unrelated sets of activities and institutions, is far more likely to deliver positive impacts and operate with accountability and transparency. Brazil's EMBRAPA, Ethiopia's ATA, Indonesia's PIRSA, and Nigeria's GES (all discussed in Chapter 2) reinforce the lesson from the NIRSAL experience.

3. The necessary conditions for a successful warehouse receipt system include enabling legislation and regulations, a regulatory agency, quality certification agencies and/or standards, and participation of both private and public bodies. Tanzania's and Kazakhstan's experiences with warehouse receipts show how such systems can work successfully.

4. Commodity exchanges, similarly to stock exchanges, rarely work in countries with small economies and low tradeable volumes of commodities (or financial instruments). Commodity exchanges also require appropriate legislation, regulation, accountability, and oversight, as well as infrastructure that can effectively deliver commodities to markets.

5. Public buffer stocks as a mechanism to reduce price volatility and increase food security have not always proven to be a successful mechanism. It is challenged by relying on purely public agencies to ensure food security rather than harnessing market institutions and mechanisms. Such agencies could be more effective if they were properly audited and monitored, but that is rare, especially in poorer countries. National buffer stocks, as the Malian example shows, are costly and rarely effective in stabilizing prices and reducing food insecurity. It would be better for the state to act as policy coordinator and regulator, while leaving storage to private operators. The experience of Mali illustrates this observation.

Chapter 5 – Country Case Studies

The ultimate objective of this Chapter is to present three country case studies from which lessons learned in each case country can be scaled up so that collaboration among OIC Member Countries could be fostered in economic as well as commercial terms. Hence, every country case study is reviewed in a consistent manner, thereby using the following structure:

1. Overview of agricultural and food sectors and markets – Brief exploration of the five stages of the country's agricultural and food market as well as agricultural policy and institutional framework.

2. Agricultural and food market institutions – Review and description of selected agricultural and food market institutions as per the classification of the Conceptual Framework.

3. Effectiveness of agricultural and food market institutions – Review of available evidence, data, and statics on the performance of the selected institutions of the previous section.

4. Need assessment analysis – Identification of current bottlenecks in the country's agricultural market system and how newly created market institutions and/or redeveloped existing market institutions may resolve these.

5. Conclusions and lessons learned – Review of the key observations and conclusions of the previous sections and brief roadmap of implications.

Before turning to the three country case studies (Section 5.2 to 5.4), it is important to understand why the three country case studies have been selected out of all OIC Member Countries and on which criteria (Section 5.1). Finally, one country case study of a non-OIC Member Country has been added, namely South Africa (Section 5.5), to approach agricultural market institutions from a different angle.

5.1 Selection of Case Study Countries

It is desirable to select one country from each of the three geographical groups of the OIC (i.e. African, Arab, and Asian), and also to select countries at different levels of development (least-developed, lower-middle to middle income, and upper-middle to upper income) and with different international trade positions (e.g. net importer or net exporter of agricultural and food products).

However, it is a complex task to narrow down the list of OIC Member Countries given the great degree of diversity and heterogeneity. This does not only relate to the agricultural and food market of each country but certainly also to the socio-economic composition, demography, geography, geology and fertility, economic stability, and political stability. Each of these aspects impacts the performance and nature of the agricultural and food market as well as food availability, access, and security.

Based on these aspects, the following countries have been selected:

- **Arab Group: Tunisia** – Tunisia has attracted quite a volume of agricultural FDI, although it represents a small share of the total volume of FDI it attracted. Tunisia's agricultural and food market can be characterized as stable, given the equal shares of food import and export, stable domestic food price, and relatively high agricultural production value per capita. Tunisia can be classified as medium-income country and has relatively larger shares of land suitable for agricultural purposes and rural population compared to other Arab countries.

- **Asian Group: Indonesia** - As a medium-income country, Indonesia has attracted a substantial absolute volume of agricultural FDI (i.e. number of projects, capital expenditures, and jobs), which is a relatively large share of its overall FDI. Indonesia is a large food exporter while minimum food is imported compared to the other shortlisted countries. It is among the countries with a slightly disproportionately large share of its population living in rural areas while demand and supply for agricultural and food products is flexible given the relatively high domestic food price. Finally, Indonesia's geography (i.e. large island nation with remoted regions) calls for examining its market institutions.

- **African Group: Uganda** – Uganda's agricultural proposition is strong, considering its strong attractiveness to agricultural FDI, its high share of food export in combination with a large part of the population living in rural areas. Uganda's agricultural land makes up a large share of its overall land surface and accounts for approximately a quarter of its national economy. Uganda, as a low-income country, furthermore has its own regional trade networks and a Government actively engaged in modernizing its agricultural and food sector.

As mentioned, a case study of South Africa has been added to demonstrate how agricultural market institutions are developed and involved in a non-OIC country. Each of the country case studies has been based on thorough desk research, which has been complemented with on-site interviews to validate findings and observations.

5.2 Tunisia

The purpose of this country case study is to firstly introduce Tunisia's general agricultural market system (5.2.1), after which a selection of institutions will be evaluated into more details (5.2.2 to 5.2.4). Conclusions and lessons learnt may be generalized and serve as inspiration to other OIC Member Countries (5.2.5).

5.2.1 Overview of Agricultural & Food Sectors and Markets

The following section briefly describes the current situation of the five stages of Tunisia's agricultural market system as explained in the Conceptual Framework. The selected agricultural market institutions (Section 5.2.2) typically intervene in one or more of these stages. The five stages include:

- Production;
- Handling and storage;
- Processing and packaging;
- Distribution and market; and
- Consumption and trade.

Production

Historically, Tunisia's agricultural production structure has been marked by a two-tier structure of a few large agro-industrial companies complemented by small-scale subsistence family producers.[151] As of this moment, about 85% to 89% of Tunisia's 570,000 farmers own less than 20 hectares, indicating most agricultural producers are still considered small-scale farmers.[152] The average agricultural productivity per hectare equals US$1,246, which is slightly below the OIC average of US$1,312 in 2013.[153]

In fact, the definition of the "farmer" status is not clearly defined and no state authority exists to authorize farmers and grant them an official document (e.g. "farmer card"). Many non-farmers now profit from state support and tax benefits initially intended for small-scale farmers. This lack of official authorization prevents farmers from proving land ownership, which, in turn, limited their abilities to obtain financial support such as loans and insurances. This leads to a virtuous circle, given the fact many small-scale farmers already face over-indebtedness. Farmers have consequently looked for other jobs or combining other jobs with their farming activities, reducing the overall productivity of Tunisia's agricultural sector.

Tunisia's agricultural products, however, have great potential as they are characterized by a high quality and rich agricultural specialties.[154] Examples include oranges, harissa, tomatoes (due to chemical composition and high density yield technologies) and its olives (presence of

[151] African Development Bank (2012), *Economic Brief - Distortions to Agricultural Policy Incentives in Tunisia: A Preliminary Analysis*, pp. 5-11, Tunis: African Development Bank.
[152] Interview conducted with Direction Générale des Études et du Développement Agricole in Tunis, May 17, 2017
[153] COMCEC (2016), COMEC Agricultural Outlook 2016, pp. 55-90, Ankara: COMCEC.
[154] WTO (2016), *Tunisia Trade Policy Review Report by the Secretariat*, Geneva: World Trade Organization.

Chetoui trees).[155] This is demonstrated by the high quantities of vegetables (3.34 million tonnes), cereals (2.35 million tonnes), and fruits (1.31 million tonnes).[156]

Table 2 – Tunisian (TUN)/World agricultural production and exports, selected commodities

	2016* Production ('000 MT)			2016* Exports ('000 MT)			Imports ('000 MT)
	TUN	World	TUN %	TUN	World	TUN %	
Olive Oil	200	3,120	6%	0.140	0.92	15%	
Wheat	0.99	739,533	0%	/	178,550	0%	1.98
Tomatoes	1,250	170,750	1%	20.5	17,167	0%	39.9
Citrus fruit**	560	91,800	1%	26	9,650	0%	
Dates***	199	7600	3%	104.9	8,498	1%	
Almonds****	66.7	2,697	2%	0.27	3,223	0%	6.8
Wine (000 hl)	253	269,900	0%	19	103,349	0%	

** or last available year*
*** world data refers to oranges, tangerines, grapefruits and lemons*
**** exports include figs, pineapples etc. (HS 0804 classification)*
***** exports and imports refer to nuts according to HS 0802 classification*
Source: USDA Foreign Agricultural Service (2017); International Trade Center (2017); FAO (2017); The International Organisation of Vine and Wine (2017)

Handling and Storage

With regards to handling and storage, Tunisia currently lacks sufficient post-harvest management and storage capacity. This is particularly important for fresh products, which require special supply chain activities to anticipate on the freshness, perishability, and quality of fresh agricultural products. Such infrastructure is currently insufficient, requiring a better management of supply chains, post-harvest infrastructure, and markets access. Storage capacity can be increased for grains through grain silos[157] given the variety in grain harvests and limited storage capacity. The same is true for cold storage capacity.[158] The Tunisian Government, however, provides incentives to support companies up to 15% of their investment in constructing storage facilities and equipment.[159]

Processing and Packaging

As mentioned, the agri-processing and packaging stage has historically dominated by a small number of very large agr-processing companies. However, Tunisia's agri-processing sector has opened up for foreign investment. The agri-processing industry received a total of US$25 million of FDI – especially from France, Italy, and The Netherlands - in 2014.[160] This is the only part of the agricultural sector open for foreign investment as foreign investors can't own or rent agricultural land but need to co-manage this with a Tunisian national.[161]

[155] Interview conducted with Foreign Investment Promotion Agency in Tunis, May 15, 2017
[156] COMCEC (2016), COMEC Agricultural Outlook 2016, pp. 55-90, Ankara: COMCEC.
[157] Export.gov (2016), Tunisia - Agriculture, available at https://www.export.gov/article?id=Tunisia-agriculture [Accessed May 2017].
[158] European Commission DG Enterprise and Industry (2013), Business Opportunities in the Mediterranean – focus on agri-food in Tunisia, available at http://www.taasti.org/business-opptunities-in-the-mediterranean.pdf [Accessed May 2017].
[159] Interview conducted with Agence de Promotion des Investissements Agricoles in Tunis, May 16, 2017
[160] European Commission DG Enterprise and Industry (2013), Business Opportunities in the Mediterranean – focus on agri-food in Tunisia, available at http://www.taasti.org/business-opptunities-in-the-mediterranean.pdf [Accessed May 2017].
[161] Ibid

In fact, the current situation requires Tunisia to diversify the agricultural product portfolio and appliances of traditional commodities (e.g. olives and dates used in pharmaceuticals, cosmetics, essentials, paste, wood, snacks, beverages, and other food products). This requires moving to upmarket segments, diversifying traditional products, and shifting to more high value-added products are essential through processing and packaging of both traditional and non-traditional commodities. An example includes processing activities in Tunisia's date sector, which particularly has moved upmarket with regards to preservation and package activities.[162]

Distribution and Market

The high degree of small-scale farmers, geographical dispersion, and disorganization – only 4% of Tunisia's farmers are organized in cooperatives[163] - further fragment and impede Tunisia's agricultural market, particularly connecting rural small-scale farmers with (urban) wholesale markets. Indeed, an efficient distribution channel is the key missing market channel in Tunisia's agricultural market system as too many intermediaries and traders are involved. This also undermines the exact traceability of Tunisia's agricultural products. However, Tunisia's aquaculture sector is structured by means of weekly wholesale fishing markets, which are present in each fishing port, operating as main and direct distributor of all seafood products.

Tunisia's biggest wholesale market, Bir El Kassaa, represents about 40% of Tunisia's agricultural trade. Taxes for Bir El Kassaa include taxes levied by the state, intermediaries, and the Tunisian Company of Wholesale Markets (SOTUMAG), a public limited company firm managing the Bir El Kassaa wholesale market.[164] Municipal markets are organized and managed by local authorities, which are collectivity supervised by the Ministry of Commerce and Crafts. A program developed together with the Agence Française de Développement (AFD) looks to restructure 144 municipal wholesale markets to improve the market performance. This includes improving market infrastructure as well as its management.

Consumption and Trade

Tunisia, despite its considerable export of olives and olive oil, has been a net importer of agricultural products for the last two decades.[165] Indeed, it imported foods for more than US$2.14 billion over 2014[166] while it only exported food products for US$1.31 billion in the same year, indicating to a trade deficit of more than US$830 million. Tunisia's agricultural trade deficit – though measured in 2013 – is slightly larger, equaling US$1.09 billion (US$2.61 worth of agricultural imports vis-à-vis US$1.52 billion worth of agricultural exports).[167] About 75% of Tunisia's agro-food trade concerns imports from and exports to the EU market[168] while Tunisia's domestic food production value equaled nearly US$4 billion in 2015.

[162] Ibid
[163] Interview conducted with Ministry of Investment, Development, and International Cooperation in Tunis, May 15, 2017
[164] Nawaat (2015), Food Markets in Tunisia: State Institutions and Controls for Distribution Circuits of Agricultural and Seafood Products, available at https://nawaat.org/portail/2015/05/10/food-markets-in-tunisia-state-institutions-and-controls-for-distribution-circuits-of-agricultural-and-seafood-products/ [Accessed May 2017].
[165] Export.gov (2016), Tunisia - Agriculture, available at https://www.export.gov/article?id=Tunisia-agriculture [Accessed May 2017].
[166] FAO (2016), FAOSTAT, available at http://www.fao.org/faostat/en/#home [Accessed May 2017].
[167] COMCEC (2016), COMEC Agricultural Outlook 2016, pp. 55-90, Ankara: COMCEC.
[168] African Development Bank (2012), *Economic Brief - Distortions to Agricultural Policy Incentives in Tunisia: A Preliminary Analysis*, pp. 5-11, Tunis: African Development Bank.

However, 2015 marked a transition as Tunisia's agricultural trade recorded a surplus.[169] This is partly driven by the high export of tree crops such as olive oil (US$983 million), dates (US$231 million), and citrus (US$12 million), while the export of the aquaculture sector products added another US$131 million. Wheat, corn, vegetable oils, sugar, and barely featured among the main imported commodities. Tunisia's irregular agricultural yield can be traced back to unpredictable weather conditions affecting rain-fed crops.[170]

Irrigated crops grown in Tunisia mostly concern horticulture, which, together with cereals and livestock (chicken, sheep, and cattle meet[171]), often need to be complemented with imported products to meet domestic demand. In fact, a trade deficit of US$813 million was recorded for cereals over 2014, followed by a trade deficit of US$41 and US$7 million for meat and dairy products, respectively.[172] In addition to cereals, livestock, and horticulture, arboriculture or tree crops (e.g. olives, citrus, and dates) are cultivated in Tunisia, mainly for export purposes.[173] This is confirmed by the trade surplus of nearly US$300 million[174] recorded for fruits and vegetables (mainly tomatoes and potatoes[175]).

The demand for organic tree crops is growing and reflected by the recognition of both the EU and the US, as the former provides organic certification for Tunisian-grown olives and dates, while the latter approves the sale of Tunisian "organic" products to the US market.[176] Tunisia is the 8th certified exporter of organic products to the EU.[177] In fact, about 75% of Tunisia's organic production concerns olives, followed by dates, jojoba, almonds, honey, aromatic plants, and, more recently, livestock husbandry.[178] Tunisia is the second certified African exporter of organic products (after Uganda) with 60 organic products and 80% of its organic production being exported.[179] Indeed, Tunisia features among the highest ranks as global exporter of organic olive oil and exporter of dates (in terms of value).

[169] Export.gov (2016), Tunisia - Agriculture, available at https://www.export.gov/article?id=Tunisia-agriculture [Accessed May 2017].
[170] African Development Bank (2012), *Economic Brief - Distortions to Agricultural Policy Incentives in Tunisia: A Preliminary Analysis*, pp. 5-11, Tunis: African Development Bank.
[171] International Trade Centre (2017), Country Profile Tunisia, available at http://www.intracen.org/exporters/organic-products/country-focus/Country-Profile-Tunisia/ [Accessed May 2017].
[172] FAO (2015), FAOSTAT Tunisia, available at http://fenixservices.fao.org/faostat/static/syb/syb_222.pdf [Accessed May 2017].
[173] Export.gov (2016), Tunisia - Agriculture, available at https://www.export.gov/article?id=Tunisia-agriculture [Accessed May 2017].
[174] FAO (2015), FAOSTAT Tunisia, available at http://fenixservices.fao.org/faostat/static/syb/syb_222.pdf [Accessed May 2017].
[175] International Trade Centre (2017), Country Profile Tunisia, available at http://www.intracen.org/exporters/organic-products/country-focus/Country-Profile-Tunisia/ [Accessed May 2017].
[176] Export.gov (2016), Tunisia - Agriculture, available at https://www.export.gov/article?id=Tunisia-agriculture [Accessed May 2017].
[177] Foreign Investment Promotion Agency (2015), *Agrifood Industry in Tunisia*, pp. 1-5, Tunis: Foreign Investment Promotion Agency.
[178] International Trade Centre (2017), Country Profile Tunisia, available at http://www.intracen.org/exporters/organic-products/country-focus/Country-Profile-Tunisia/ [Accessed May 2017].
[179] Foreign Investment Promotion Agency (2015), *Agrifood Industry in Tunisia*, pp. 1-5, Tunis: Foreign Investment Promotion Agency.

Policy & Regulatory Framework

Tunisia's main agricultural policy framework looks to realize policy objectives related to more general economic development as well as strategic goals such as improving the market's supply-demand instability, ensuring food security, and rural poverty reduction.[180]

Addressing the supply-demand instability in Tunisia's agricultural sector requires improving market intelligence and addressing uncertainty with regards to the quantity and price producers may sell their agricultural commodities for. Tunisia's agricultural policy is aimed at controlling foreign competition (e.g. border protection) as well as producer and production factor prices (e.g. fixing a guaranteed price and subsidize inputs) and to encourage agricultural investment through incentives (e.g. advance payments for agricultural production, subsidy rates, and VAT exemption levied on farm capital goods and fuel). For instance, organic farmers may qualify for financial support covering up to 30% of their investment expenditures for equipment and 70% for certification expenditures.[181]
Domestic pricing policy is most commonly implemented by public authorities to regulate agri-food markets. Tunisia has developed three such systems:[182]

- Subsidized inputs: factors of production such as pesticides, fertilizers and, particularly relevant in Tunisia's south, water are sold at below-market prices.
- Guaranteed minimum price: the Government of Tunisia fixes a guaranteed minimum institutional price, which is typically above the world market price, at the beginning of each crop year for each agricultural product.
- Market intervention: The Government of Tunisia also has the option to intervene in market supply and demand and determine the fixed institutional price through a public storage body, which buys up additional supply or sells stock in case of a surplus of market supply or demand, respectively.

On the other hand, such price support measures and regulations need to be balanced and not too rigid to be fully effective and not counter-productive as they have the potential to distort both agricultural as well as non-agricultural (e.g. manufacturing) markets and misallocate resources. The future of these price support policies also depends on Tunisia's future negotiations with the WTO and the EU.

The Government of Tunisia furthermore controls the agricultural market dynamics by fixing maximum prices of processed foods, controlling the margins of retail sales, negotiating with wholesalers, provides quality incentives for cereals, and imports agricultural products to counterbalance rising food prices[183] while the livestock sector is supported by Government initiatives (e.g. national milk collection, national production plants, and state-funded animal care).[184]

[180] African Development Bank (2012), *Economic Brief - Distortions to Agricultural Policy Incentives in Tunisia: A Preliminary Analysis*, pp. 5-11, Tunis: African Development Bank.
[181] International Trade Centre (2017), Country Profile Tunisia, available at http://www.intracen.org/exporters/organic-products/country-focus/Country-Profile-Tunisia/ [Accessed May 2017].
[182] African Development Bank (2012), *Economic Brief - Distortions to Agricultural Policy Incentives in Tunisia: A Preliminary Analysis*, pp. 5-11, Tunis: African Development Bank.
[183] African Development Bank (2012), *Economic Brief - Distortions to Agricultural Policy Incentives in Tunisia: A Preliminary Analysis*, pp. 5-11, Tunis: African Development Bank.
[184] European Commission DG Enterprise and Industry (2013), Business Opportunities in the Mediterranean – focus on agri-food in Tunisia, available at http://www.taasti.org/business-opptunities-in-the-mediterranean.pdf [Accessed May 2017].

Tunisia's state institutions which govern its food market and its distribution circuit is regulated by Law n°94-86 of 23 July 1994. This Law defines the food market as consisting of production markets, wholesale markets, and retail markets, as well as the calibration and packaging units and refrigerated storage warehouses for agricultural and seafood products.[185]

Tunisia's domestic pricing policies, border protection policies, and investment incentive policies are implemented through market institutions with the objective to support the stability of Tunisia's agricultural market through maintaining a level of domestic production of staple food products (e.g. cereals and milk) while increasing Tunisia's export capacity of other products (e.g. olive oil and dates).

5.2.2 Agricultural & Food Market Institutions

A number of line Ministries and market institutions exist to implement these policies and strategies with respect to intervening, regulating, and enabling various market channels of Tunisia's agricultural and food sector. The institutional framework of Tunisia's agricultural market system is set and governed by a number of Government entities and non-Government entities.

This section only focuses on selected agricultural market institutions based on the classification accentuated in the Conceptual Framework in Chapter 1 (i.e. six key agricultural market institutions). These institutions collect, import, and regulate and coordinate transportation and distribution of the commodities and compete with the private sector in production and trade (**Table 3 – Overview of the six selected agricultural market institutions in Tunisia**).[186]

Table 3 – Overview of the six selected agricultural market institutions in Tunisia

Classification	Institution	Description
Cooperative	*Central Cooperatives*	Structured as state-owned organizations, a number of central cooperatives organize the collection and distribution of oils, seeds, wheat, cereals, viticulture crops, and field crops. However, only 4% of Tunisia's farmers are operating in state-owned cooperatives.[187] However, in an attempt to liberalize Tunisia's agricultural sector to foreign investors, the Government of Tunisia is planning to abolish the cooperatives and transform them into public limited development companies to rent agricultural land to private (foreign) companies.[188]
Commodity Market Regulation Authority	*Tunisian Association for Agriculture and Fisheries*	The Tunisian Association for Agriculture and Fisheries (UTAP) serves as main union representing the interests of the entire industry but also has an intervening role.[189] UTAP has about 350,000 members, which equals about 70% of Tunisia's famers, and is represented through regional offices in all 24 governorates and in all 246 counties.[190] UTAP is active in a decision-making public body together with UTICA, Ministry of Agriculture, Ministry

[185] Nawaat (2015), Food Markets in Tunisia: State Institutions and Controls for Distribution Circuits of Agricultural and Seafood Products, available at https://nawaat.org/portail/2015/05/10/food-markets-in-tunisia-state-institutions-and-controls-for-distribution-circuits-of-agricultural-and-seafood-products/ [Accessed May 2017].
[186] WTO (2016), *Tunisia Trade Policy Review Report by the Secretariat*, World Trade Organization: Geneva.
[187] Interview conducted with Ministry of Investment, Development, and International Cooperation in Tunis, May 15, 2017
[188] WTO (2016), *Tunisia Trade Policy Review Report by the Secretariat*, World Trade Organization: Geneva.
[189] Ibid
[190] Interview conducted with Union Tunisienne de l'Agriculture et de la Pêche in Tunis, May 16, 2017

Classification	Institution	Description
		of Industry, Ministry of Commerce, and Ministry of Finance. UTAP has three key functions: • Protecting farmers and their interests through monitoring imports, cost of production, exports, and market channels. • Promotion of the agricultural sector, together with FIPA and CEPEX. • Intervening in the market through the Inter-Professional Agricultural Associations.
Commodity Market Regulation Authority	*Inter-Professional Agricultural Associations*	Inter-Professional Agricultural Associations connect different market participants in local value chains through information on their existing structure, legislation, and programs. [191] Such groups exist for wine growers and fruit producers (GOVPF), fisheries (GIPP), milk producers and read meat (GIVLAIT), aviculture (GIPA), vegetable growers (GIL), fruit growers (Gfruit)[192] and agro-industry (GICA).[193] All associations are under the supervision of the Ministry of Agriculture except for GICA, which is under the umbrella of the Ministry of Industry. These associations– together with the private sector and with UTAP - intervene in product group markets in order to balance supply and demand of the market, guarantee reasonable prices for the farmers, and ensure regulatory stock (i.e. control and location of stock per governorate). In that sense, the associations function as public storage bodies, which buy up additional supply or sell stock in case of a surplus of market supply or demand, respectively.[194]
State-Owned Economic Enterprise	*Tunisian Company of Wholesale Markets*	The Tunisian Company of Wholesale Markets (SOTUMAG) is a public limited company created under the supervision of the Ministry of Commerce and Crafts in 1980, responsible for managing Tunisia's largest wholesale market, Bir El Kassaa.[195] Bir El Kassaa functions as Tunisia's Market of National Interest (MIN), where Tunisia's circuits of agri-food distribution are consolidated and unified through monitoring and regulatory enforcement mechanisms. SOTUMAG's mandate also concerns diffusion of the standard for prices of products.
Commodity Market Regulation Authority	*National Observatory of Supply and Prices*	Tunisia's National Observatory of Supply and Prices (ONAP) complements SOTUMAG in that it's responsibility covers all of Tunisia as well as most high-demand commodities. ONAP's mandate concerns collecting, monitoring, and disseminating statistical data and commercial information on the various market channels (e.g. production, handling, processing, distribution, and consumption) of Tunisia's agricultural market system and for a wide range of strategic commodities. Agricultural market participants are required to submit requested information to ONAP agents, who subsequently process and handle the information. This enables ONAP to produce predictions of supply and demand and

[191] European Commission DG Enterprise and Industry (2013), Business Opportunities in the Mediterranean – focus on agri-food in Tunisia, available at http://www.taasti.org/business-opptunities-in-the-mediterranean.pdf [Accessed May 2017].
[192] Université de Tunis El-Manar (2009), Liste des Organismes et Entreprises, Tunis : Faculté des Sciences de Tunis – Département de Géologie.
[193] Interview conducted with Union Tunisienne de l'Agriculture et de la Pêche in Tunis, May 16, 2017
[194] African Development Bank (2012), *Economic Brief - Distortions to Agricultural Policy Incentives in Tunisia: A Preliminary Analysis*, pp. 5-11, Tunis: African Development Bank.
[195] Nawaat (2015), Food Markets in Tunisia: State Institutions and Controls for Distribution Circuits of Agricultural and Seafood Products, available at https://nawaat.org/portail/2015/05/10/food-markets-in-tunisia-state-institutions-and-controls-for-distribution-circuits-of-agricultural-and-seafood-products/ [Accessed May 2017].

Classification	Institution	Description
		anticipate through timing of market control.
Commodity Market Regulation Authority	*Agency for Urban Rehabilitation and Renovation*	The Agency for Urban Rehabilitation and Renovation (ARRU) is a public company, which has been created in 1981 and is supervised by the Ministry of Equipment but receives assignments from multiple Ministries. ARRU has the mandate to modernize Tunisia's distribution circuits by updating the "hardware" of Tunisia's agricultural market system, including wholesale markets, livestock markets, and abattoirs. ARRU's project portfolio consists of 58 projects (26 wholesale markets, 21 livestock markets, and 11 abattoirs) with a combined value of nearly US$12 million.
Marketing Board	*National Oil Board*	The National Oil Board (ONH), which is 100% owned by the state, is concerned with exporting olive oil though the ONH does not enjoy full monopoly power. More than 270 private sector approved olive oil exporters complement the ONH on the olive oil market. The ONH, however, enjoys the right to import oils duty-free and tax-free. The ONH does not buy olive oil from private producers at a price fixed but can negotiate this price freely, thereby guaranteeing a certain minimum price. Prices are published by the National Export Price Observatory in order to ensure transparency and avoid low bargain prices.
Marketing Board	*Cereals Board*	Tunisia's national Cereals Board (OC), which is 100% owned by the state and focuses on import.[196] It has the mandate to intervene in the market by buying common wheat and durum at prices set by the Government while selling domestic and imported cereals at fixed prices to processing facilities. The OC lost its monopoly position with regards to importing common wheat and durum in 2016.
State-Owned Economic Enterprise	*Tunisian Sugar Company*	The Tunisian Sugar Company (STS), a state-owned enterprise, operates under the authority of the Ministry of Industry, and refines imported sugar. STS has been created in 1961 with the key objective to satisfy Tunisia's needs for sugar and sugar refinery. STS operates a sugar refinery with a size of 55 hectares and produces white crystalized sugar and sugar molasses. Since 2009, STS has been subcontracted by the OCT to refine (imported) sugar, for which STS receives a refining premium (determined by the amount of raw sugar received). STS imported raw sugar itself prior to 2009. STS operates its refinery facility in Béja, sugar warehouse in Bizerte, and a commercial office in Tunis.
State-Owned Economic Enterprise	*Tunisian Trade Board*	The Tunisian Trade Board (OCT) complements the STS as it operates as a state-owned enterprise, which has the mandate to import refined sugar as well as sugar which still needs to be refined, based on actual market needs, thereby taking into consideration the quantities produced by the STS. The OCT is sometimes requested to import milk or dairy products on behalf of the Ministry of Commerce and Crafts.[197]
State-Owned Economic Enterprise	*Ellouhoum Company*	The Ellouhoum Company, which is under supervision of the Ministry of Commerce and Crafts, enjoys the monopoly on importing meat.[198]

Source: Investment Consulting Associates – ICA (2017)

[196] WTO (2016), *Tunisia Trade Policy Review Report by the Secretariat*, World Trade Organization: Geneva.
[197] WTO (2016), *Tunisia Trade Policy Review Report by the Secretariat*, World Trade Organization: Geneva.
[198] Ibid

5.2.3 Effectiveness of Agricultural & Food Market Institutions

The precise impact of the selected institutions as described in section 5.2.2 on Tunisia's agricultural performance and productivity rates and the effectiveness of Tunisia's agricultural and food market is difficult to pinpoint. However, it is evident the performance of these institutions has been considerably undermined by a withdrawal from the state and, hence, Government control, since 2011, which has resulted in growing informal market channels at the expense of formal wholesale markets like the municipal markets and the Bir El Kassaa wholesale market managed by SOTUMAG.[199]

High taxes and the large number of intermediaries and traders further impede the effectiveness and control of the selected market institutions, as this has encouraged producers to look for informal channels to market their products. Taxes may amount up to 17% for Bir El Kassaa, while tax rates for other municipal wholesale markets are slightly lower.[200] Consequently, the volume of products passing through formal market channels (e.g. wholesale markets such as Bir El Kassaa and municipal markets) have diminished as agricultural producers increasingly use alternative (informal) market channels to market their products and circumvent fees and taxes.

This changing pattern has fueled a proliferation of market intermediaries,[201] which, in turn, has increased the inefficiency of market systems considerably, as commodity prices have doubled or even tripled before reaching the final consumer.[202] Suppliers and intermediaries can increase their prices because farmers are in a lock-in situation and have no bargaining power. This development challenges the effectiveness of the selected market institutions such as SOTUMAG, the Inter-Professional Agricultural Associations, and the marketing boards as they may further lose control and grip on the formal market and need to intervene at higher costs.

Tunisia's high level of protection for the agricultural sector has led to a strong need for intervention in times of low agricultural production to limit the rise in prices through imports, tax benefits, and customs concisions. Such constructions, however, have proven to be very costly.[203] There is no evidence available for the aggregated impact of the selected market institutions. However, some data is available on the costs of market intervention via some of the selected market institutions (e.g. Cereals Board and STS).

For instance, market intervention costs for the Cereals Board alone equaled more than US$600 million in 2014, up from just US$70 million in 2004, discouraging productivity gains, innovation, new products, and adaption of new technologies.[204] Furthermore, the STS has recorded losses ever since 2004 and is confronted with serious issues of indebtedness (US$11.5 million in 2010) driven by the rise of the world price of sugar with domestic selling

[199] Nawaat (2015), Food Markets in Tunisia: State Institutions and Controls for Distribution Circuits of Agricultural and Seafood Products, available at https://nawaat.org/portail/2015/05/10/food-markets-in-tunisia-state-institutions-and-controls-for-distribution-circuits-of-agricultural-and-seafood-products/ [Accessed May 2017].
[200] Interview conducted with Ministry of Investment, Development, and International Cooperation in Tunis, May 15, 2017
[201] Interview conducted with Institution de Recherche et de l'Enseignement Supérieur Agricoles in Tunis, May 15, 2017
[202] Nawaat (2015), Food Markets in Tunisia: State Institutions and Controls for Distribution Circuits of Agricultural and Seafood Products, available at https://nawaat.org/portail/2015/05/10/food-markets-in-tunisia-state-institutions-and-controls-for-distribution-circuits-of-agricultural-and-seafood-products/ [Accessed May 2017].
[203] WTO (2016), *Tunisia Trade Policy Review Report by the Secretariat*, World Trade Organization: Geneva.
[204] Ibid

prices way below the world market average as a result of prices fixed by the State.[205] Such practices demonstrate the ineffectiveness of Tunisia's agricultural trade policy and public import monopolies, marketing boards, and state-owned enterprises as described in the previous section.

Finally, the intervention power and, hence, effectiveness of the selected market institutions is further impeded due to a sharp dichotomy between export-orientated and domestic-orientated agricultural producers as the former enjoys considerable forms of aid and subsidy programs (e.g. wholly exporting regimes, offshore regimes, export subsidies, and investment incentives).[206] This considerably hampers the effectiveness of the entire sector as exports of these subsidized agricultural products have caused domestic shortages and food price inflation, where the selected market institutions need to anticipate on through further market intervention.

For market institutions, it is important to conduct policy advocacy and continuously liaise with Government officials to ensure this dichotomy is mitigated. After all, it is the Government of Tunisia which take decisions on these aid and subsidy programs, which can't be directly influenced by the market institutions and their powers. State-owned economic enterprises such as STS, OCT, and Ellouhoum Company, which enjoy monopoly powers on importing certain commodities, are directly confronted with these domestic shortages and could play an important role in policy advocacy supported by market intelligence, data, and statistics.

5.2.4 Need Assessment Analysis

The objective of this section is to identify and select certain crops, products, or commodity groups for which a need exists to create a market institution and to further develop existing agricultural and food market institutions facing inefficiencies and deficiencies.

Creating New Market Institution(s)

One of the bottlenecks in Tunisia is the absence of an integrally coordinated approach. To improve integral coordination and improve synergies and efficiencies of the selected market institutions, the Inter-Professional Agricultural Associations and the various sector-specific marketing boards (e.g. ONH, OC, and STS) should not have overlapping mandates as it currently is not always clear which institutions is responsible for what functions. Such an integral coordination of Tunisia's market system could start with recognizing and authorizing the "farmer" status. Currently, the definition of the "farmer" status is not clearly defined and no state authority or market institution exists to authorize farmers and grant them an official authorization document such as a farmer card or farmer certificate.

This lack of official authorization prevents farmers from proving land ownership, which, in turn, limited their abilities to obtain financial support and collateral such as loans and insurances. In fact, many non-farmers now profit from state support and tax benefits initially intended for small-scale farmers. The absence of such an authorization systems puts small-scale farmers further into over-indebtedness, which, eventually, encourages them to look for

[205] Ibid
[206] Ibid

other jobs or combining other jobs with their farming activities, impeding the overall efficiency of Tunisia's agricultural sector.

The creation of a new market institution may contribute to addressing this bottleneck. Such a market institutions would be responsible for registering and authorizing farmers and, hence, would be capable of monitoring, measuring, and evaluating the performance of the agricultural market system through collecting, analyzing, and disseminating market intelligence based on farmers' registrations.

Apart from this bottleneck related to the absence of farmer authorization, bottlenecks exists for a number of crops, products and commodity groups. For a number of these, a need exists to create specific market institutions with the objective to provide market intelligence, information, and data, promote and market the specific products, and provide assistance to manage risks and instable price levels. Market institutions need to support commercialization and valorization of these crops, products, and commodity groups.[207]

Such relatively untapped opportunities exist for products related to the Mediterranean diet (e.g. horticulture, vegetable oils, dairy products, and processed vegetables). Furthermore, with 127 aromatic and medicinal plants, considerable opportunities exist for essential oils and figs used for the perfume industry, just as with regards to spontaneous species, and prickly pear-based pharmaceutical products. A marketing board specifically focusing on Mediterranean-style products could be established while some oil-related products could be covered by the mandate of the existing ONH.

Organic farming and Halal products are emerging sectors given an increased demand, particularly in the nearby EU market.[208] The creation of marketing boards related to organic farming as well as Halal products should specifically support exports of organic farming and Halal products through the provision of real-life information on global prices to local farmers. These marketing boards should furthermore focus on optimizing the performance of the market by providing assistance on developing and obtaining organic farming and Halal product certification. This could be done in collaboration with INNOPRI, APIA, CEPEX, and Tunisia's certification and inspection bodies (e.g. ECOCERT, IMC, LACON, BCS, and BCUPA).

INNOPRI has developed Halal labels and labels for the location and production process but this is needed for more commodities to protect Tunisia's specific agricultural commodities from being re-produced elsewhere (e.g. Harissa) and improve traceability of its products. This requires the development of certification systems which recognize the protected designation of origin, such as the EU's certification schemes of geographical indications and traditional specialties or "appellation d'origine contrôlée" in France. Other examples could relate to corporate social responsibility certifications, such as "eco-friendly", "social peace" (e.g. referring to Tunisia's Nobel Price), and "women-friendly" product certifications. Ideally, these certifications are matched with Tunisia's branding.

Newly created marketing boards should have an inter-professional approach. For instance, eco-tourism and oil-related tourism initiatives are also emerging as a result of Tunisia's strong

[207] Interview conducted with Institution de Recherche et de l'Enseignement Supérieur Agricoles in Tunis, May 15, 2017
[208] European Commission DG Enterprise and Industry (2013), Business Opportunities in the Mediterranean – focus on agri-food in Tunisia, available at http://www.taasti.org/business-opptunities-in-the-mediterranean.pdf [Accessed May 2017].

proposition in the olive oil sector. This also demonstrates the needs for more integral coordination of efforts of the entire agricultural market channel.

Finally, Tunisia's aquaculture sector is now mainly orientated on raising seabream and seabass but could be more diversified by processing seafood and fish products, and intensifying fish farming. Examples include octopuses and Red Sea crabs ("crabe bleu"), which recently invaded Tunisia's Mediterranean waters from the Red Sea as a result of climate change. The production of sponges, sea weed, and algae could be intensified for use in cosmetics and pharmaceuticals as could the production of fish fingerlings and, particularly, Brine Shrimps ("artémia") in Tunisia's Chotts, which is used extensively in the aquaculture sector as feed. However, leveraging these "Blue Economy" opportunities requires support from a new market institution as it involves new market intelligence, information, and data, as well as technologies, skills, and expertise, which needs to be disseminated through a marketing board.

Developing Current Market Institution(s)

In addition to bottlenecks which require the formation of new market institutions, a need exists to diversify the product portfolio and appliances of traditional commodities (e.g. olives and dates used in pharmaceuticals, cosmetics, essentials, paste, wood, snacks, beverages, and other food products), for which several market institutions already exist (e.g. ONH, STS, SOTUMAG, ONAP, and UTAP).
Moving to upmarket segments, diversifying traditional products, and shifting to more high value-added products are essential and are typical bottlenecks for a number of commodities. This deficiency specifically concerns the ONH as a multifold of opportunities exists for the application of olives (e.g. bottling and packaging of (virgin) olive oil and olive paste, processing and packaging olive leaves, processing almonds into olives).[209] In fact, it is claimed the olive oil sector is not managed in an integrated manner, despite its significant economic contribution.[210]

In order to improve the control and, hence, effectiveness of the selected market institutions on Tunisia's agricultural market system, thereby slowing down the growing number of intermediaries, it is necessary to collect, process, and diffuse transparent, consistent, and reliable market intelligence. Such data and statistics need to not only gauge the formal market segment (i.e. through SOTOUMAG and ONAP daily bulletins) but also the informal distribution circuits, which now remains beyond the scope of the selected market institutions.[211] This also requires the involvement small-scale market participants (e.g. farmers, distributors, wholesale, and municipal markets) as this - together with market intelligence - enables to (re)develop strategies anticipating on current needs and requirements. Municipal markets could take on this role as they directly interact with small-scale stakeholders.

Strives have been made in this respect. UTAP's electronic farmers database cover 78 indicators and GIS applications, which improves service-delivery, market intelligence, and the provision of market information of agricultural market institutions contributes to a more transparent and complete picture of the market conditions. Co-management is important in this context as

[209] Foreign Investment Promotion Agency (2015), *Agrifood Industry in Tunisia*, pp. 1-5, Tunis: Foreign Investment Promotion Agency.
[210] Export.gov (2016), Tunisia - Agriculture, available at https://www.export.gov/article?id=Tunisia-agriculture [Accessed May 2017].
[211] Ibid

involving agricultural communities in service-delivery and policy-making ensures it is aligned with current needs. An example of this can be found in Tunisia's southeastern coastal regions, where communities of fishermen have been actively involved in co-management.

Another bottleneck relates to the financial position of the selected agricultural market institutions (e.g. STS and ONH). Overcoming the ineffectiveness of current market institutions requires either financial restructuring (e.g. STS) or, even, privatization, in combination with an upgrade of its infrastructure to maximize productivity and, eventually, performance.[212]

A bottleneck which is present for most commodities is the fragmented and small-scale nature of Tunisia's agricultural market. The country case study of Tunisia has shown the importance of cooperatives for small-scale producers, which is typical for many OIC Member Countries. The selected market institutions may play a role to encourage farmers to structure in cooperatives. However, this is complicated due to farmer fragmentation and the absence of an institution which recognizes and authorizes the status of "farmers", making it complex to make the agricultural market, its performance, and market participants more transparent.

Cooperatives underline the importance of economies of scale, which enables Tunisia's small-scale farmers to collectively purchase inputs (e.g. pesticides, fertilizers, equipment, and machinery), organize trainings and workshops, and negotiate contracts with wholesalers as a result of increased bargaining power. This is particularly important given the recent devaluation of Tunisia's currency, which makes it expensive to import foreign inputs. A need exists for import substitution policies – perhaps implemented by a new institution.

5.2.5 Conclusions and Lessons Learned

As has become evident in Section 5.2.1 and throughout the remainder of this country case study, the three key challenges impacting Tunisia's agricultural market system and, hence, its market performance include:[213]

- Missing coordination between the various market participants of Tunisia's agricultural market channels (e.g. producers, collectors, distributors, and suppliers).
- Absence of post-harvest management through a lack of collection and storage infrastructure, which now is the responsibility of the private sector.
- Ineffective overall management of the agricultural market. Ineffective distribution channels adversely impact the quality and perishability of Tunisia's commodities, especially its fresh agricultural products.

Indeed, the presence of (too) many intermediaries in combination with (high) market taxes, leads to informal and inefficient distribution channels, especially in the vegetables sector. The seafood and aquaculture sector provides a guideline, as weekly wholesale fishing markets are present in each fishing port, operating as main and direct distributor of all seafood products. The lease of these fishing markets is provided to merchants through a transparent tender process.

[212] Nawaat (2015), Food Markets in Tunisia: State Institutions and Controls for Distribution Circuits of Agricultural and Seafood Products, available at https://nawaat.org/portail/2015/05/10/food-markets-in-tunisia-state-institutions-and-controls-for-distribution-circuits-of-agricultural-and-seafood-products/ [Accessed May 2017].
[213] Interview conducted with Institute Nationale Agronomique de Tunisie in Tunis, May 17, 2017

As has become evident, Tunisia has quite a range of market institutions which facilitate the implementation of its agricultural price support measures and regulations such as subsidized inputs, guaranteed minimum prices, and direct market intervention. For example;

- UTAP has the ability to directly intervene in the market in collaboration with the Inter-Professional Agricultural Associations and private sector in order to balance supply and demand of the market, guarantee reasonable prices for the farmers, and ensure regulatory stock (i.e. control and location of stock per governorate).
- SOTUMAG manages the largest wholesale market of Tunisia, where the country's circuits of agri-food distribution are consolidated and unified through monitoring and regulatory enforcement mechanisms. SOTUMAG's mandate also concerns diffusion of the standard for prices of products.
- Marketing boards have a relatively strong market interference power, as they can negotiate this price freely, thereby guaranteeing a certain minimum price (i.e. ONH) or buy common wheat and durum at prices set by the Government while selling domestic and imported cereals at fixed prices to processing facilities (i.e. OC).

These existing agricultural market institutions in Tunisia have responded to (some of) these three most urgent challenges. UTAP, for instance, has implemented a pilot project for the creation of distribution cooperatives to bypass the ever growing number of traders and intermediaries, enabling small-scale farmers to sell their products directly to the market. In this context, another example from UTAP is relevant. This example concerns the Kairouan Governorate, where a private cereals cooperative has been developed under the supervision of UTAP. After three years, this co-operation made a net profit of about US$107,000 while state-owned cooperatives lost profit. This can be attributed to the collaboration, trust among farmers, collectively purchase of inputs, and harmonization and standardization of agricultural production. It remains politically challenging, however, to give up power of state-owned cooperatives to private-led cooperatives.

Though not one of the six selected agricultural market institutions, a good practice in this context is an initiative of one of the line Ministries involved in agricultural market systems (i.e. Ministry of Investment, Development, and International Cooperation), which has been developed in collaboration with the World Bank. The program looks to connect small-scale farmers with markets while simultaneously creating jobs, valorizing what is produced local, and ensuring reliable prices to small-scale farmers. This is done by developing coordination institutions (or "units of transformation") and private-sector cooperatives to transform commodities locally and hence add value in the rural areas. However, distribution to markets remains an issue due to lack of infrastructure and legal issues arise as a change of law is required to transfer public investment to the private cooperatives.

Some of the priorities of Tunisia's post-revolution agriculture and fisheries development plan 2016-2020 concern addressing the fragmentation of the sector, the creation of new mechanisms to exploit agricultural land, and improving governance practices by means of (the creation of new) professional and civil-society organizations and coordination mechanisms,[214] which could include the creation of new market institutions.

[214] WTO (2016), *Tunisia Trade Policy Review Report by the Government*, Geneva: World Trade Organization.

On the other hand, the intervention of the Government of Tunisia its agri-food market remains strong. This concerns fixing consumer prices (e.g. milk, bread, flour, oil, and sugar), margins for the distribution circuits (e.g. rice, eggs, food preparations, fruits, and vegetables) as well as the industrial cost price commodities such as salt and coffee. Tunisia's agricultural policy remains characterized by a relatively high level of protection through customs tariffs, price control mechanisms, and other support measures. However, Tunisia's market price support policies may not be in full compliance with bilateral and multilateral agreements and may lead to a sub-optimal allocation of resources, which, in turn, undermines the competitiveness of Tunisia's agricultural sector.[215]

Looking at Tunisia's agricultural market intervention, it is mainly orientated on ensuring a stable supply of staple products at reasonable prices for consumers through protectionist trade barriers, price control mechanisms, subsidies, and direct market intervention through market institutions as mentioned in Section 5.2.2. However, as these interventions have proven to be costly (e.g. ONH and STS), ineffective and imposing a considerable administrative burden,[216] Tunisia is recommended to move to policies of direct income support.[217] Other emerging countries such as Turkey, Mexico, and new EU Member Countries have moved away from protectionist market support policies and adopted direct income support policies. A transition towards direct income support policies requires a new market system and institutional environment. This is where Tunisia's agri-food market institutions continue to play a role by improving the conditions and regulations of Tunisia's agricultural and food sector.

[215] African Development Bank (2012), *Economic Brief - Distortions to Agricultural Policy Incentives in Tunisia: A Preliminary Analysis*, pp. 5-11, Tunis: African Development Bank.
[216] Ibid
[217] Ibid

5.3 Uganda

The purpose of this country case study is to firstly introduce Uganda's general agricultural market system (5.3.1), after which a selection of institutions will be evaluated into more details (5.3.2 to 5.3.4). Conclusions and lessons learnt may be generalized and serve as inspiration to other OIC Member Countries (5.3.5).

5.3.1 Overview of Agricultural & Food Sectors and Markets

The following section briefly describes the current situation of the five stages of Uganda's agricultural market system as explained in the Conceptual Framework. The selected agricultural market institutions (Section 5.3.2) typically intervene in one or more of these stages. The five stages include:

- Production;
- Handling and storage;
- Processing and packaging;
- Distribution and market; and
- Consumption and trade.

Production

Uganda's agricultural production structure can be marked by a two-tier system, consisting of "traditional" and "improved" systems. While the former is characterized by limited inputs and outputs, the latter features a certain degree of investment (e.g. fencing, irrigation, and pasture improvement), resulting in slightly higher productivity rates. Only 18,000 km^2 is considered "improved" pastures, while a large share of Uganda's population is dependent on these areas for their livelihood, putting considerable pressure on the capacity and natural resources of these areas. The land tenure system in Uganda furthermore challenges the agricultural production channel. The four systems of land tenure[218] (i.e. Customary, Freehold, Mailo, and Leasehold) are inefficient and complicated[219] and impact land productivity in different degrees. Most land tenure is Customary (80%), where landholders do not have a formal entitlement but have a certification of ownership.[220]

About 75% of Uganda's agricultural output is generated by farmers with an average farm size of 2.5 hectares[221] while 68% of Uganda's farmers are considered subsistence farmers with less than two hectares.[222] In the coffee sector, for instance, 500,000 small-scale farmers operate with an average farm size of 0.2 hectares, while farm size vary from 0.5 to 10 hectares in the cotton sector. These small-scale farmers dominate Uganda's agricultural sector, making it an outspokenly fragmented sector[223] though some large-scale commercial farming of cash crops (e.g. tea, palms, rice, and sugarcane) exists. Coffee, banana, livestock, and fishing remain activities dominated by small-scale farmers with the exception of some fish processing plants

[218] FAO (2006), Country Pasture/Forage Resource Profiles,
available at http://www.fao.org/ag/agp/agpc/doc/counprof/uganda.htm [Accessed May 2017].
[219] Export.gov (2016), Uganda - Agriculture, available at https://www.export.gov/article?id=Uganda-Agriculture [Accessed May 2017].
[220] WTO (2012), *Trade Policy Review: East African Community*, Geneva: World Trade Organization: Geneva.
[221] Ibid
[222] Interview conducted with National Agricultural Advisory Services in Kampala, June 8, 2017
[223] Government of Uganda (2017), Agriculture, available at http://www.gou.go.ug/content/agriculture [Accessed May 2017].

and commercial ranches in Uganda's south. The lion's share of Uganda's agricultural production activities are manually done (e.g. cattle-driven ox ploughs) and mechanization is only developing sporadically.

High costs, limited availability, inadequate, and unequal access to finance and insurance continues to constrain small-scale farmers to invest in their assets, upgrade their production capacities, and support them in periods of extreme weather (e.g. droughts or heavy rainfall) leading to crop failures.[224] Some credit is available but interest rates range from 10 to 20%.[225] Agricultural institutional financing[226] is a critical component missing in Uganda's agricultural sector, considerably undermining the efficiency and performance of its market system.

Finally, more adequate facilities are required to facilitate more efficient production, especially for small-scale subsistence farming.[227] For instance, hatcheries are needed to support fisheries and the aquaculture industry[228] while water pumps,[229] irrigation, contract farming, and out-grower schemes,[230] veterinary services and care, farming-related inputs, machinery, and equipment (e.g. hybrid seeds, animal feeds, livestock genetics, pesticides, and fertilizers)[231] need to become more available for Uganda's small-scale farmers – particularly in the rural areas - at lower costs. For example, seeds have to be imported from Kenya, making their supply unreliable and expensive.[232]

Table 4 – Uganda (UGA)/World agricultural production and exports, selected commodities

	2016 Production ('000 MT)			2016 Exports ('000 MT)			Imports ('000 MT)
	UGA	World	UGA %	UGA	World	UGA %	
Sorghum	320	62,640	1%	83	8,709	1%	9.3
Soybeans	30	351,780	0%	10.6	145,170	0%	
Bananas**	587	114,130	1%	2.8	21,876	0%	
Millet**	237	28,385	1%	/	/	/	
Coffee*	3700	159,312	2%	3600	130,326	3%	0
Cassava**	2812	268,278	1%	/	/	/	
Maize	1680	1,068,790	0%	225	148,475	0%	1.5
Wheat**	22	729,012	0%	0.4	184,341	0%	562
Beef & veal***	162.7	61,583	0%	0.131	9,641	0%	0.034

[224] New Agriculturist (2012), Country profile – Uganda, available at http://www.new-ag.info/en/country/profile.php?a=2414 [Accessed May 2017].
[225] Women in Europe for a Common Future (2014), *Empower Women – Benefit for All: Report Baseline and Training Needs Assessment – Agriculture for Uganda*, pp. 15-20, Utrecht: WEFC.
[226] Export.gov (2016), Uganda - Agriculture, available at https://www.export.gov/article?id=Uganda-Agriculture [Accessed May 2017].
[227] New Agriculturist (2012), Country profile – Uganda, available at http://www.new-ag.info/en/country/profile.php?a=2414 [Accessed May 2017].
[228] Government of Uganda (2017), Agriculture, available at http://www.gou.go.ug/content/agriculture [Accessed May 2017].
[229] Women in Europe for a Common Future (2014), *Empower Women – Benefit for All: Report Baseline and Training Needs Assessment – Agriculture for Uganda*, pp. 15-20, Utrecht: WEFC.
[230] Government of Uganda (2015), Second National Development Plan (NDPII) 2015/16 – 2019/20, available at http://npa.ug/wp-content/uploads/NDPII-Final.pdf [Accessed May 2017].
[231] Export.gov (2016), Uganda - Agriculture, available at https://www.export.gov/article?id=Uganda-Agriculture [Accessed May 2017].
[232] Women in Europe for a Common Future (2014), *Empower Women – Benefit for All: Report Baseline and Training Needs Assessment – Agriculture for Uganda*, pp. 15-20, Utrecht: WEFC.

	2016 Production ('000 MT)			2016 Exports ('000 MT)			Imports ('000 MT)
Pork* **	96.8	110,727	0%	0.012	11,563	0%	0.056
Poultry* **	67.5	89,470	0%	0.151	15,187	0%	0.151
Peanut	300	42,890	1%	1.5	2,302	0%	
Seed Cotton**	76	79,069	0%	/	/	/	
Tea**	61.4	5,561	1%	56	1,845	3%	
Tobacco**	31.7	7,176.7	0%	24.9	2,275	1%	
Fish (aquaculture)	117.6	73,800	0%	18.3	43,000	0%	

** '000 60kg bags*
*** production for 2014*
**** production for 2015*
Source: USDA Foreign Agricultural Service (2017), International Trade Center (2017), FAO (2017)

Handling and Storage

The combination of limited storage facilities, poor post-harvest handling techniques, and high electricity costs have reduced the potential for local value-added activities.[233] In fact, it is estimated 20 to 30% of the value of agricultural produces is lost due to absent or inadequate handling and storage infrastructure.[234] Post-harvest handling activities are challenged due to inadequate or absent storage and bulking facilities. For example, the lack of cold storage facilities has led to the waste of farmers' milk production.[235] Most urgent are storage facilities for grain, milk, and coffee, while abattoirs in different parts of the country need to be developed for the livestock sector.[236] Storage facilities for crops, livestock, and fish products should be developed to facilitate more efficient bulk cleaning, grading, and storing for small-scale farmers and farmers associations.[237]

The absence of storage facilities also affects supply and demand and market prices and, ultimately, profit margins for farmers.[238] Price fluctuations are strong given the high supply during the harvest season. Famers can't store their produce and wait for periods with lower supplies and, hence, higher prices for their agricultural products. This leads to an imbalanced agricultural market.

Processing and Packaging

The proportion of processed agricultural products and commodities is currently lest than 5%.[239] One of the spearheads of the Government of Uganda has been to attract FDI in the agro-

[233] Government of Uganda (2015), Second National Development Plan (NDPII) 2015/16 – 2019/20, available at http://npa.ug/wp-content/uploads/NDPII-Final.pdf [Accessed May 2017].
[234] Interview conducted with Ministry of Agriculture, Animal Industry, and Fisheries in Kampala, June 7, 2017
[235] Export.gov (2016), Uganda - Agriculture, available at https://www.export.gov/article?id=Uganda-Agriculture [Accessed May 2017].
[236] Government of Uganda (2017), Agriculture, available at http://www.gou.go.ug/content/agriculture [Accessed May 2017].
[237] Government of Uganda (2015), Second National Development Plan (NDPII) 2015/16 – 2019/20, available at http://npa.ug/wp-content/uploads/NDPII-Final.pdf [Accessed May 2017].
[238] Women in Europe for a Common Future (2014), *Empower Women – Benefit for All: Report Baseline and Training Needs Assessment – Agriculture for Uganda*, pp. 15-20, Utrecht: WEFC.
[239] WTO (2012), *Trade Policy Review: East African Community*, Geneva: World Trade Organization: Geneva.

processing sector to increase exports and foreign exchange earnings.[240] Further opportunities exist for (foreign) companies to manufacture and assembly agricultural inputs, machinery, and equipment,[241] as the Government of Uganda seeks to support and promote private (foreign) investment in the manufacturing of such inputs and agro-processing of prioritized crops and commodities.[242]

Distribution and Market

Linkages between various agricultural market participants are generally weak, which, in combination with poor transportation networks, frustrates Uganda's overall agricultural market system.[243] Geographical zones in Uganda have been designated for specific production according to different crops, soil conditions, and local climate[244] and are linked to the national road network with the objective to optimize logistics and Uganda's agricultural market system.[245] However, distribution of Uganda's agricultural products is hampered due the absence of nearby markets[246] and poor connections between the production areas and final markets,[247] leading to high transportation and freights costs[248] and reduced agricultural profits.

Reducing the transportation and freight costs and improving domestic and regional market access requires to improve Uganda's degraded rural road network (i.e. feeder, community, and trunk roads) and strategic roads and railroads.[249] The bad conditions of Uganda's rural road network forces small-scale farmers to sell their products to intermediaries at very low prices.[250]

Consumption and Trade

Uganda recorded an agricultural trade surplus of US$550 million for 2013, with agricultural exports amounting up to US$1.33 billion and imports equaling US$0.77 billion. However, despite its considerable export of raw agricultural products, Uganda has been a net importer of food as it imported foods for more than US$0.79 billion over 2014[251] while it only exported

[240] Export.gov (2016), Uganda - Agriculture, available at https://www.export.gov/article?id=Uganda-Agriculture [Accessed May 2017].
[241] Uganda Investment Authority (2017), Investment Opportunities, available at https://www.ugandainvest.go.ug/investment-opportunities/ [Accessed May 2017].
[242] Government of Uganda (2015), Second National Development Plan (NDPII) 2015/16 – 2019/20, available at http://npa.ug/wp-content/uploads/NDPII-Final.pdf [Accessed May 2017].
[243] New Agriculturist (2012), Country profile – Uganda, available at http://www.new-ag.info/en/country/profile.php?a=2414 [Accessed May 2017].
[244] Interview conducted with Uganda Investment Authority in Kampala, June 7, 2017
[245] Uganda Investment Authority (2017), Investment Opportunities, available at https://www.ugandainvest.go.ug/investment-opportunities/ [Accessed May 2017].
[246] Women in Europe for a Common Future (2014), *Empower Women – Benefit for All: Report Baseline and Training Needs Assessment – Agriculture for Uganda*, pp. 15-20, Utrecht: WEFC.
[247] Government of Uganda (2015), Second National Development Plan (NDPII) 2015/16 – 2019/20, available at http://npa.ug/wp-content/uploads/NDPII-Final.pdf [Accessed May 2017].
[248] Export.gov (2016), Uganda - Agriculture, available at https://www.export.gov/article?id=Uganda-Agriculture [Accessed May 2017].
[249] Government of Uganda (2015), Second National Development Plan (NDPII) 2015/16 – 2019/20, available at http://npa.ug/wp-content/uploads/NDPII-Final.pdf [Accessed May 2017].
[250] Women in Europe for a Common Future (2014), *Empower Women – Benefit for All: Report Baseline and Training Needs Assessment – Agriculture for Uganda*, pp. 15-20, Utrecht: WEFC.
[251] FAO (2015), FAOSTAT Uganda, available at http://fenixservices.fao.org/faostat/static/syb/syb_226.pdf [Accessed May 2017].

food products for US$0.45 billion in the same year, indicating to a trade deficit of more than US$340 million. Food prices have remained rather stable except for last year due to drought. This has particularly affected urban consumers as they do not conduct subsistence farming.[252]

Historically, Uganda has been an exporter of a wide variety of raw agricultural products, which continue to account for nearly half of Uganda's exports (in 2012).[253] Uganda's key traditional cash crop is coffee - generating 20 to 30% of Uganda's foreign exchange earnings[254] after tourism and remittances[255] - and is followed by cotton, tea, cocoa, tobacco, and sugar. The productivity of Uganda's coffee sector has decreased due to unstable weather conditions, leached soils, old trees, low tree density, poor farm management practices. and diseases and pests (e.g. coffee wilt disease and coffee leaf rust fungus). About 56% of the trees has been destroyed by coffee wilt disease. Still, there is 1.7 million coffee smallholders, which produce 200,000 metric tonnes of coffee annually (world's eighth largest), of which 97% is exported (largest in Africa).[256]

Non-traditional cash crops include maize, rice, beans, soya beans, palms, horticultural products[257] (e.g. roses, carnations, and other exotic plants) cassava, sweet and Irish potatoes, millet, sorghum, and groundnuts.[258] However, a trade deficit of US$185 million was recorded for cereals for 2014.[259] Uganda seems to be a particular net exporter of fish (US$61 million), as Uganda has a variety of fish resources, fish species, fresh water bio-diversities and eco-systems.[260] Ugandan fish exports have attained safety and quality standards for production, turning it into the country's second largest export earner.[261] Unfortunately, fish populations in Lake Edward and Lake George have considerably dwindled as a result of over-fishing, non-compliance of regulations, destructive fishing practices, and pollution.

Dairy products (US$16 million) and fruits and vegetables (US$13 million), while its meat trade is more or less equally balanced (trade deficit of only US$1 million). Room for trade exists, particularly for dairy and meat, but requires disease control, distribution and logistics infrastructure, and processing facilities.[262]

Livestock is an import sub-sector of Uganda's agricultural sector. Uganda's livestock, which mainly concerns Ankole cattle, sheep, goats, pigs, and poultry, and dairy sectors are growing[263]

[252] Interview conducted with Ministry of Finance, Planning & Economic Development in Kampala, June 7, 2017
[253] FAO (2015), FAOSTAT Uganda, available at http://fenixservices.fao.org/faostat/static/syb/syb_226.pdf [Accessed May 2017].
[254] New Agriculturist (2012), Country profile – Uganda, available at http://www.new-ag.info/en/country/profile.php?a=2414 [Accessed May 2017].
[255] Interview conducted with Uganda Coffee Development Authority t in Kampala, June 8, 2017
[256] Ibid
[257] Government of Uganda (2017), Agriculture, available at http://www.gou.go.ug/content/agriculture [Accessed May 2017].
[258] Export.gov (2016), Uganda - Agriculture, available at https://www.export.gov/article?id=Uganda-Agriculture [Accessed May 2017].
[259] FAO (2015), FAOSTAT Uganda, available at http://fenixservices.fao.org/faostat/static/syb/syb_226.pdf [Accessed May 2017].
[260] Government of Uganda (2017), Agriculture, available at http://www.gou.go.ug/content/agriculture [Accessed May 2017].
[261] New Agriculturist (2012), Country profile – Uganda, available at http://www.new-ag.info/en/country/profile.php?a=2414 [Accessed May 2017].
[262] Ibid
[263] Export.gov (2016), Uganda - Agriculture, available at https://www.export.gov/article?id=Uganda-Agriculture [Accessed May 2017].

in response to increased domestic demand for meat and milk.[264] The majority of cattle (i.e. 80%) is centered in Uganda's southern and western regions and owned by small-scale mixed farmers. However, only half of the domestic and regional demand could be met by Uganda's livestock production[265] while Uganda's livestock productivity is impeded by emerging diseases, lack of high-quality pastures, and cattle rustling.[266]

Uganda is the first certified African exporter of organic products.[267] The Uganda Organic Standard (UOS), followed by the EAOPS and East African Organic Mark (or "Kilimohai"), were developed and fully comply with EU regulations and standards.[268] Nearly 188,000 certified Ugandan farmers were engaged in organic farming in 2010. Ugandan organic farming has an extremely small-scale nature with an average of just 1.3 hectares. However, given increased international demand, organic farming represents a high amount of foreign earnings, which mainly includes coffee (20% Arabica and 80% Robusta), cocoa, frozen, fresh, and dried fruits (e.g. banana's, apples, mango's, pineapples, and papaya), plants (e.g. ginger, vanilla, and sesame), and cotton though the number of certified organic cotton farmers has decreased due to Government interference. However, access of smallholder to certification remains complicated. For instance, only 4% of the coffee smallholders are certified.[269]

Organic products are being marketed to the local market through a number of processors and retailers (e.g. supermarkets, restaurants, and open markets). Internationally, Kenyan and South Sudanese traders and intermediaries buy directly from organic farmers while global exports of Ugandan organic products has been challenged by high freights costs.

Policy & Regulatory Framework

Government intervention in the agricultural and food market in Uganda traditionally included a number of participants, particularly some concerned Ministries and their state-owned enterprises. The (predecessors of) the Ministry of Agriculture, Animal Industries, and Fisheries (MAAIF) and Ministry of Finance, Planning, and Economic Development (MoFPED) were particularly involved, and were supported in their market intervention activities through their agricultural state-owned enterprises.
The Government of Uganda followed international developments and trends with respect to market institutions and started large-scale privatization of its market institutions and state-owned economic enterprises in the early 1990s. As mentioned in Chapter 2, the institutional development in the agricultural market of the 1980s and 1990s is characterized as "getting the price right" as opposed to "getting the markets right" sentiment which prevailed throughout the 1970s and early 1980s. The focus shifted to free markets and reducing involvement and interference of Governments in agricultural market.[270]

[264] FAO (2006), Country Pasture/Forage Resource Profiles,
available at http://www.fao.org/ag/agp/agpc/doc/counprof/uganda.htm [Accessed May 2017].
[265] Government of Uganda (2017), Agriculture, available at http://www.gou.go.ug/content/agriculture [Accessed May 2017].
[266] New Agriculturist (2012), Country profile – Uganda, available at http://www.new-ag.info/en/country/profile.php?a=2414 [Accessed May 2017].
[267] Foreign Investment Promotion Agency (2015), *Agrifood Industry in Tunisia*, pp. 1-5, Tunis: Foreign Investment Promotion Agency.
[268] Namuwoza, C. & Tushemerirwe, H. (2011), Uganda: Country Report, available at http://www.organic-world.net/fileadmin/documents/yearbook/2011/namuwoza-tushmerirwe-2011-uganda.pdf [Accessed May 2017].
[269] Interview conducted with Uganda Coffee Development Authority in Kampala, June 8, 2017
[270] Van Trijp, H. & Ingenbleek, P. (2010), "Markets, market and developing countries: Where we stand and where we are heading", pp. 9-16, Wageningen: Wageningen Academic Publishers.

In Uganda, liberalization was particularly undertaken in response to failing management of national assets by the state-owned economic enterprises. This also included some agricultural state-owned economic enterprises, which were previously involved in interesting in Uganda's agricultural market and regulating demand and supply. The Government of Uganda withdrew its marketing boards and state-owned economic enterprises as the common rationale was the market system should be private-sector led and not restricted by Government involvement in agricultural market.[271] Former state-owned economic enterprises which were privatized include, among others, Agricultural Enterprises Ltd, Uganda Tea Corporation Ltd, Uganda Fisheries Enterprises, Uganda Meat Packers Ltd, Uganda Meat Packers Ltd, Uganda Grain Milling, and the Dairy Corporation.[272]

Despite this wave of privatization in the early 1990s, a number of specific market institutions exist to implement the Government of Uganda's policies and strategies with respect to regulating and enabling various market channels of Uganda's agricultural sector as the MAAIF itself does not have the mandate to conduct business or involve in production.[273] In fact, the entire agricultural market system of Uganda remains liberalized[274] and private-sector led, where the interference of the Government is limited to regulation, providing extension services, quality assurance, standardization, research, and provision of inputs in order to improve market access.[275] The reconstitution of the Uganda Development Corporation in 2008 is a slight re-introduction of the Government of Uganda's interference though its intervention remains limited and certainly does not concern price controlling (e.g. funding of PPP projects in fruit processing). [276]

Sustainable economic and social development are placed at the hearth of Uganda's second National Development Plan (NDP) 2015/16 – 2019/2020 and National Agricultural Policy 2013, which are supported through a Development Strategy and Investment Plan (DSIP) and detailed Framework Implementation Plans (FIPs). Agriculture is considered as one of the five priority areas with the greatest multiplier effect on the economy in terms of poverty reduction, food security, export potential, women labor force participation, wealth creation, inclusive growth, and employment generation.[277] It puts specific emphasis on value-adding along twelve of the sector's commodities (e.g. cotton, coffee, tea, maize, rice, cassava, beans, fish, beef, milk, citrus, and bananas), agro-processing as well as market to support the commercialization of the agricultural sector.

The NDP draws specific attention to the institutional context and the market system of the twelve selected value chains, which include production, transportation, storage, processing, market, and distribution activities. The sector's key players, stakeholders, and market institutions have different entry points through one (or more) of these stages and hence enable the Government to realize its objectives for the agricultural market. Indeed, the Government of Uganda looks to develop the capacities of such organizations (e.g. cooperatives, farmers'' organizations, associations) to encourage economies of scale, improve market access,

[271] Interview conducted with Ministry of Finance, Planning and Economic Development in Kampala, June 7, 2017
[272] Daily Monitor (2011), 20 years of a privatised Uganda, available at http://www.monitor.co.ug/News/Insight/688338-1222302-ij2ihg/index.html [Accessed May 2017].
[273] Interview conducted with Ministry of Agriculture, Animal Industries, and Fish in Kampala, June 9, 2017
[274] Interview conducted with Ministry of Trade, Industry & Cooperatives in Kampala, June 7, 2017
[275] WTO (2012), *Trade Policy Review: East African Community*, Geneva: World Trade Organization: Geneva.
[276] Interview conducted with Ministry of Finance, Planning and Economic Development in Kampala, June 7, 2017
[277] Government of Uganda (2015), Second National Development Plan (NDPII) 2015/16 – 2019/20, available at http://npa.ug/wp-content/uploads/NDPII-Final.pdf [Accessed May 2017].

intelligence, and information as the numbers remain low. For instance, only 15% of Uganda's coffee smallholders are united in associations, federations, and cooperatives.[278]

The NDP is complemented by the Agriculture Sector Strategic Plan (ASSP) for the period 2015/16 to 2019/20 has formulated four key intervention areas:[279]

1. Increase production and productivity;
2. Provision of high-quality seeds, inputs, and planting materials to smallholders;
3. Improve market access and value addition with a focus on twelve prioritized commodities selected on their potential for food security and exports. The UEPB has an important mandate to provide guidance on (international) market access.
4. Improving institutional capacity of extension services, standards, and quality assurance. This also includes addressing the mentality of farmers, who need to become more entrepreneurial.

Realizing these interventions includes improving the hardware, especially market infrastructure for small quantities. The Government of Uganda seeks to provide electricity to people in rural areas to enable them to do the most primary forms of processing to enable them to add value to their products. Improving Uganda's agricultural hardware also concerns post-harvest handling and storage through the Warehouse Receipt System (WRS).

The formation of farmer groups is another pillar of MAAIF's policy. Farmer groups have been established in partnership with the Government (e.g. to provide extension services), which are considered vital for a viable production and market system. These farmer groups eventually evolve into farmer cooperatives. So-called area "cooperative enterprises" have been established through support from the WFP, connecting small-scale farmers with storage facilities and markets.[280] From there, as it concerns more large-scale quantities of agricultural produces, the Ministry of Trade and Uganda Export Promotion Board (UEPB) pick it up.[281]

Finally, improving market information systems are crucial. This is currently challenged because it private-sector led but very costly to provide. Small-scale farmers don't use market information as they are not business-minded and do not consider it as input for their business. An important aspect of market information relates to standardization (e.g. size, volume, and ingredients).

5.3.2 Agricultural & Food Market Institutions

A number of line Ministries and market institutions exist to implement NDP and ASSP, particularly with respect to regulating and enabling various market channels of Uganda's agricultural and food sector. The institutional framework of Uganda's agricultural market system is set and governed by a number of Government entities and non-Government entities.

This section only focuses on selected agricultural market institutions based on the classification accentuated in the Conceptual Framework in Chapter 1 (i.e. six key agricultural market institutions). Given Uganda's policy context, these market institutions have a more

[278] Interview conducted with Uganda Coffee Development Authority in Kampala, June 8, 2017
[279] Interview conducted with Ministry of Agriculture, Animal Industries, and Fish in Kampala, June 9, 2017
[280] Interview conducted with Ministry of Finance, Planning and Economic Development in Kampala, June 7, 2017
[281] Interview conducted with Ministry of Agriculture, Animal Industries, and Fish in Kampala, June 9, 2017

regulatory function as opposed to directly intervening in production and trading as state-owned economic enterprises typically do (**Table 5 – Overview of the six selected agricultural market institutions in Uganda**).[282] These market institutions are complemented by many private sector initiatives such as the Grain Council, Green Council of Uganda, and Leather Development Council.[283]

Together, these selected market institutions support the participation of smallholder farmers through various initiatives: [284]

1. Clustering of farmland with specializations;
2. Support "nucleus" farmers, which eventually require supplies from other local farmers and through outgrower schemes, extending the multiplier effect. This would also include FDI acting as "nucleus" farmers (e.g. for tea, sugar, cane), eventually leading to contracts with local growers;[285] and
3. Establishment of area cooperatives enterprises in partnership with the Government of Uganda.

Table 5 – Overview of the six selected agricultural market institutions in Uganda

Classification	Institution	Description
Cooperative	*Uganda Cooperative Alliance Ltd*	The cooperative movement has played a substantial role in Uganda and exists for about 100 years.[286] The movement has been initiated in response to exploitation of its natural resources by European and Asian private enterprises, particularly coffee and cotton. The number of cooperatives expanded gradually as a result of policy measures in the late 1950s. More than 1,660 primary cooperative societies (with over 250,000 members) and 21 registered cooperative unions exists in Uganda by the end of 1961, including the Uganda Cooperative Alliance (UCA) Ltd. This number increased further as a result of Uganda's independence in 1962 and the policies of the new Government of Uganda, which favoured cooperatives. The UCA has gradually evolved into a powerful umbrella organization for all Ugandan cooperatives. UCA's mandates include acting as policy advisor to the Government of Uganda, implementing and coordinating cooperative development projects, and settling conflicts within the cooperative movement.[287]
Marketing Board	*Dairy Development Authority*	The Dairy Development Authority (DDA) is a statutory body under the supervision of MAAIF.[288] The initiation of the DDA can be traced back to the Dairy Master Plan of 1993, of which liberalization of the dairy sector supervised by a dairy board was one of the key recommendations.[289] The DDA become operational in 2000 and provides development (e.g. training, assistance, and research) and regulatory (e.g. policy advocacy) services to Uganda's dairy community. The DDA also functions as advisor to the Government of Uganda with regards to policy-making and legislation.

[282] Interview conducted with Ministry of Finance, Planning and Economic Development in Kampala, June 7, 2017
[283] Interview conducted with Ministry of Trade, Industry & Cooperatives in Kampala, June 7, 2017
[284] Interview conducted with Ministry of Finance, Planning and Economic Development in Kampala, June 7, 2017
[285] Interview conducted with Ministry of Trade, Industry & Cooperatives in Kampala, June 7, 2017
[286] Uganda Cooperative Alliance (2009), Development of the Cooperative Movement in Uganda, available at http://www.uca.co.ug/publications/coophist.pdf [Accessed May 2017].
[287] Uganda Cooperative Alliance (2017), About UCA, available at http://www.uca.co.ug/# [Accessed May 2017].
[288] Government of Uganda (2017), Agriculture, available at http://www.gou.go.ug/content/agriculture [Accessed May 2017].
[289] Dairy Development Authority (2017), DDA Profile, available at http://www.dda.or.ug/profile.html [Accessed May 2017].

Classification	Institution	Description
Marketing Board	*Uganda Coffee Development Authority*	The Uganda Coffee Development Authority (UCDA) is a semi-autonomous Government entity, which is supervised by MAAIF,[290] established in 1991.[291] Supervising and promoting Uganda's coffee industry through supporting research, quality assurance management and regulation (e.g. licensing of coffee roasters and exporters, provision of quality certification, and authorization of seeds), extension (e.g. roasting and brewing practices), collecting, analyzing, and timely disseminating coffee market data (e.g. publishing indicative prices in daily market reports), and market access improvement are among UCDA's key mandates.[292] However, the UCDA does not set reference prices and market and transportation are typical private-sector led.[293] The UCDA promotes coffee production (both national and at tree-level) through the provision of clean planting materials (i.e. seedlings, clones, and tissue culture).[294] The UCDA also has a regulatory role as all coffee processors and exporters must be registered with the UCDA. The UCDA should, in turn, authorize these processors and exporters. The UCDA, in addition to exports, also promotes domestic coffee consumption. A tax levied at 1% of the export value is directly collected by the UCDA and serves as fund for its activities. The sector is particularly exposed to volatile world market coffee prices, which, in combination with pests and diseases, have discouraged sustainable agricultural practices and investment.
Marketing Board	*Cotton Development Organisation*	The Cotton Development Organisation (CDO) is a semi-autonomous body reporting to MAAIF.[295] Monitoring Uganda's cotton production, processing, distribution, market, and exports (90% as raw lint[296]) as well as promoting high quality cotton seed through training and certification are CDO's key responsibilities. CDO has been established in 1994.[297] The CDO is not setting reference prices but announces indicative prices (e.g. for export, ginnery-buying, and at farm-gate) at the start of each season. Exporters have to be authorized by the CDO and need to pay an export tax. Uganda's cotton sector is, similar to the coffee sector, exposed to volatile world market cotton prices, particularly due to low domestic lint consumption. However, a form of price support exists for the cotton sector through the Government and Ginner's Support Production Programme, which provides price support for spray pumps and pesticides. The CDO provides cotton planting seed and other cotton-related inputs. Market and transport are private-sector led and no Government intervention exists in these channels.
Commodity Market Regulation Authority	*National Forestry Authority*	The National Forestry Authority (NFA) is, together with the Forestry Sector Support Department and the Uganda Wildlife Authority, responsible for Uganda's forestry sector. Their efforts are complemented by the private sector (e.g. tree plantations and wood-

[290] Government of Uganda (2017), Agriculture, available at http://www.gou.go.ug/content/agriculture [Accessed May 2017].
[291] Uganda Coffee Development Authority (2017), About UCDA, available at http://ugandacoffee.go.ug/ [Accessed May 2017].
[292] Interview conducted with Uganda Coffee Development Authority in Kampala, June 8, 2017
[293] WTO (2012), *Trade Policy Review: East African Community*, Geneva: World Trade Organization: Geneva.
[294] Interview conducted with Uganda Coffee Development Authority in Kampala, June 8, 2017
[295] Government of Uganda (2017), Agriculture, available at http://www.gou.go.ug/content/agriculture [Accessed May 2017].
[296] WTO (2012), *Trade Policy Review: East African Community*, Geneva: World Trade Organization: Geneva.
[297] Cotton Development Organisation (2015), About Us, available at http://www.cdouga.org/about-us/ [Accessed May 2017].

Classification	Institution	Description
		based industries). The NFA manages more than 500 central forest reserves in order to provide a high quality supply of forestry-related products and is a semi-autonomous body established in 2003. Permits, license fees, and tax collection are among the responsibilities of the NFA, which are effectively carried out by the district forestry services.[298]
Licensed Public Warehouse Company	*Warehouse Receipt System Authority*	As part of the MAAIF's policy to improve market infrastructure for storage and post-harvest handling, the Uganda Warehouse Receipt System Authority (UWRSA) has been established in 2006 to oversee the WRS.[299] Smallholders store their produces at the warehouse, which has been constructed by a private sector enterprise, and pay a fee in return for a coupon they can cash out at the bank. In addition, this also improves smallholders' access to credit as their stored produces could function as collateral.[300]
Commodity Exchange Platform	*Uganda Commodity Exchange*	The establishment of the Uganda Commodity Exchange (UCE) can be put in the context of the high potential of commodity exchanges as recognized by international donors such as USAID and WFP.[301] UCE is an attempt to regulate standards. It is proposed to transform this commodity exchange into a regional commodities exchange although this initiative is still in its nascent stage.[302] The UCE is most likely to get operational in 2017 and is a PPP, where the Government of Uganda owns 20% of the shares, complemented by private sector investors and individuals. [303]

Source: Investment Consulting Associates – ICA (2017)

5.3.3 Effectiveness of Agricultural & Food Market Institutions

The precise impact of the selected institutions as described in section 5.3.2 on the effectiveness of Uganda's agricultural and food market is difficult to pinpoint. Most evidence is available on the efficiency of UWRSA, which has been challenged as there has not been enough quantity to store, leading the warehouses function as "white elephants".[304] This requires the creation of farmer groups and cooperatives to improve the volume of products to be stored and, hence, the performance of UWRSA and the agricultural market system, particularly post-harvest handling and storage. The efficiency of the UWRS is further challenged as it is unclear to smallholders how much they can receive when exchanging their storage coupons.[305]

5.3.4 Need Assessment Analysis

The objective of this section is to identify and select certain crops, products, or commodity groups for which a need exists to create a market institution and to further develop existing agricultural and food market institutions facing inefficiencies and deficiencies.

[298] WTO (2012), *Trade Policy Review: East African Community*, Geneva: World Trade Organization: Geneva.
[299] Interview conducted with Ministry of Trade, Industry & Cooperatives in Kampala, June 7, 2017
[300] Interview conducted with Ministry of Agriculture, Animal Industries, and Fish in Kampala, June 9, 2017
[301] FAO (2014), The challenges of managing agricultural price and production risks in sub-Saharan Africa, available at http://www.fao.org/3/a-i3907.pdf [Accessed May 2017].
[302] Interview conducted with Ministry of Finance, Planning and Economic Development in Kampala, June 7, 2017
[303] Interview conducted with Ministry of Trade, Industry & Cooperatives in Kampala, June 7, 2017
[304] Interview conducted with Ministry of Agriculture, Animal Industries, and Fish in Kampala, June 9, 2017
[305] Interview conducted with Ministry of Trade, Industry & Cooperatives in Kampala, June 7, 2017

Creating New Market Institution(s)

The fertile agricultural land in Uganda has the potential to feed 200 million people.[306] However, to realize this potential and its contribution to job creation, food security, and poverty reduction, some critical bottlenecks in Uganda's market system need to be addressed in order to improve the sector's effectiveness and performance as so maximize the sector's benefits.[307] Uganda's agricultural sectors is very fragmented in the first place due to the high degree of small-scale farmers involved in the sector. Hence, necessary improvements relate to connecting the various stages of Uganda's agricultural market system as well as improving the quality and effectiveness of these individual stages (i.e. production, post-harvest handling, processing, market, and distribution).

One of the key bottleneck includes – similar to Tunisia – the absence of an authority registering farmers and granting them a special status through a farmer card or farmer certificate stating their land ownership, putting smallholders in a virtuous circle of over-indebtedness and unlimited opportunities to access finance, credit, and loans to invest in increasing the production capacity (e.g. purchase of inputs and mechanization). This eventually impacts Uganda's domestic production and puts pressure on prices for domestic staple food as it leads to unstable and insufficient domestic supplies. Establishing a commodity exchange regulatory authority, which registers farmers and grants them access to credit and loans, may be part of the solution.

Moreover, Uganda's agricultural productivity is currently facing severe under-capacity. This requires the fragmented market system to be improved as it should be more market-driven, supply the agri-industry with Uganda's agricultural production, and respond to high demand from the market. An authority registering farmers is necessary within this context as such an institution could also provide more data and statistics as well as managing incentives for farmers.

Furthermore, a need exists to organize and regulate middlemen and commodity brokers,[308] functioning as intermediaries connecting the small-scale farmers with final markets. Since the current market system is not officially organized and regulated, there is a large role for middlemen, who have access to various market outputs (e.g. fresh food markets and processors).[309] The bottleneck, however, is that these middlemen operate as agents of the processors and buy with different standards (e.g. bags instead of kilograms). The market institution which should register farmers could, in addition, also be responsible for registering middlemen, traders, intermediaries, and commodity brokers to improve the efficiency of the distribution channel and, also, traceability of products distributed in the circuit.

Apart from these general bottlenecks, there may be a need for developing some new market institutions to support addressing bottlenecks in commodity-specific market systems:

[306] Export.gov (2016), Uganda - Agriculture, available at https://www.export.gov/article?id=Uganda-Agriculture [Accessed May 2017].
[307] Government of Uganda (2015), Second National Development Plan (NDPII) 2015/16 – 2019/20, available at http://npa.ug/wp-content/uploads/NDPII-Final.pdf [Accessed May 2017].
[308] Government of Uganda (2017), Agriculture, available at http://www.gou.go.ug/content/agriculture [Accessed May 2017].
[309] Interview conducted with National Agricultural Advisory Services in Kampala, June 7, 2017

- A need to invest in greenhouse farming exists to increase availability of seasonal commodities such as vegetables, fruits, and flowers.[310] This also addresses the challenges related to the seasonal variety in labor required for harvesting and post-harvesting activities.
- Another promising agricultural activity concerns biofuels.[311] However, according to the United States Trade Development Agency (USTDA), molasses or inedible crops (e.g. oak leaf cotton, castor, and jatropha) should be converted into biofuels as opposed to food crops (e.g. maize and cassava).
- The production of oilseed crops could also be further extended. Uganda is a net importer of edible oils despite its considerable potential for edible oilseeds.[312] Oilseed crops such as sesame, sunflower, palm, and soybean[313] could be cultivated at a greater scale.
- The opportunities and need for increasing production of apiculture and sericulture also generates potential for moving to upmarket segments of these two agricultural activities.[314] For apiculture, this could include honey processing and production of bees wax and related products, while this could concern the production of silk textiles for sericulture. Processing hides and skins due to the increased production of poultry, and animal husbandry as well as processing maize (e.g. cooking oil and pasta) provide opportunities to add more value to Uganda's traditional commodities.

The promotion of hides is now done by the Leather Development Council but could perhaps be intensified trough the creation of a market institution (e.g. marketing board).[315]

Developing Current Market Institution(s)

In addition to creating new market institutions, there is also a need for existing institutions which may further developed to mitigate challenges present in Uganda's agricultural market. In fact, creating new institutions may place a large burden on human and financial resources,[316] particularly market institutions buying surplus of supply and enforcing other price control mechanisms. Rather, to improve the performance of the market and the selected market institutions, existing institutions should be strengthened by focusing on value-addition and processing, standards and quality maintenance and enforcement, control of emerging diseases and pests, and the provision of market intelligence to reduce risks and inform farmers about current market prices. Hence, redeveloping existing market institutions may serve an important role in addressing current bottlenecks.

The first bottleneck concerns the absence of (enforcement of) regulations for standards and quality of inputs (e.g. seedlings, pesticides, and fertilizers).[317] Some of these inputs are

[310] Government of Uganda (2017), Agriculture, available at http://www.gou.go.ug/content/agriculture [Accessed May 2017].
[311] Export.gov (2016), Uganda - Agriculture, available at https://www.export.gov/article?id=Uganda-Agriculture [Accessed May 2017].
[312] Ibid
[313] Uganda Investment Authority (2017), Investment Opportunities, available at https://www.ugandainvest.go.ug/investment-opportunities/ [Accessed May 2017].
[314] Government of Uganda (2017), Agriculture, available at http://www.gou.go.ug/content/agriculture [Accessed May 2017].
[315] Interview conducted with Ministry of Trade, Industry & Cooperatives in Kampala, June 7, 2017
[316] Interview conducted with Ministry of Agriculture, Animal Industry, and Fisheries in Kampala, June 7, 2017
[317] Interview conducted with Ministry of Finance, Planning and Economic Development in Kampala, June 7, 2017

internationally banned, undermining the export opportunities for Uganda's farmers as inputs are unstandardized in combination with poor monitoring to what extent these inputs are used across Uganda's agricultural sector and from which sources. In fact, the absence of standardization had led Uganda losing out on attracting agri-processing FDI.[318] Standardization is also required to address the issue of middlemen operating as agents of the processors, who buy with different standards (e.g. bags instead of kilograms), thereby charging different prices. This could be addressed by contract farming in combination with standardization.[319]

To address this bottleneck, current market institutions such as the UGDA, CDO, DDA, and the MAAIF should further focus their mandates towards this gap. More regulation and guidance is required to facilitate the observation of these standards and quality assurance of inputs. Marketing boards should provide these to ensure standardization and correct application of seedlings, pesticides, inputs, and fertilizers.[320]

The second bottleneck concerns the absence of value addition activities facilitated by handling and storage infrastructure. It is estimated 20 to 30% of the value of agricultural produces is lost due to absent or inadequate handling and storage infrastructure.[321]

More regulation guidance by market institutions is necessary for value-addition and processing. The focus is on agri-business and the upper segments of the agricultural market system (i.e. processing and value addition). This particularly concerns commodities which are easily marketed and promoted (e.g. citrus, mango, passionfruit, pineapple, and apple).[322] This includes increasing value-adding processing[323] and packaging[324] activities for a number of (export) commodities (e.g. coffee, tea, cotton, and tobacco), which can yield considerable value-added profits.[325]

This is especially true for increasing value-added to raw or semi-processed products[326] and food processing activities.[327] Examples of the latter include roasting of coffee, processing instant coffee, crushing coffee plants, which should be the responsible of the UCDA, processing cereals, processing of natural fibers, and canning fish, meat, vegetables (e.g. tomato concentrate), and tropical fruits (e.g. juice extracts and frozen pulps[328]). Processing of dairy products includes the production of butter, cheese, yoghurt, ice cream, power milk, milk curds, and ultra-high-temperature processed milk, which could be a specific mandate of DDA. Rather than focusing on commodity-specific institutions, it may be worthwhile to also explore the creation of new market institutions focusing on value-addition and processing activities.

[318] Interview conducted with Uganda Investment Authority in Kampala, June 7, 2017
[319] Interview conducted with National Agricultural Advisory Services in Kampala, June 8, 2017
[320] Interview conducted with Ministry of Trade, Industry & Cooperatives in Kampala, June 7, 2017
[321] Interview conducted with Ministry of Finance, Planning and Economic Development in Kampala, June 7, 2017
[322] Interview conducted with National Agricultural Advisory Services in Kampala, June 8, 2017
[323] Government of Uganda (2017), Agriculture, available at http://www.gou.go.ug/content/agriculture [Accessed May 2017]
[324] Uganda Investment Authority (2017), Investment Opportunities, available at https://www.ugandainvest.go.ug/investment-opportunities/ [Accessed May 2017].
[325] Export.gov (2016), Uganda - Agriculture, available at https://www.export.gov/article?id=Uganda-Agriculture [Accessed May 2017].
[326] Government of Uganda (2015), Second National Development Plan (NDPII) 2015/16 – 2019/20, available at http://npa.ug/wp-content/uploads/NDPII-Final.pdf [Accessed May 2017].
[327] Government of Uganda (2017), Agriculture, available at http://www.gou.go.ug/content/agriculture [Accessed May 2017]
[328] Export.gov (2016), Uganda - Agriculture, available at https://www.export.gov/article?id=Uganda-Agriculture [Accessed May 2017].

Currently, farmers receive below-market prices as they are forced to sell their products prices in times of harvest and plenty supply due to the absence of storage facilities and warehouses. The performance of market institutions, and, particularly, marketing boards, could be improved if they would have budget to buy surplus in times of harvest, which can be stored and released in times of high demand to ensure stable supply and reasonable prices. There has been a push for such price control mechanisms within marketing boards but action has been limited, mainly due to budget constraints and the liberal nature of Uganda's market system.[329]

This furthermore demonstrates the need of accurate storage facilities and warehouses, which individual smallholder and small-scale farmers can't afford and have only small quantities to store. This shows the need of area cooperative enterprises, which provide market access and economies of scale for realizing post-harvest facilities. UWRCA's mandate should hence not only cover managing the WRS but rather expending along the entire agricultural market system and supporting the formation of farmer cooperatives.

The formation of cooperative should also encourage farmers to become more entrepreneurial and committed to delivering according to standards and quality assurance certifications. This can be done by uniting farmers in cooperatives, with shares of processing facilities. This does not only provide farmers with a secure demand for their agricultural produces but also provides them with (higher) dividends and encourages them to improve the quality of products.[330] The mandate of existing market institutions should also cover this initiative.

5.3.5 Conclusions and Lessons Learned

Uganda's agricultural productivity is among the lowest in Africa, which can be attributed to limited training and extension services, poor infrastructure, weak linkages between production and markets, limited access to credit and finance, and low use of inputs and technologies.[331] This is further challenged by Uganda's fragmented agricultural sector, which is characterized by its liberalized nature and limited Government intervention via agricultural market institutions. The Government of Uganda does not directly interfere in any of the six stages of the agricultural market but is confined to supporting research, extension services, and quality assurance.

Overcoming these challenges requires the Government of Uganda to create an enabling environment attractive to agriculture, thereby specifically taking in to account the small-scale and fragmented nature of Uganda's agricultural sector. It is especially this enabling role which (selected) market institutions could play, even more given the limited technical capacity in promoting market and value-addition.
A first step to do would be to create a market institution responsible for authorizing farmers (e.g. farmer card or certification) as advocated in Section 5.3.4. This would be critical in monitoring, measuring, and evaluating the performance of the agricultural market system through collecting, analyzing, and disseminating market intelligence. Indeed, improving Uganda's agricultural production capacity and agricultural market system requires better flows of market information (e.g. on meeting the standards required in export markets)[332] as

[329] Interview conducted with Ministry of Trade, Industry & Cooperatives in Kampala, June 7, 2017
[330] Interview conducted with National Agricultural Advisory Services in Kampala, June 8, 2017
[331] WTO (2012), *Trade Policy Review: East African Community*, Geneva: World Trade Organization: Geneva.
[332] Government of Uganda (2015), Second National Development Plan (NDPII) 2015/16 – 2019/20, available at http://npa.ug/wp-content/uploads/NDPII-Final.pdf [Accessed May 2017].

well as the collection, dissemination, and appreciation of market intelligence and data (e.g. statistics on the agricultural sector, waste management, tourism, and minerals).[333] This would also enable to connect Uganda's agricultural supply with processing and value-addition activities, and, eventually, trade and export, as well as introducing and enforcing standards for quality inputs.

In turn, this calls for the creation of more private farmers cooperatives, which support farmers, particularly women and young farmers, with getting involved in agro-processing and agricultural activities[334] and to increase economies of scale and quantities of agricultural produces. This would enable smallholders to make more efficient use of the WRS and, consequently, give them fairer prices for their agricultural produces by anticipating on dynamics in market demand.

[333] Government of Uganda (2015), Second National Development Plan (NDPII) 2015/16 – 2019/20, available at http://npa.ug/wp-content/uploads/NDPII-Final.pdf [Accessed May 2017].
[334] Government of Uganda (2015), Second National Development Plan (NDPII) 2015/16 – 2019/20, available at http://npa.ug/wp-content/uploads/NDPII-Final.pdf [Accessed May 2017].

5.4 Indonesia

The purpose of this country case study is to firstly introduce Indonesia's general agricultural market system (5.4.1), after which a selection of institutions will be evaluated into more details (5.4.2 to 5.4.4). Conclusions and lessons learnt may be generalized and serve as inspiration to other OIC Member Countries (5.4.5).

5.4.1 Overview of Agricultural & Food Sectors and Markets

The following section briefly describes the current situation of the five stages of Indonesia's agricultural market system as explained in the Conceptual Framework. The selected agricultural market institutions (Section 5.4.2) typically intervene in one or more of these stages. The five stages include:

- Production;
- Handling and storage;
- Processing and packaging;
- Distribution and market; and
- Consumption and trade.

Production

Traditionally, Indonesia's agricultural production system has been characterized by small-scale rice farming, complemented by large-scale plantations (both state-owned and privately-owned). These plantations were primarily engaged in the production of rubber and palm oil.[335] Indonesia's current agricultural sector is divided into four sub-sectors:

- Food crops;
- Horticulture crops;
- Cash and estate crops; and
- Animal husbandry (including fisheries and forestry).

A trend is notable where small-scale farmers move away from food crops such as cocoa, coffee, and tea to palm oil and rubber due to better prospects in these sub-sectors.[336] The food crops, however, continue to generate most employment and income. This production is complemented with considerable imports of sugar, wheat, soybean, milk, and rice, though Indonesia is among the three largest global producers of rice. Agricultural production is still concentrated on land-extensive subsistence farming while Indonesia is in transition as a result of non-agricultural rural employment opportunities, industrialization, urbanization, physical limitations, and shifting livelihood ambitions.[337] These development have undermined Indonesia's self-sufficiency and its ability to respond to international demand.

[335] WTO (2013), *Indonesia Trade Policy Review Report by the Secretariat*, Geneva: World Trade Organization.
[336] Indonesia Investments (2017), Rubber (Natural), available at https://www.indonesia-investments.com/business/commodities/rubber/item185 [Accessed June 2017].
[337] FAO/INRA (2016), *Innovative markets for sustainable agriculture - How innovations in market institutions encourage sustainable agriculture in developing countries*, p. 2, Rome: Food and Agriculture Organization of the United Nations and Institut National de la Recherche Agronomique.

Though down from 45% in 2000,[338] Indonesia's agricultural sector continues to generate 35% of domestic employment,[339] equaling more than 40 million jobs.[340] Most of Indonesia's 25 million farm households[341] (according to the census in 2003) are concentrated on Java though many of them are farm laborers and do not own farm land. A farm household is defined as a maximum of 2.5 hectares wetland with 7.5 hectares dryland. Average intensive farm household landownership varies from 0.2 to 0.5 hectares wetland and 0.5 to 1.5 hectares dryland, while this equals 1.5 to 2.5 hectares of wetland and 5.5 to 7.5 hectares of dryland for extensive farming practices.[342] Average plots of approximately 0.8 to 1.0 hectares are used for traditional farming (e.g. food and export crops).[343] The Government of Indonesia encourage the formation of co-operatives to increase economies of scale and production capacity.[344]

The average agricultural productivity per hectare equals US$2,108, which is considerably above the OIC average of US$1,312 in 2013.[345] The overall agricultural productivity of small-scale farmers lags behind due to their geographical isolation in combination with inadequate access to agricultural extension services, markets, and credit.[346]

Table 6 – Indonesian (IDN)/World agricultural production and exports, selected commodities

	2016 Production ('000 MT)			2016 Exports ('000 MT)			Imports ('000 MT)
	IDN	World	IDN %	IDN	World	IDN %	
Palm oil	36,000	66,855	54%	25,500	47,058	54%	/
Rice*	37,000	483,662	8%	/			/
Coffee**	10,900	159,312	7%	8,200	130,326	6%	
Sugar	2,200	179,636	1%	/	59,240	0	4,150
Maize	11,350	1,036,898	1%	/	150,785	0	850
Cassava	23.436	268	9%	/	/	/	
Natural Rubber	3.153	13.245	24%	2.58	9.26	28%	
Poultry	1,660	89,470	2%	/	11,163		/
Cacao*	0.728	4.45	16%	0.33	8.17	4%	
Tea	0.154	5.56	3%	0.051	1.84	3%	0.022
Coconut oil	970	3,440	28%	610	1,720	35%	/
Tobacco	0.1963	7.176650	3%	0.028	2.275	1%	0.009

** Milled production*
*** in'000 60-kilogramm bags*
Source: USDA Foreign Agricultural Service (2017), FAO (2017); International Trade Center (2017)

[338] FAO (2003), "WTO Agreement on Agriculture: The Implementation Experience - Developing Country Case Studies," available at http://www.fao.org/docrep/005/y4632e/y4632e00.htm#Contents [Accessed June 2017].
[339] FAO (2015), FAOSTAT Indonesia, available at http://fenixservices.fao.org/faostat/static/syb/syb_101.pdf [Accessed June 2017].
[340] WTO (2013), *Indonesia Trade Policy Review Report by the Secretariat*, Geneva: World Trade Organization.
[341] Global Forum for Rural Advisory Services (2013), Indonesia, available at https://www.g-fras.org/en/world-wide-extension-study/94-world-wide-extension-study/asia/south-eastern-asia/291-indonesia.html#extension-providers [Accessed June 2017].
[342] FAO (2006), Country Pasture/Forage Resource Profiles, available at http://www.fao.org/ag/agp/agpc/doc/counprof/PDF%20files/Indonesia.pdf [Accessed June 2017].
[343] Global Forum for Rural Advisory Services (2013), Indonesia, available at https://www.g-fras.org/en/world-wide-extension-study/94-world-wide-extension-study/asia/south-eastern-asia/291-indonesia.html#extension-providers [Accessed June 2017].
[344] Interview conducted with Ministry of Agriculture in Jakarta, July 13, 2017
[345] COMCEC (2016), COMEC Agricultural Outlook 2016, pp. 55-90, Ankara: COMCEC.
[346] IFAD (2015), *Investing in rural people in Indonesia*, pp. 20-25, IFAD: Rome.

Indonesia is, however, richly endowed and features among the world's top producers for a number of agricultural commodities: palm oil, rubber (second after Thailand), and rice (third after China and India).[347] Indeed, Indonesia produces considerable amounts of cereals (89.85 million tonnes), followed by oilcrops (36.07 million tonnes), fruits (16.00 million tonnes), and vegetables (10.24 million tonnes)[348] and features crop production with a high market value (e.g. cocoa, nutmeg, coffee, and cloves). Opportunities also emerging in fisheries, particularly shrimp and tuna. However, leveraging these opportunities requires increasing agricultural production through investment in the country's agricultural management (at various Government layers), processing, and marketing system[349] as well as its enforcement capabilities.[350]

Handling and Storage

Storage challenges and poor post-harvest management impede parts of Indonesia's agricultural marketing system. This is particularly the case for the horticulture, grain, and feed sub-sector, where these challenges have led to high moisture content and high aflatoxin levels of commodities despite increased production levels.[351] In the horticulture sector, the lack of warehouse and storage capacity leads to decay, while the absence of standardization (e.g. pineapple, banana, and mango) results in non-compliance with export requirements to larger consumer markets (e.g. US, EU, Japan, and South Korea), hence reducing market access.[352] The construction of warehousing and post-harvest facilities should increase public access to food.

The Government of Indonesia has designed a WRS in an effort to mitigate fluctuating commodity prices. It is supported by Law No. 9/2009 and Law No. 9/2011.[353] This legal framework stipulates the administrative requirements of the warehouse receipt, the goods stored in the warehouse, and the rights of the warehouse receipt holder. The WRS is supervised by the Indonesian Commodity Futures Trading Regulatory Agency (COFTRA). A total of 117 warehouses had been established by 2014, especially for storing rice, corn, coffee, and seaweeds. The WRS is challenged as there is no guaranteed farmers' income during periods of storage and processing.[354]

Processing and Packaging

Indonesia has been going through a process of industrialization, which is also visible in the agricultural sector as more emphasis is put on agro-processing and agri-business.[355] However, downstream activities (e.g. processing and packaging) in many of Indonesia's agricultural sub-sectors are still underdeveloped. For instance, despite its rubber production, Indonesia imports large quantities of processed rubber products to meet its domestic demand as the

[347] WTO (2013), *Indonesia Trade Policy Review Report by the Secretariat*, Geneva: World Trade Organization.
[348] COMCEC (2016), COMEC Agricultural Outlook 2016, pp. 55-90, Ankara: COMCEC.
[349] IFAD (2015), *Investing in rural people in Indonesia*, pp. 20-25, IFAD: Rome.
[350] WTO (2013), *Indonesia Trade Policy Review Report by the Secretariat*, Geneva: World Trade Organization.
[351] USDA (2015), Indonesia Grain and Feed Annual Report 2015, available at https://gain.fas.usda.gov/Recent%20GAIN%20Publications/Grain%20and%20Feed%20Annual_Jakarta_Indonesia_4-1-2015.pdf [Accessed June 2017].
[352] Interview conducted with Indonesian Agency for Agricultural Research and Development in Jakarta, July 11, 2017
[353] FFTC-AP (2015), Warehouse Receipt Scheme Policy in Indonesia, available at http://ap.fftc.agnet.org/ap_db.php?id=390 [Accessed June 2017].
[354] Interview conducted with Ministry of Agriculture in Jakarta, July 13, 2017
[355] Interview conducted with BKPM in Jakarta, July 14, 2017

capacity of the domestic rubber manufacturing industry and processing facilities is limited.[356] The same is true for tea as well as the cocoa and coffee sub-sectors, where raw beans are the major export product as opposed to processed cocoa and coffee beans.

Foreign investment in value-addition and agro-processing remains limited due land ownership, which is largely restricted for foreign investors, and Indonesia's negative list for foreign investment. Improving the business climate requires to revise this negative list and make it more open for foreign investors through partnerships with local enterprises. As of now, agricultural investment projects of less than 25 hectares are only restricted to domestic investors while the foreign ownership of projects exceeding 25 hectares is restricted to 30%.[357] This together undermines the global competitiveness of Indonesia's agricultural sub-sectors.

The Ministry of Agriculture guides farmers to implement post-harvest technologies (e.g. fermented cocoa and dried pepper) and provides processing and packaging units and technologies to improve product quality, value-addition, and market access. [358] However, selling at a later stage requires a change of farmers' mindset. Many small-scale farmers and smallholders are reluctant to engage in marketing activities and processing activities, which has resulted in the fact many farmers still rely on the commodity prices as determined by traders, middlemen, and intermediaries.[359]

These traders are currently not registered with the Ministry of Trade[360] though regulation is currently designed, which will require intermediaries, traders, and distributors to be registered online with the Ministry of Trade, after which they will be licensed.[361] This online system, INATRADE, should enable the Ministry of Trade to improve market surveillance, product traceability and monitoring of agricultural products and market participants. Producers should register their middlemen and intermediaries, while importers need to register their domestic distributors. In the future, the system should be integrated with other Ministries' systems (e.g. Ministry of Finance, Ministry of Economy Affairs, and COFTRA) to ensure compliance with money laundering regulation and trace tax evasion practices. Such an integrated system would also enable Indonesia's agricultural market institutions to specifically target farmers or areas not meeting export requirements in terms of standardization, food safety, and SPS.

On the other side, however, some progress had been made in the palm oil industry as large domestic enterprises have invested considerably in processing and refining capacity in addition to state-owned economic enterprises. This has been supported by the Government of Indonesia, which has reduced the export levy on refined palm oil products but retained the export levy on CPO in order to stimulate increased revenue streams from Indonesia's natural resources through refinery and value-addition processing activities.[362] This export levy on CPO

[356] Indonesia Investments (2017), Rubber (Natural), available at https://www.indonesia-investments.com/business/commodities/rubber/item185 [Accessed June 2017].
[357] Interview conducted with BKPM in Jakarta, July 14, 2017
[358] Interview conducted with Ministry of Agriculture in Jakarta, July 13, 2017
[359] Anindita, R., Baladina, N., & Setiawan, B. (2013), "Effect of Marketing Efficiency Improvement in Indonesia," *Russian Journal of Agricultural and Socio-Economic Sciences*, 7(19), pp. 5-6.
[360] Interview conducted with Ministry of Agriculture in Jakarta, July 13, 2017
[361] Ibid
[362] Indonesia Investments (2017), Palm Oil, available at https://www.indonesia-investments.com/business/commodities/palm-oil/item166 [Accessed June 2017].

is collected by the Ministry of Finance with the objective to (re)develop the palm oil industry (e.g. replanting old trees and conversion to bio-diesel). The Indonesian Oil Palm Estate Fund (BPDP-KS) supervises and operates the fund.

A similar export tax is levied on raw cocoa beans, which vary from 5% to 15% (depending on the current world price of cocoa beans) and should encourage domestic fermenting industries and upscaling of capacity as cocoa bean processing firms appear not operate at full production capacity.[363]

Distribution and Market

The fragmentation of Indonesia's agricultural sector is caused by the many small-scale farmers but certainly also to the country's archipelagic geography encompassing more than 14,000 islands. Indonesia's poor network of transport, communications, and public utilities infrastructure, which has been characterized by years of under-investment.[364] This is further complicated by the absence of multimodal or integrated infrastructure transport networks (e.g. land, sea, and air),[365] which, in turn, further challenges time delivery, freshness, and perishability of Indonesia's agricultural products.
Logistics costs are high, which has resulted in poor distribution systems and which impedes Indonesia's overarching agricultural marketing system. For instance, shipping costs are estimated to be 50% to 80% higher compared to other locations in Southeast Asia while 17% of a company's total expenditures in Indonesia is absorbed by logistics costs vis-à-vis below 10% in peer economies.[366]

Indonesia's inadequate infrastructure system makes it more expansive than it should be to distribute primary and raw commodities from production sites to processing facilities and on to the market and retailers. Improving distribution channels and infrastructure has been challenged by conflicts of interest (e.g. between provincial and district Governments) and the decentralized nature of Indonesia's Government structure.

Some initiatives have been developed to tackle these challenges. This includes a program designed to increase the standards and quality of traditional markets in order to encourage domestic consumption of fresh and perishable products at traditional markets as opposed to more modern retail channels (e.g. supermarkets and hypermarkets).[367] The Ministry of Trade supports traditional markets with physical revitalization. This program supports the revitalization of 1,000 traditional markets per year and is intended to last five years.

Consumption and Trade

Indonesia produced a total of just over US$60 billion worth of food in 2014.[368] The country has historically been a net exporter of agri-food products. In fact, Indonesia's primary and semi-

[363] Indonesia Investments (2017), Cocoa, available at https://www.indonesia-investments.com/business/commodities/cocoa/item241 [Accessed June 2017].
[364] WTO (2013), *Indonesia Trade Policy Review Report by the Secretariat*, Geneva: World Trade Organization.
[365] Interview conducted with Indonesian Agency for Agricultural Research and Development in Jakarta, July 11, 2017
[366] Indonesia Investments (2017), Infrastructure Development in Indonesia, available at https://www.indonesia-investments.com/business/risks/infrastructure/item381 [Accessed June 2017].
[367] Interview conducted with Ministry of Trade in Jakarta, July 14, 2017
[368] FAO (2015), FAOSTAT Indonesia, available at http://fenixservices.fao.org/faostat/static/syb/syb_101.pdf [Accessed June 2017].

processed agricultural – together with mineral commodities – make up the bulk of its export portfolio.[369] Indeed, Indonesia exported for more than US$24.71 billion of food products over 2014 while it only imported US$11.60, leading to a food trade surplus of US$13.11 billion.[370] The trade surplus for agricultural products only equals US$17.23 billion, as Indonesia exported US$34.87 billion over 2013, compared to US$17.65 worth of agricultural imports.[371] Nevertheless, Indonesia's agricultural trade surplus has been somewhat volatile due to sharp turnaround in the food balance.[372]

Indonesia's key export commodities include tree crops (e.g. palm oil, coconut, rubber, coffee, tea, and spices). Together with higher valued fruits and vegetables, these commodities account for more than 80% of Indonesia's agricultural exports.[373] However, Indonesia's export of agricultural products has been hampered due to the effects of the 1997 Asian financial crisis, which led to a collapse of many Indonesian financial institutions and increased country risk, in combination with declining and volatile commodity prices (e.g. rubber and coffee). In fact, the export of promising raw materials is frequently challenged by SPS compliance issues (e.g. nutmeg, mango, and mangosteen),[374] further emphasizing the need for more agricultural processing and value-addition.

Despite being a key producer of rice, Indonesia continues to import rice. Rice, together with cereals, oilseeds, and sugar, account for nearly 80% of all agricultural imports. It is particular the increase of sugar and rice imports which seem to challenge Indonesia's current food trade surplus. The import of sugar and rice are concerns to the Government of Indonesia, which is particularly trying to re-structure the sugar industry by closing formerly inefficient state-owned mills and re-locating sugar cane production from Java to other areas.

Policy & Regulatory Framework

The control and administration of the agricultural sector is stipulated in the Basic Agrarian Law No. 5/1960.[375] Indonesia's Ministry of Agriculture has the mandate to develop and implement medium-term agricultural development plans in consultation with other Ministries and agencies. Issues concerning food security and food self-sufficiency, increasing food consumption, encouraging agricultural value-addition and agri-food product diversification, improving the sector's competitiveness, and protecting farm incomes are priorities which have driven these agricultural policies.[376] Reducing the country's high reliance on imports of staple goods (e.g. wheat, soybeans, rice, and sugar) is high on the Government's agenda.

The Indonesian Government intervened strongly in the agricultural sector during 1970s and 1980s to encourage wide-spread adoption of green revolution technologies.[377] Many trade

[369] WTO (2013), *Indonesia Trade Policy Review Report by the Secretariat*, Geneva: World Trade Organization.
[370] FAO (2015), FAOSTAT Indonesia, available at http://fenixservices.fao.org/faostat/static/syb/syb_101.pdf [Accessed June 2017].
[371] COMCEC (2016), COMEC Agricultural Outlook 2016, pp. 55-90, Ankara: COMCEC.
[372] FAO (2003), "WTO Agreement on Agriculture: The Implementation Experience - Developing Country Case Studies," available at http://www.fao.org/docrep/005/y4632e/y4632e00.htm#Contents [Accessed June 2017].
[373] Ibid
[374] Interview conducted with Indonesian Quarantine Agency in Jakarta, July 11, 2017
[375] WTO (2013), *Indonesia Trade Policy Review Report by the Secretariat*, Geneva: World Trade Organization.
[376] WTO (2013), *Indonesia Trade Policy Review Report by the Secretariat*, Geneva: World Trade Organization.
[377] FAO/INRA (2016), *Innovative markets for sustainable agriculture - How innovations in market institutions encourage sustainable agriculture in developing countries*, p. 2, Rome: Food and Agriculture Organization of the United Nations and Institut National de la Recherche Agronomique.

policy instruments such as import monopolies, licensing, and export restrictions were abolished during the economic reforms and deregulation of the late 1980s and 1990s[378] as the Government of Indonesia looked to link its economy with the world economy in a response to dropping oil prices.[379] Indonesia's agricultural trade policy reforms went further as part of the structural adjustment component with the IMF and included reducing import licensing restrictions which could not be justified, abolishing local content rules (e.g. for soybean meal and dairy products), and eliminating exclusive importing monopolies to state agencies such as the National Logistics Board and the Clove Buffer Stock and Marketing Agency.[380]

The current agricultural policies have the objective to assist agricultural producers on the hand while stabilizing food prices for consumers (particularly for rice) and ensuring the availability of food at reasonable prices across the country[381] on the other hand through national stockholding and pricing policy mechanisms:[382]

- National stock piling is implemented by BULOG for rice and, perhaps, in the nearby future also for beef and sugar.[383] BULOG also contributed to ensuring the availability of food at reasonable prices throughout the country as it re-distributes certain food staples from production centers to consumer areas with relatively high prices in order to stabilize prices. The Ministry of Trade provides demand data (i.e. commodity price per region) while the Ministry of Agriculture provides supply data (i.e. harvest locations). BULOG implements this policy together with PT Perusahaan Perdagangan Indonesia (PPI), a state-owned trading company, which is responsible for the logistics and distribution to and from BULOG's warehouses. To this extent, the Ministry of Trade together with the Ministry of Transport and PT PELNI, a state-owned shipping operator, also arrange for logistics and distribution to ensure affordable food is available in Indonesia's outermost areas in order to minimize price discrepancies between urban and rural centers. Commodity price discrepancies can be reduced up to 5% through this mechanism.

- Pricing policy is implemented through reference prices, which are set by the Government and used by BULOG for about ten strategic agricultural commodities. These reference prices are set for both producer and consumer prices and should contribute to optimizing the efficiency of the market system.[384]

Heart of Indonesia's agricultural policy approach is the ambition to realize self-sufficiency for three key staples in 2017 (i.e. rice, maize, and soybeans) and another two in 2019 (i.e. beef and sugar).[385] Realizing self-sufficiency in terms of rice is important as it is Indonesia's key staple food, while self-sufficiency in beef, sugar, maize, and soybeans are important as part of import substitution policies. Maize, moreover, is an important input for poultry and agro-processing.[386]

[378] WTO (2013), *Indonesia Trade Policy Review Report by the Secretariat*, Geneva: World Trade Organization.
[379] FAO (2003), "WTO Agreement on Agriculture: The Implementation Experience - Developing Country Case Studies," available at http://www.fao.org/docrep/005/y4632e/y4632e00.htm#Contents [Accessed June 2017].
[380] Ibid
[381] Interview with Ministry of Trade in Jakarta, July 14, 2017
[382] WTO (2013), *Indonesia Trade Policy Review Report by the Secretariat*, Geneva: World Trade Organization.
[383] Interview with Ministry of Trade in Jakarta, July 14, 2017
[384] Ibid
[385] OECD (2015), Indonesia Policy Brief – Agriculture, available at https://www.oecd.org/policy-briefs/indonesia-agriculture-improving-food-security.pdf [Accessed June 2017].
[386] Interview conducted with Indonesian Agency for Agricultural Research and Development in Jakarta, July 11, 2017

This key ambition of realizing food self-sufficiency obviously trickles down to policies and activities of agricultural institutions and authorities. For instance, the Directorate of Processing and Marketing of Estate Crops Products promotes sugar self-sufficiency by providing sugar seeds to main production sectors.[387] The Government of Indonesia collaborates with private sector enterprises and selects them through public procurement procedures, after which the Government purchases sugar seeds from these enterprises. Sugar seeds are then distributed to selected and targeted farmers free of charge. Three of BKPM's (Indonesian IPA) target sectors relate to agriculture: food estate, corn, and cattle. This reflects the desire of the Government of Indonesia to achieve food self-sufficiency by improving the domestic agri-processing and agri-business through attracting foreign investment.[388]

Indonesia applies policy instruments to realize these self-sufficiency ambitions. These policy instruments, particularly pricing mechanisms, are much debated as they seem to guarantee domestic prices above world prices while at the same time these artificially high food prices may actually "tax" the rural poor as main food consumers.[389] According to the WTO, Indonesia continues to grant domestic agricultural support, export subsidies (e.g. processed palm oil products and cocoa), special safeguards, and tariff quotas to protect its domestic agricultural sector.[390]

Examples of domestic support include input subsidies for irrigation schemes, water, tree planting materials, and pesticides.[391] Fertilizer subsidies (e.g. gas for fertilizer producers and direct fertilizer aid) have received the largest amount of subsidy budget. Input subsidies are provided to lower production costs and increase the margin for farmers as opposed to subsidize artificially high selling prices, as this would particularly punish poor consumers and not contribute to food security.[392] Subsidized fertilizers and pesticides are manufactured and distributed by PT Putuk Indonesia, a state-owned economic enterprise.[393] PT Putuk Indonesia manufactures approximately nine million tonnes of subsidized fertilizers per year, which it sells at below-market prices to smallholders registered with local agricultural departments. Besides subsidized inputs, formal credits for agricultural producers are provided through the state-owned Bank Rakyat Indonesia (BRI).

Quantitative import restrictions for a number of commodities (e.g. rice, sugar, salt, animals, animal products, and horticultural products) in combination with specific import tariffs (e.g. levied on rice, sugar, and raw materials for processed milk products) should protect the domestic agricultural sector.[394] These import restrictions are set during annual Ministerial-level coordination meetings and are implemented through the import licensing system. This is complemented by strict import requirements with respect to sanitary and phytosanitary practices, food safety, and cultural reasons (i.e. Halal). For instance, importers of processed meat, cereal, sugar, cocoa, salt, animal, and animal products need to be registered with the Ministry of Trade.

[387] Interview conducted with Ministry of Agriculture in Jakarta, July 13, 2017
[388] Interview conducted with BKPM in Jakarta, July 14, 2017
[389] FAO (2003), "WTO Agreement on Agriculture: The Implementation Experience - Developing Country Case Studies," available at http://www.fao.org/docrep/005/y4632e/y4632e00.htm#Contents [Accessed June 2017].
[390] WTO (2013), *Indonesia Trade Policy Review Report by the Secretariat*, Geneva: World Trade Organization.
[391] OECD (2010), "Policies for Agricultural Development, Poverty Reduction and Food Security," Paper presented to the Working Party on Agricultural Policy and Markets, 15-17 November 2010, Paris: OECD.
[392] Interview conducted with Indonesian Agency for Agricultural Research and Development in Jakarta, July 11, 2017
[393] Interview conducted with PT Putuk Indonesia in Jakarta, July 12, 2017
[394] WTO (2013), *Indonesia Trade Policy Review Report by the Secretariat*, Geneva: World Trade Organization.

Indonesia's domestic agricultural pricing policy primarily concerns rice, given its significance as staple crop and place in the Indonesian diet. Guaranteeing low and stable prices has therefore been a priority for the Indonesian Government as to ensure food security and address the increasing demand. On the other end of the market, the Government of Indonesia attempts to curtail the domestic consumption of rice through promotion campaigns (e.g. "one day without rice" and promotion of other staple foods).[395]

In fact, Indonesia's agricultural policy has become slightly more protectionist recently in an attempt to become more self-sufficient and protect farmers, thereby curtailing state imports of several commodities (e.g. rice).[396] The Government of Indonesia has now the power to cap prices of staple foods during peak demand periods while it has reduced import quotas for certain agricultural commodities and reduced the number of entry points.[397]

Indonesia's agricultural sector has a central location in the country's economic development policy. The Long-Term Development Plan defines the national development planning system for the timespan from 2005 to 2025.[398] The Master Plan for the Acceleration and Expansion of Indonesia's Economic Development (MP3EI) 2011-2025 complements the Long-Term Development Plan as medium-term development strategy. Improving Indonesia's competiveness and business environment is placed at heart and is implemented through medium-term plans which each covers four years. Within this policy context, manufacturing has been appointed the key sector driving Indonesia's development though the agricultural sector (besides mining and extraction and marine) receives special attention as priority sector too. Part of Indonesia's Long-Term Development Plan concerns trade facilitative measures to improve the competitiveness of Indonesia's strategic sectors, of which the agricultural sector is one.[399]

5.4.2 Agricultural & Food Market Institutions

A number of line Ministries and market institutions exist to implement the Government of Indonesia's policies concerning food security and food self-sufficiency, increasing food consumption, encouraging agricultural value-addition and agri-food product diversification, improving the sector's competitiveness, and protecting farm incomes are priorities.

They attempt to realize these agricultural ambitions through intervening, regulating, and enabling various market channels of the country's agricultural and food sector. The institutional framework of Indonesia's agricultural market system is set and governed by a number of Government entities and non-Government entities.

This section only focuses on selected agricultural market institutions based on the classification accentuated in the Conceptual Framework in Chapter 1 (i.e. six key agricultural market institutions). These selected market institutions support the Government of Indonesia with its national stockpiling program and pricing policies in order to ensure food security as

[395] Indonesia Investments (2017), Rice, available at https://www.indonesia-investments.com/business/commodities/rice/item183 [Accessed June 2017].
[396] Reuters (2015), Indonesia's Bulog Tells Reuters That El Nino May Lead To Rice Imports In Early 2016, available at http://www.reutersbest.com/articles/view/4570/indonesias-bulog-tells-reuters-that-el-nino-may-lead-to-rice-imports-in-early-2016 [Accessed June 2017].
[397] WTO (2013), *Indonesia Trade Policy Review Report by the Secretariat*, Geneva: World Trade Organization.
[398] Ibid
[399] Ibid

well as stable and reasonable food prices (**Table 7 – Overview of the six selected agricultural market institutions in Indonesia**).

The Government of Indonesia intervenes in the agricultural market through a number of state-owned economic enterprises, which function to implement these policies and strategies. A handful state-owned enterprises are directly controlled by the Ministry of Finance while the vast majority operates under the supervision of the Ministry of State-Owned Enterprises. [400] Law No. 19/2003 governs these state-owned enterprises. A trend in privatization of these state-owned enterprises can be witnessed though only for a number of industries (e.g. cement, telecommunications, mining, energy, pharmaceuticals, construction, highways, steel manufacturing, airlines, and banking). This state withdrawal can be seen in the context of international developments with respect to market institutions and started large-scale privatization of state-owned economic enterprises in the early 1990s
The number of state-owned enterprises reduced from 141 in 2012[401] to 119 as of November 2015.[402] The natural resource sector is exempt from state-owned enterprise privatization. About 25 state-owned enterprises were active in the agricultural, forestry, and fishing sector in 2011. Examples include PT Pupuk Indonesia, which is engaged in manufacturing fertilizers,[403] Perkebunan Nusantara IV, which is active in the agro-industry sector and plantations (e.g. palm oil and tea),[404] and Perkebunan Nusantara III (PTPN III), which is engaged in rubber and various palm-related products (e.g. crude oil, kernel oil, kernel, and kernel meal).[405]

Table 7 – Overview of the six selected agricultural market institutions in Indonesia

Classification	Institution	Description
Commodity Market Regulation Authority	*National Logistics Board*	Given the importance of rice to Indonesia's food security, the Indonesian Government established the National Logistics Board (BULOG) in 2003 as a state-trading enterprise under the supervision of the Ministry of State-Owned Enterprises.[406] However, BULOG's activities are coordinated with other Ministries, including the Ministry of Agriculture, Ministry of Trade, Ministry of Finance, and Ministry of Social Affairs. BULOG'S three core mandates include:[407] 1. Maintain farmer production prices below the floor price; 2. Ensure stabilization of consumer prices; and 3. Maintain the rise stock of the Government. With respect to maintaining farmer production prices and stabilizing consumer prices, BULOG procures rice and paddies according to the floor price set by the Government. It keeps this rice and paddies in its warehouses, of which BULOG operates 4,000 across the country with a capacity of 4.5 million tonnes. Rice and paddies are distributed evenly across Indonesia and throughout the year, which is decided by the Government.

[400] WTO (2013), *Indonesia Trade Policy Review Report by the Secretariat*, Geneva: World Trade Organization.
[401] Ibid
[402] Export.gov (2016), Indonesia - Competition from State Owned Enterprises, available at https://www.export.gov/article?id=Indonesia-competition-from-state-owned-enterprises [Accessed June 2017].
[403] WTO (2013), *Indonesia Trade Policy Review Report by the Secretariat*, Geneva: World Trade Organization.
[404] Ibid
[405] Indonesia Investments (2017), Perkebunan Nusantara III (SOE), available at https://www.indonesia-investments.com/business/indonesian-companies/perkebunan-nusantara-iii-soe/item1204 [Accessed June 2017].
[406] WTO (2013), *Indonesia Trade Policy Review Report by the Secretariat*, Geneva: World Trade Organization.
[407] Interview conducted with BULOG in Jakarta, July 14, 2017

Classification	Institution	Description
		The rice stock BULOG maintains on behalf of the Government can be released anytime for the purpose of market intervention. It is distributed when the price of rice goes up and reaches certain levels above the floor price. The floor price is calculated taking into account factors like inflation, international market price, and recent economic trends but has remained stable for the last three years. Consumer prices are regulated by supply and demand. However, in cases where world reference prices rise with 10% or more (including transport costs and taxes), BULOG is mandated to intervene in the market by importing rice.[408] BULOG trades in a total of 11 commodities, of which rice, corn, and soybeans are mandatory and which directly reflects the Government's ambition to realize food self-sufficiency.[409] Other commodities include cereals (e.g. wheat), commodities used in agro-processing (e.g. flour, sugar, and oils), and horticulture (e.g. beef and unions). Rice is particularly imported from Thailand, Vietnam, and India, while the Government of Indonesia has signed Memorandum of Understandings (MoUs) with countries in the region (e.g. Cambodia, Myanmar, and Pakistan) as part of a rice distribution scheme so no procurement process needs to be in place, saving time and money. BULOG imports for these commodities while it also buys domestic sugar. BULOG maintained its monopoly on importing certain types of rice (e.g. medium-quality and consumption rice) while other types of rice can be traded by the private sector as well (e.g. jasmine and basmati rice). If market forces were to determine the price and allocation of medium-quality and consumption rice, it would not lead to fair prices and increased insecurity for the poorest households.[410] Hence, BULOG is in charge of the RASTA rice distribution program. BULOG is mandated to purchase rice to be distributed to poorer segments of Indonesia's society through the this RASTRA program.[411] This also provides the Government of Indonesia another tool to regulate the price of rice and ensure a gradual increase of rice prices as opposed to a steep and sudden increase. The RASTRA program, formerly known under the name RASKIN, has been applied particularly after the Asian economic crisis in 1998, after which rice prices rose considerably.[412] BULOG provided rise at a lower price to targeted poor families. Over the years, the distribution mechanism behind RASTRA has changed, where RASTRA now distributes rice to targeted households based on relative income rates (e.g. per province) as opposed to earlier, when absolute rates were employed (i.e. similar across the country). As of this moment, RASTRA provides rice to 27% of the poorest households per province, resulting in an average of 15 to 20 kilo of rice per household per month.[413] The Government remains in control of deciding the quantity, price, and time the rice is

[408] FAO (2003), "WTO Agreement on Agriculture: The Implementation Experience - Developing Country Case Studies," available at http://www.fao.org/docrep/005/y4632e/y4632e00.htm#Contents [Accessed June 2017].
[409] Interview conducted with BULOG in Jakarta, July 14, 2017
[410] Ibid
[411] WTO (2013), *Indonesia Trade Policy Review Report by the Secretariat*, Geneva: World Trade Organization.
[412] Interview conducted with BULOG in Jakarta, July 14, 2017
[413] Ibid

Classification	Institution	Description
		distributed as well as the targeted households. The Indonesian Bureau of Statistics (BPS) supports the Government through surveys on poverty and income statistics. This program comes at a cost, however, as more pressure is put on financial resources in order to finance the RASTRA program.[414] At its inception, BULOG enjoyed the exclusive monopoly on importing rice, soybeans, sugar, wheat, wheat flour, and garlic.[415] However, BULOG does not enjoy monopoly power anymore but should ensure a buffer stock of rice is maintained in times of buffer stock shortages.[416] This buffer stock should equal between 5% and 10% of Indonesia's monthly rice production. Rice imported to restore this buffer stock is subject to customs duties, just as rice imports of private companies. The difference however, is that these private companies need to be licensed through the import licensing system. BULOG does not engage in export activities. According to the WTO, the Government of Indonesia is considering to expand BULOG's import and buffer operations into other commodities (e.g. sugar and soybeans).[417] Given the Government of Indonesia's recent push for more self-sufficient agricultural policies, BULOG has been instructed a more pronounced role with respect to controlling food imports and domestic prices.[418] However, BULOG has been ordered to import 1.5 million tonnes of rice from Thailand and Vietnam in response to surging rice prices due to El Niño's devastating impact on the rice yield in 2015.[419] This is similar to the circumstances in 1997 and 1998, when Indonesia imported an average of three million tonnes of rice annually due to El Niño.[420]
State-Owned Economic Enterprise	*PT Perkebunan Nusantara III*	PT Perkebunan Nusantara III (PTPN III) has been established in 1996[421] and is a state-owned economic enterprise whose shares are 100% owned by the Indonesian state.[422] Though palm and rubber plantations have been operating in Indonesia since 1911, PTPN II has been established as a merger of three companies (PT Perkebunan or PTP), which, in turn, had been established as PPN in the 1950s. PTPN II has been established as holding company in 2014, as it owns 90% of the shares of other PTPN companies (PTPN I to PTPN XIV), while the Government owns the remaining 10% of the shares of the other PTPN companies. The PTPN holding company now owns 1.18 million hectares of land, of which 943,083 hectares of plantation. It employs more than 133,000 people, a large share of whom are smallholders.

[414] FAO (2003), "WTO Agreement on Agriculture: The Implementation Experience - Developing Country Case Studies," available at http://www.fao.org/docrep/005/y4632e/y4632e00.htm#Contents [Accessed June 2017].
[415] FAO (2003), "WTO Agreement on Agriculture: The Implementation Experience - Developing Country Case Studies," available at http://www.fao.org/docrep/005/y4632e/y4632e00.htm#Contents [Accessed June 2017].
[416] WTO (2013), *Indonesia Trade Policy Review Report by the Secretariat*, Geneva: World Trade Organization.
[417] Ibid
[418] Reuters (2015), Indonesia's Bulog Tells Reuters That El Nino May Lead To Rice Imports In Early 2016, available at http://www.reutersbest.com/articles/view/4570/indonesias-bulog-tells-reuters-that-el-nino-may-lead-to-rice-imports-in-early-2016 [Accessed June 2017].
[419] The Jakarta Post (2015), RI to import 1.5 million tons rice from Thailand, Vietnam, available at http://www.thejakartapost.com/news/2015/09/25/ri-import-15-million-tons-rice-thailand-vietnam.html [Accessed June 2017].
[420] FAO (2003), "WTO Agreement on Agriculture: The Implementation Experience - Developing Country Case Studies," available at http://www.fao.org/docrep/005/y4632e/y4632e00.htm#Contents [Accessed June 2017].
[421]Indonesia Investments (2017), Perkebunan Nusantara III (SOE), available at https://www.indonesia-investments.com/business/indonesian-companies/perkebunan-nusantara-iii-soe/item1204 [Accessed June 2017].
[422] Interview conducted with PT Perkebunan Nusantara III in Jakarta, July 12, 2017

Classification	Institution	Description
		PTPN III operates 43 sugar factory units (producing 138,000 tonnes cane per day), 80 rubber factory units (producing 916 tonnes per day), 76 palm oil factory units, and 38 tea factory units.[423] These production units include 11 palm oil mills, three latex factories, four crumb rubber factories, and six ribbed smoked sheets rubber factories.[424] PTPN III sells to traders, which are selected through tender programs.[425] These traders mostly sell domestically, which reduces PTPN's international market access. On the other hand, however, anything sold above the floor price of US$700 per tonnes crude palm oil (CPO) results in the application of a progressive export levy. Once CPO is sold below this floor price, the Government will provide a dedicated CPO fund. This mechanism hence encourages to sell to the domestic market with lower prices and fits with the Government's overall policy of self-sufficiency. Furthermore, in order to accelerate downstream CPO activities and stabilize fresh fruit bunches (TBS) prices, the Sei Mangkei industrial area has been developed in North Sumatra.[426] Sei Mangkei is strategically located near palm oil plantations and in close proximity to the Kuala Tanjung harbor and Belawan seaport, which are both access points to the Maritime Silk Road. A total of US$385 million has been spent on multimodal infrastructure (e.g. dry port, railways, motorways, and container capacity) and utilities (e.g. gas, water, electricity, and telecommunications).[427] Sei Mangkei has been designated a Special Economic Zone (SEZ) status given is importance and priority in Indonesia's MP3EI. Sei Mangkei comprises industrial, logistics, residential, and leisure areas and is developed in three phases, covering an area of 2,000 hectares.[428] Fiscal and non-fiscal incentives such as tax holidays, customs exemptions, and tax allowances are provided given it SEZ status – both for domestic and foreign investors. The Sei Mangkei SEZ, which was inaugurated in early 2015, is clustered around PTPN's palm oil processing, milling, and refinery facilities, which covers about 245 hectares.[429] The Sei Mangkei SEZ is open to domestic and foreign investors. For example, Unilever, together with PTPN II, invested in an oleo-chemical facility. The Government of Indonesia has now transferred the ownership, management, and promotion of the Sei Mangkei SEZ to PTPN III but PTPN III is looking to attract an (international) investor to operate the industrial area.[430]

[423] Interview conducted with PT Perkebunan Nusantara III in Jakarta, July 12, 2017
[424] Indonesia Investments (2017), Perkebunan Nusantara III (SOE), available at https://www.indonesia-investments.com/business/indonesian-companies/perkebunan-nusantara-iii-soe/item1204 [Accessed June 2017].
[425] Interview conducted with PT Perkebunan Nusantara III in Jakarta, July 12, 2017
[426] Ibid
[427] BKPM (2016), Investing in Indonesia's Special Economic Zone (SEZ) Sei Mangkei, North Sumatra - An overview of opportunities, capabilities and provisions, available at http://www.euind-tcf.com/wp-content/uploads/SEZSeiMangkei_ValueProposition.pdf [Accessed June 2017].
[428] Interview conducted with PT Perkebunan Nusantara III in Jakarta, July 12, 2017
[429] BKPM (2016), Investing in Indonesia's Special Economic Zone (SEZ) Sei Mangkei, North Sumatra - An overview of opportunities, capabilities and provisions, available at http://www.euind-tcf.com/wp-content/uploads/SEZSeiMangkei_ValueProposition.pdf [Accessed June 2017].
[430] Interview conducted with PT Perkebunan Nusantara III in Jakarta, July 12, 2017

Classification	Institution	Description
State-Owned Economic Enterprise	*PT Pupuk Indonesia*	PT Pupuk Indonesia is a state-owned economic enterprise operating under the umbrella of the Ministry of State-Owned Enterprises.[431] Its key mandate concerns supervising the manufacturing of subsidized fertilizers and pesticides. These fertilizers and pesticides function as subsidized inputs for smallholders but are not provided to plantations and industrial processors (e.g. other fertilizer producers). PT Pupuk Indonesia has been formed as holding company in 2010 and became active in 2012 under its official name PT Pupuk Indonesia (Persero) while one of its subsidiaries already started fertilizer manufacturing operations as early as 1959. PT Pupuk Indonesia operates five fertilizer production subsidiaries, which are located across Indonesia to ensure all geographies are covered. Its locations include North Sumatra, South Sumatra, West Java, East Java, and Kalimantan. Urea is the most important fertilizer as PT Pupuk Indonesia is the only domestic producer, while it also manufactures NPK Phonska, Petroganik Organic, Super Phosphate SP-36, and Ammonium Sulphate ZA. These fertilizers are distributed through dealers, which, in turn, sell it in small stores to registered farmers. In addition, it operates five subsidiaries for power and energy, food industry, logistics (e.g. shipping and trucking), and trading activities. R&D activities and extension services are also provide by PT Pupuk Indonesia. The former concerns the development and testing of new varieties of fertilizers while the latter concerns educating farmers on how to use fertilizers (e.g. the right quantity) in collaboration with the Ministry of Trade and field extension workers (PPLs). PT Pupuk Indonesia is expected to fulfil the subsidization program for the five kinds of fertilizers as set by the Government of Indonesia (i.e. Ministry of Agriculture). It is expected to produce 9 million tonnes of fertilizers per year, which are sold at below-market prices to farmers.[432] Farmers have to be registered with local agricultural departments in order to qualify for subsidized fertilizers and pesticides. Production of fertilizers exceeding the ceiling of 9 million tonnes is sold commercially at the regular market price to large-scale plantations and industrial processors at both domestic and international markets.[433]
Licensed Public Warehouse Company	*Commodity Futures Trading Regulatory Agency*	The Indonesian Commodity Futures Trading Regulatory Agency (COFTRA) operates under the supervision of the Ministry of Trade.[434] COFTRA has three core mandates:[435] • Implementing Indonesia's WRS. COFTRA does so through 121 Government-owned warehouses and 44 private-owned warehoused strategically located across the country. COFTRA has implemented the WRS for a number of export commodities, including coffee, rubber, cocoa, and pepper. COFTRA also functions as assurance in case warehouse managers are bankrupt or mismanage their warehouse

[431] Interview conducted with PT Putuk Indonesia in Jakarta, July 12, 2017
[432] Interview conducted with PT Putuk Indonesia in Jakarta, July 12, 2017
[433] Ibid
[434] International Pepper Community (2016), Indonesian COFTRA / BAPPEBTI to launch Mobile WRS, available at http://www.ipcnet.org/n/news/?path=news&nid=934&page=nmdetail&start=1 [Accessed June 2017].
[435] Interview conducted with Ministry of Trade in Jakarta, July 14, 2017

Classification	Institution	Description
		operations, obligations, and requirements as specified by Law No. 9/2009 and Law No. 9/2011.[436] • Supervising Indonesia's commodity futures trading market. Physical settlement of agricultural products accounts for just 5%, while the remaining 95% is settled through future commodities, where the WRS receipt may be traded at commodity exchange platforms and markets. COFTRA oversees these transactions. • Regulating 14 auction markets across Indonesia. Buyers and sellers of agricultural commodities come together and, hence, determine the commodity price through physical settlement. This agreed price functions as the reference price for commodities in the entire region.

Source: Investment Consulting Associates – ICA (2017)

5.4.3 Effectiveness of Agricultural & Food Market Institutions

The Asian Financial Crisis in the late 1990s disrupted three decades of steady progress in Indonesia's agricultural development.[437] The Government of Indonesia has exploited a variety of policy instruments before, during, and after the Asian Financial Crisis and implemented these through the selected market institutions (e.g. BULOG).[438] These mainly include market-distorting forms of support such as subsidies, which benefit a wide range of commodities, and trade or border interventions complemented with market price support to stabilize food prices for a number of specific commodities (e.g. rice and sugar) and the RASTRA/RASKIN "rice for the poor" rice distribution program. Market prices for export-orientated estate crops (e.g. rubber, palm oil, tea, coffee, and cocoa) remains determined by the market.[439]

Together, these agricultural forms of support required US$2 billion of public money in 2014.[440] In fact, a recent OECD study showed Indonesia's rice prices went up from just 8% above international prices in 2000 to 2002 to 60% in 2010 to 2012. Undernourishment is not considerably reduced by input subsidies, while price support measures actually worsened undernourishment. The RASKIN (now RASTRA) rice distribution program only reduces undernourishment with 1.3% percentage points and does not offset the negative impacts of the rice market price support. In fact, most agricultural policy support has increased individual commodities' prices in an attempt to increase production, thereby hurting the (poor) consumers.[441]

It is complex, however, to determine these policies' exact impact on the effectiveness of agricultural (sub-)sector(s) as market interventions have changed over time, ranging from occasional bans and export taxes to export subsidies.[442]

[436] FFTC-AP (2015), Warehouse Receipt Scheme Policy in Indonesia, available at http://ap.fftc.agnet.org/ap_db.php?id=390 [Accessed June 2017].
[437] International Trade Centre (2017), Country Profile Indonesia, available at http://www.intracen.org/exporters/organic-products/country-focus/Country-Profile-Indonesia/ [Accessed June 2017].
[438] OECD (2010), "Policies for Agricultural Development, Poverty Reduction and Food Security," Paper presented to the Working Party on Agricultural Policy and Markets, 15-17 November 2010, Paris: OECD.
[439] Interview conducted with Ministry of Agriculture in Jakarta, July 13, 2017
[440] OECD (2015), Indonesia Policy Brief – Agriculture, available at https://www.oecd.org/policy-briefs/indonesia-agriculture-improving-food-security.pdf [Accessed June 2017].
[441] Ibid
[442] OECD (2010), "Policies for Agricultural Development, Poverty Reduction and Food Security," Paper presented to the Working Party on Agricultural Policy and Markets, 15-17 November 2010, Paris: OECD.

One method to quantify the effects of Government interventions is the Nominal Rate of Assistance (NRA), which is defined as a percentage by which Government support (e.g. subsidies and pricing policies) have raised or lowered farmers' gross returns vis-à-vis the scenario without Government intervention.[443] A positive NRA indicates trade protection through input subsidies and pricing policies while a negative NRA indicates export taxes and bans.

The NRA trend for Indonesia is mainly driven by intervention in the rice sub-sector, together with interventions aimed at sugar and palm oil. Positive NRA rates have been recorded for import competing agricultural commodities (e.g. rice, sugar, soybeans, and maize) while negative NRA rates have been registered for exportable commodities (e.g. coffee, tea, rubber, and palm oil), demonstrating these commodities were effectively taxed by Government policies.
Looking at the effectiveness of individual market intuitions, BULOG has been the key actor implementing the price stabilization policies, particularly for rice through determining and enforcing maximum and minimum prices. However, BULOG's market intervention power declined considerably after its import and trade monopoly was removed in 1998. Studies before removal of its monopoly power demonstrated BULOG considerably contributed to stabilization of rice prices rather than raising these prices and directly protecting rice producers. The exact impact is difficult to measure though the nominal protection rate (i.e. ratio of the domestic wholesale price to the c.i.f. import parity price) rose to 36% in 1999-2000 compared to an average of 17% from 1990 to 2000.[444]

In fact, it seems that the administered price for rice exceeds the de minimis standard, impeding the effectiveness of the system as the Government of Indonesia lacks financial resources to support domestic prices at this administered level. Hence, the Government can't guarantee the full administered price to farmers, thereby only partially supporting them.[445]

BULOG also enjoyed monopoly power on importing and purchasing sugar for domestic production. Sugar mills paid a fixed price to sugar farmers, which had been set by the Government, while sugar distribution was regulated. BULOG distributed sugar to selected wholesalers based on quotas. Marketing margins rose above competitive levels. Through the Sugarcane Smallholder Intensification program, farmers were selected (and forced) to grow sugar. It is estimated that sugar has been grown at the expense of one million tonnes of rice per year, which had higher profitability rates compared to sugar.

However, as sugar prices rose slightly above world prices, sugar was grown voluntarily, ensuring relatively cheap domestic sugar cane supplies to sugar mills, who received domestic prices for processed sugar as a result of import restrictions and regulated distribution. The sugar policy has been reformed several times from 1998 to 2002, however, leaving farmers free to grow sugar, removing BULOG's import monopoly, and removing import restrictions. Import licenses were re-introduced in 2002, however, just as minimum prices slightly above common market prices for sugar mills as the protection of sugar farmers and sugar mills

[443] Fane, G. & Warr, P. (2007), "Distortions to Agricultural Incentives in Indonesia," *Agricultural Distortions Research Project Working Paper*. No. 24, pp. 2-6.
[444] OECD (2010), "Policies for Agricultural Development, Poverty Reduction and Food Security," Paper presented to the Working Party on Agricultural Policy and Markets, 15-17 November 2010, Paris: OECD.
[445] FAO (2003), "WTO Agreement on Agriculture: The Implementation Experience - Developing Country Case Studies," available at http://www.fao.org/docrep/005/y4632e/y4632e00.htm#Contents [Accessed June 2017].

continues to be a priority on Indonesia's national agenda. BULOG, however, has not re-gained its monopoly power, still challenging its role and impact on the effectiveness of the sugar marketing system.

The efficiency of PTPN III seems to be impacted by a couple of interrelated challenges. In fact, the strongest performance of PTPN III was realized up to 2011 and can be linked with a 10-year cycle which typically characterize CPO world prices (i.e. peaks in 1998 and 2008).[446] Challenges which impede PTPN's efficiency include:

- Operational challenges
    - Productivity is below expectation due to climatologic impact and inefficient use of fertilizers.
    - Composition of plant maturity is not optimal. The replacement ratio of palm oil plantations is 25 years so 5% should be replaced every year, which is currently not the case. This is further complicated by the sub-optimal condition of factory and processing units.
    - These operational challenges adversely impact PTPN's productivity.

- Cost challenges
    - Excess labor costs as a result of the duty to create jobs, which simultaneously conflicts with the objective of making profits.
    - High production costs due to outdated and inefficient technologies.
    - High debt interest expenses for subsidiaries. In fact, a number of subsidiaries is not even bankable.
    - These cost challenges reduces the competitiveness of downstream and upstream activities.

- External challenges
    - Plantation area declines due to physical limits, particularly because of urbanization and the proximity of many palm oil plantations to urban areas.
    - Property right extension takes a considerable amount time due to bureaucracy.
    - Conflicts with local communities as they claim their right to land ownership.
    - The EU Parliament Resolution on Palm Oil and Reforestation of Rainforests and strong regulations on the content of MCPD organic chemical compound in palm oil do not directly impact PTPN's sales as most of its products are consumed domestically. However, it may mislead perception and give a negative image of Indonesia's palm oil sector, which may lead to CPO prices to drop, eventually resulting in a loss of income of palm oil smallholders, higher unemployment rates, higher imports, and a lower tax revenue. In fact, the Indonesia developed the Indonesian Sustainable Palm Oil Scheme (ISPO) scheme to counterbalance this.[447]

[446] Interview conducted with PT Perkebunan Nusantara III in Jakarta, July 12, 2017
[447] Interview conducted with Ministry of Agriculture in Jakarta, July 13, 2017

Responding to these challenges lead to the development of a corporate turnaround program which has been developed in May 2016. It focuses on five elements, including productivity improvement, cost improvement, financial restructuring, HR restructuring, and system and procedure development. This integrated turnaround program should contribute to building a more corporate culture and is part of PTPN's long-term plan, which concerns optimizing the business model, operational movement, higher performance, and medium-term investment. First evidence shows a positive impact, as the net operational cash flow in December 2016 tripled compared to the same cash flow in December 2015.[448]

With regards to PT Pupuk Indonesia, the market demand is quite stable, which does require no change current activities though PT Pupuk Indonesia continues to look for other products to sell through R&D.[449] However, as the market price for Urea is going down and production price goes up to due increased gas prices, it becomes more expensive to produce Urea, which, in the long run as this scenario sustains, may impede the effectiveness of PT Pupuk Indonesia.

5.4.4 Need Assessment Analysis

The objective of this section is to identify and select certain crops, products, or commodity groups for which a need exists to create a market institution and to further develop existing agricultural and food market institutions facing inefficiencies and deficiencies.

Creating New Market Institution(s)

A main bottleneck – similar to Tunisia and Uganda - is the fragmented coordination of Indonesia's agricultural marketing system and market intelligence. Food Law 2012 has initiated the establishment of a National Food Authority to regulate price stabilization from production to consumption.[450] It has been initiated in response to fragmented statistics, data discrepancies, and conflicts of interest among various Ministries (e.g. Ministry of Agriculture, providing data on supply, and Ministry of Trade, providing data on demand).

With regards to creating new market institutions for specific commodities, a trend is notable where small-scale farmers move away from food crops such as rice, cocoa, coffee, and tea to palm oil and rubber due to better prospects in these sectors.[451] However, cocoa, coffee, and tea still provide considerable export opportunities. This section will focus on these five commodities (i.e. rice, cocoa, coffee, tea, palm oil, and rubber), which are Indonesia's five largest foreign exchange earnings, in combination with rice, which is Indonesia's most important staple food.

One of the bottlenecks new market institutions may address with regards to these six commodities is the lack of diffusion of technologies and farming practices, which would contribute to increase smallholders' production of export-orientated commodities. Sector-specific market institutions (e.g. marketing boards) may be needed to transfer and disseminate technologies to small-scale farmers. This is also the case for rice, as this sector is primarily

[448] Interview conducted with PT Perkebunan Nusantara III in Jakarta, July 12, 2017
[449] Interview conducted with PT Putuk Indonesia in Jakarta, July 12, 2017
[450] Interview conducted with Ministry of Trade in Jakarta, July 14, 2017
[451] Indonesia Investments (2017), Palm Oil, available at https://www.indonesia-investments.com/business/commodities/palm-oil/item166 [Accessed June 2017].

dominated by smallholders, and the most important sub-sector for realizing the Governments of Indonesia's ambition of food self-sufficiency.[452]
Moreover, such sector-specific market institutions may also encourage farmers active in the production of cocoa, coffee, tea, palm oil, and rubber to move up high-value activities within existing sectors, thereby addressing the bottleneck concerning lack of agricultural value-addition. A good example in this case where new market institutions could support realizing this move would be the coffee sector. Indonesia currently exports primarily lower quality regular coffee beans (i.e. Robusta). However, Indonesia produces several specialty, very high-quality coffee types such as Iuwak coffee (world's most expensive type of coffee due to its labor-intensive processing), Toraja coffee, Aceh coffee, and Mandailing coffee.[453]

Newly created commodity-specific market institutions could encourage small-scale farmers as well as private-owned plantations to expand specialty coffee production through intensification schemes (e.g. distribution of high-quality fertilizers) and rehabilitation schemes (e.g. distribution of high-quality seeds and planting materials) to revive old plantations and old trees. Increasing the quality of coffee production is necessary and can be achieved through dissemination of market intelligence, risk management, and technological advancements and innovations. Another important aspect is promoting domestic per capita consumption to improve the overall domestic market and demand.

Similarly, for the tea sector, the quality of tea and moving into more high-end segments can be improved, which, eventually, could increase the agricultural marketing system and address food insecurity.[454] Tea produced in Indonesia's large-scale plantations is of premium or high-grade quality while tea produced by Indonesian smallholders, who lack technological innovation, optimal production techniques, and processing and value-addition activities, is of low quality. Processing companies, both foreign and Indonesian, typically buy raw tea from large private-owned or state-owned plantations. However, opportunities for small-scale farmers certainly exist as Indonesian tea is known for having the world's highest catechin content (a natural antioxidant).

The creation of such new market institutions may also support the export of other promising commodities, as the export of promising raw materials is now frequently imposed by SPS compliance issues. This is for instance the case for nutmeg. Indonesian nutmeg comprised the bulk of nutmeg into the EU. In fact, cooperation and technical support programs (TSPs) have been established between the EU and Indonesia to improve the quality of nutmeg and its market access. The last TSP finished in October 2015. As of January 2016, however, the EU imposed stricter import regulations on nutmeg.[455] The export of nutmeg to Europe was challenged due to the presence of fungus, which grows easily as a result of the humidity of Indonesia's climate and the lack of quality storage infrastructure in combination with insufficient diffusion of post-harvest technologies.[456] Mangos exported to Japan and South Korea face SPS compliance issues linked to the presence of the fruit fly, which can't be eradicated due to expensive post-harvest technologies (e.g. heat treatment), which are not

[452] Indonesia Investments (2017), Rice, available at https://www.indonesia-investments.com/business/commodities/rice/item183 [Accessed June 2017].
[453] Indonesia Investments (2017), Coffee, available at https://www.indonesia-investments.com/business/commodities/coffee/item186 [Accessed June 2017].
[454] Indonesia Investments (2017), Tea, available at https://www.indonesia-investments.com/business/commodities/tea/item240 [Accessed June 2017].
[455] Interview conducted with Ministry of Agriculture in Jakarta, July 13, 2017
[456] Interview conducted with Indonesian Quarantine Agency in Jakarta, July 11, 2017

widespread and accessible for small-scale farmers. The situation for mangosteen is similar as many (Asian) countries do not import Indonesian mangosteen due to the spread of ants.[457] Indonesian farmers do not have access to technology to eradicate the ants.

Developing Current Market Institution(s)

BULOG is the key current market institutions through which the Government of Indonesia intervenes in the agricultural market. BULOG's main intervention capacities concern price administration and stockholding program while it lost its exclusive import and trade monopoly. However, as demonstrated in section 5.4.3, BULOG's operations bring along high opportunity and budgetary costs and actually exacerbates undernourishment by driving prices up to 60% higher compared to international prices.[458] Alternative policy instruments (e.g. food vouchers and cash transfer may prove to be more effective in terms of reducing undernourishment, addressing food security, and improving the agricultural market's performance.

Rather than focusing on rice price stabilization, price administration, and stockholding, it has been suggested for BULOG to be re-structured operationally, thereby shifting its mandate to managing emergency and urgent food reserves without much direct intervention in the rice market.[459] BULOG would then take a more neutral position as enabler of an efficient rice agricultural market.

5.4.5 Conclusions and Lessons Learned

Indonesia's agricultural production is still concentrated on subsistence farming and the overall agricultural productivity of small-scale farmers lags behind due to their geographical isolation in combination with inadequate access to agricultural extension services, markets, and credit.[460] This is further hampered by a poor distribution segment of the agricultural marketing system, which can be directly attributed to the poor quantity and quality of Indonesia's infrastructure.

In short, Indonesia's agricultural agenda continues to be set by several bottlenecks:

- Improving Indonesia's self-sufficiency with respect to basic food products and staple foods (e.g. rice, beef, sugar, maize, corn, and soybeans);[461]
- Encouraging industrial competitiveness, value-addition,[462] and the downstream processing of agricultural products within the country.[463] This is vital for the agricultural sector as its exports remain concentrated around primary products;

[457] Interview conducted with Indonesian Agency for Agricultural Research and Development in Jakarta, July 11, 2017
[458] OECD (2015), Indonesia Policy Brief – Agriculture, available at https://www.oecd.org/policy-briefs/indonesia-agriculture-improving-food-security.pdf [Accessed June 2017].
[459] Ibid
[460] IFAD (2015), *Investing in rural people in Indonesia*, pp. 20-25, IFAD: Rome.
[461] FAO/INRA (2016), *Innovative markets for sustainable agriculture - How innovations in market institutions encourage sustainable agriculture in developing countries*, p. 2, Rome: Food and Agriculture Organization of the United Nations and Institut National de la Recherche Agronomique.
[462] FAO (2003), "WTO Agreement on Agriculture: The Implementation Experience - Developing Country Case Studies," available at http://www.fao.org/docrep/005/y4632e/y4632e00.htm#Contents [Accessed June 2017].
[463] FAO/INRA (2016), *Innovative markets for sustainable agriculture - How innovations in market institutions encourage sustainable agriculture in developing countries*, p. 2, Rome: Food and Agriculture Organization of the United Nations and Institut National de la Recherche Agronomique.

- Diversifying Indonesia's agricultural production to generate more and different forms of rural employment;[464] and
- Protecting agricultural producers as opposed to only ensuring reasonable and stable food prices for consumers.[465]

These four bottlenecks basically relate to the inability of Indonesia's farmers to get integrated in the agricultural marketing system has resulted in low prices for their products, which is further exacerbated by Indonesia's drive for import substitution and volatile and overvalued currency exchange rates.[466] Therefore, the key challenge – similarly to Tunisia and Uganda – concerns linking Indonesia's small-scale farmers with the agricultural marketing system.
Despite the fact market intervention through a number of market institutions (e.g. BULOG, PTPN III, and PT Pupuk Indonesia) has been strong in the past, it is now virtually absent for food crops other than rice and sugar for which the Government of Indonesia also attempts to realize food self-sufficiency e.g. beef, soybeans and corn).[467] Moreover, the intervention power of these market institutions such as BULOG has gradually reduced, particularly as a result of the liberalization policies of the late 1990s in response to the Asian Financial Crisis and IMF agreements.

PTPN III's plantations remain an instrument through which the Government of Indonesia continues to directly intervene in the production, albeit limited to a number of export-orientated commodities. However, Indonesia's agricultural intervention primarily revolves around the other forms of market intervention,[468] including subsidies, which benefit a wide range of commodities (e.g. subsidized inputs through PT Pupuk Indonesia), and commodity-specific trade or border interventions complemented with price support to stabilize food prices. Price support remains the most important policy instrument for rice, which is by far Indonesia's most important staple food (e.g. through BULOG).

The use of pricing policies as the key policy instrument for several objectives (e.g. food security, farmers' income protection, increasing Indonesia's competitiveness, and agricultural product diversification), however, may eventually lead to contradictions and conflicts of interest.[469] Positive effects of pricing policies for one objective may have negative consequences for other objectives.

The case of Indonesia reflects the difference between agricultural polices between developed and emerging economies. While the former is more engaged in providing direct farmers' income support, the latter is more concerned with domestic price support and stabilization of staple food prices. Policies relating to direct farmer's income support put a considerable pressure on public budgets while price support and stabilization, in combination with trade policies, are less financially demanding.[470]

[464] FAO (2003), "WTO Agreement on Agriculture: The Implementation Experience - Developing Country Case Studies," available at http://www.fao.org/docrep/005/y4632e/y4632e00.htm#Contents [Accessed June 2017].
[465] Ibid
[466] Anindita, R., Baladina, N., & Setiawan, B. (2013), "Effect of Marketing Efficiency Improvement in Indonesia," *Russian Journal of Agricultural and Socio-Economic Sciences*, 7(19), pp. 5-6.
[467] OECD (2010), "Policies for Agricultural Development, Poverty Reduction and Food Security," Paper presented to the Working Party on Agricultural Policy and Markets, 15-17 November 2010, Paris: OECD.
[468] OECD (2015), Indonesia Policy Brief – Agriculture, available at https://www.oecd.org/policy-briefs/indonesia-agriculture-improving-food-security.pdf [Accessed June 2017].
[469] FAO (2003), "WTO Agreement on Agriculture: The Implementation Experience - Developing Country Case Studies," available at http://www.fao.org/docrep/005/y4632e/y4632e00.htm#Contents [Accessed June 2017].
[470] Ibid

The way forward for Indonesia is to re-design its existing agricultural support policies from an predominant focus on achieving self-sufficiency through domestic market price support and input subsidies to a more diverse portfolio of policies and instruments, which can anticipate on various scenarios of food insecurity.[471] The existing agricultural policy instruments generate considerable opportunity and budgetary costs and require public funding, which may rather have been invested in high-quality infrastructure, risk management, and improving the agricultural marketing's efficiency. Obviously, this would also have its implications for existing market institutions such as BULOG, PTPN III, and PT Pupuk Indonesia.

In this context, it is suggested to re-structure BULOG, together with phasing out input subsidies, substituting, the RASTRA rice distribution program with alternative schemes (e.g. food vouchers and cash transfer programs), and reform, simplify, and streamline the imports licensing system[472] in order to realize this transition.

[471] OECD (2015), Indonesia Policy Brief – Agriculture, available at https://www.oecd.org/policy-briefs/indonesia-agriculture-improving-food-security.pdf [Accessed June 2017].
[472] Ibid

5.5 South Africa

The purpose of this country case study is to firstly introduce South Africa's general agricultural market system (5.5.1), after which a selection of institutions will be evaluated into more details (5.5.2 and 5.5.3). As opposed to the country case studies for Tunisia, Uganda, and Indonesia, no need assessment has been constructed for South Africa as it concerns a best practice non-OIC Member Country. Therefore, conclusions and lessons learnt may be generalized and serve as inspiration to OIC Member Countries (5.5.5).

5.5.1 Overview of Agricultural & Food Sectors and Markets

The following section briefly describes the current situation of the five stages of South Africa's agricultural market system as explained in the Conceptual Framework. The selected agricultural market institutions (Section 5.5.2) typically intervene in one or more of these stages. The five stages include:

- Production;
- Handling and storage;
- Processing and packaging;
- Distribution and market; and
- Consumption and trade.

Production

Despite its relative shortage of arable land, South Africa is one of the largest producers of agricultural goods in Africa, and its largest exporter. The 1.2 million small subsistence-based farmers accounts for about 14% of the agricultural land, while 40,000 well-developed commercial farms occupy about 86% of South Africa's agricultural land.[473]

Cereal production is highly variable, as much production is rain-fed, but the 2016-17 growing season is expected to produce record yields of both maize and wheat. Exports of maize, the main staple and feed grain, are expected to reach about 1.0 million metric tonnes during 2016-17, based on higher yields and production volume. This contrasts with imports of 3.5 million metric tonnes in 2015-16, as drought reduced production by some 40%. South Africa's wheat imports for 2016/17 are expected to be 5% lower than the previous year, due to an expected increase in local production, while rice imports are expected to increase by 10% because of increased demand. Wheat and rice imports could reach about 2.0 million tonnes and 1.0 million tonnes, respectively, as a function of increased demand.[474]

South Africa is a major producer and exporter of fruit and vegetables, dairy, and meat. It is virtually the only African producer of citrus and tree fruits. South Africa is also the 7th-largest wine producer in the world, with 2016 production of 420 million litres (representing 20% growth over the past four years) and exports of . The wine industry contributes 2% of GDP, or

[473] WTO (2015), *Trade Policy Review: Southern Africa Customs Union*, Geneva: World Trade Organization.
[474] Esterhuizen, D. (2017), "South Africa, Republic of: Grain and Feed Annual," USDA Foreign Agricultural Service, Global Agricultural Information Network Report, March 24, https://gain.fas.usda.gov/Recent%20GAIN%20Publications/Grain%20and%20Feed%20Annual_Pretoria_South%20Africa%20-%20Republic%20of_3-24-2016.pdf [Accessed June 2017].

US$5.6 billion, and employs 300,000 people, making it the largest formal employer in the agricultural sector. South Africa exported some US$616 million worth of wine in 2016.[475]

Table 8 – South African (RSA)/World agricultural production and exports, selected commodities

	2016 Production ('000 MT)			2016 Exports ('000 MT)			Imports ('000 MT)
	RSA	**World**	**RSA %**	**RSA**	**World**	**RSA %**	
Pears	430	25,345	1.7%	250	1,775	14.3%	
Citrus	2,514	91,289	2.75%	1,700	9,498	26.5%	
Apples	933	77,141	1.2%	515	6,556	7.9%	
Fruit Juice	45	1,969	2.3%	36	1,442	2.5%	
Maize	12,500	1,031,864	1.21%	1,700	152,912	1.1%	100
Wheat	1,750	739,533	0.24%	200	178,550	0.1%	1,800
Beef & veal	885	61,583	1.44%	50	9,641	.52%	40
Pork	227	110,727	.21%	14	8,750	.26%	32
Poultry	1,395	89,470	1.56%	75	11,163	.67%	560
Sugar*	1,607	170,814	0.9%	250	57,769	0.04%	645
Wine (million litres)	968	22,460	4.0%	428.5	9,540	4.5%	

** Centrifugal raw sugar*
Source: USDA Foreign Agricultural Service (2017), Giokos (2016), and Wines of South Africa (2017)

Unlike many other sub-Saharan African countries, in which 50% or more of the population is engaged in agriculture, South Africa has a highly developed industrial sector which, combined with highly productive mechanized agriculture, makes for a much lower proportion of the population directly engaged in agriculture. In 2014, an estimated 4.6% of the work force was engaged in agriculture, with 23.5% in industry and 71.9% in services. By comparison, agriculture[476] employs 85% of Zambia's population, 81% of Mozambique's, 80% of Sudan's, 75% of Rwanda's, 72% of Uganda's, 70% of Nigeria's, and 67% of Tanzania's. Even in North African countries, agricultural employment is significantly higher than in South Africa: 39% in Morocco, 31% in Algeria, 29% in Egypt, 17% in Libya, and 15% in Tunisia.[477]

Again, in contrast to much of the rest of Africa, most – 71% - of South Africa's agricultural work force consists of wage laborers on commercial farms. Some 47% of these workers, however, are seasonal, though in recent years seasonal labor has fallen from 50% of the total and the proportion of agricultural workers in permanent employment has risen by a corresponding amount. Agriculture-related activities such as food processing/manufacturing and trade employ nearly as many people as agriculture itself: 540,000 versus 613,000 (2013 figures).[478]

Agricultural production (gross farm income) represented US$16.15 billion in 2015/16, or about 5.85% of GDP. Value added in the sector (gross farm income less expenditure on

[475] Workman, D. (2017), Wine Exports by Country, available at http://www.worldstopexports.com/wine-exports-country/ [Accessed July 2017].
[476] Including both formal and informal employment.
[477] Central Intelligence Agency (2016), The World Factbook, available at https://www.cia.gov/library/publications/the-world-factbook/fields/2048.html [Accessed June 2017].
[478] Liebenberg, F. & Kirsten, J. (2013), Statistics on Farm Labour in South Africa, University of Pretoria, October 8, available at http://www.up.ac.za/media/shared/Legacy/sitefiles/file/48/2052/2013workingpaperseries/statisticsonfarmlabourup17okt228nov13.pdf [Accessed June 2017].

intermediate goods and services) came to US$7.6 billion, or about 2.75% of GDP.[479][480] This last figure approximates value added in the agricultural sector, which the World Bank estimated at 2.4% of GDP, only slightly more than in Saudi Arabia (2.3%).[481] Already the most productive agricultural sector in Africa, South Africa's labor productivity in agriculture has grown more rapidly than in other countries in Africa.

In order to improve agricultural production capacity and encourage rural development and job opportunities, the Government of South Africa implements a large-scale Land Reform Programme with the objective to transfer 20% of all commercial agricultural land to black farmers to increase participating in commercial farming an reduce subsistence farming.[482] The Land Reform Programme concerns restitution of land which has unjustly taken in the past, land redistribution, and reform of the land tenure system.

Handling and Storage

Some challenges concerning handling and storage remain, even though South Africa's agricultural handling and storage technologies and infrastructure are relatively accessible and well-developed Africa.[483] Small-scale horticulture farmers generally lack access to storage and warehouse infrastructure, which hampers their participation in commercial farming. This is particularly the case for subtropical fruit, which are cost-intensive. The lack of such infrastructure, in combination with mechanization of post-harvest handling, has also resulted in farmers incurring considerable post-harvest losses.

Processing and Packaging

Sugar is one of the key commodities which is further processed.[484] A total of 14 sugar mills are operated by a number of milling companies, mostly located in the cane-growing regions, which covers about 430,000 hectares. These 14 sugar mills produce and process about 2.5 million tonnes of sugar, which is primarily consumed within SACU. The processing of sugar generates employment for about 79,000 people. The dollar-based reference price of sugar beet and cane sugar increased from US$358 to US$556 per tonne in 2014, which was recommended by the country's International Trade Administration Commission.

In addition to sugar, bottled or boxed wine represents an important share of South Africa's agricultural processing and packaging. However, the wine sector has been challenged by a development where UK retailers are increasingly importing wine in bulk and bottle it in the UK as a result of environmental concerns.[485]

[479] DAFF (2017), *Abstract of Agricultural Statistics*, Pretoria: Department of Agriculture, Forestry, and Fisheries.
[480] The DAFF 2017 Abstract of Agricultural Statistics indicates that gross farm income in 2015/16 amounted to 5.85% of GDP, but elsewhere in the same report the contribution of agriculture to GDP is shown as 2.4%.
[481] World Bank (2017), World Bank Open Data, available at http://data.worldbank.org/ [Accessed May 2017].
[482] WTO (2015), *Trade Policy Review: Southern Africa Customs Union*, Geneva: World Trade Organization.
[483] KPMG (2012), Small Enterprise Development Agency: Research on the Performance of the Agricultural Sector, available at http://www.seda.org.za/Publications/Publications/Research%20on%20the%20Performance%20of%20the%20Agriculture%20Sector.pdf [Accessed July 2017].
[484] WTO (2015), *Trade Policy Review: Southern Africa Customs Union*, Geneva: World Trade Organization.
[485] Ibid

Distribution and Market

The distribution of agricultural products is relatively well-organized given South Africa's modern and well-developed transport infrastructure, especially the country's roads and rail-roads. This is particularly the case when compared to other African countries. The Government recognizes the need for further improvement to meet growing demand and is investing considerably. Nevertheless, continuous investment is required to enable smallholders to service the commercial market as rural areas still remain poorly positioned due to inadequate and under-maintained transport infrastructure. Smallholders need to be connected to the country's eight commercial ports, which together form the primarily channel of trade between other African countries, the Americas, Europe and Asia, accounting for approximately 96% of South Africa's exported commodities.[486]

With regards to commodity exchanges, South Africa is one of the few countries in Africa which tried to implement agricultural commodity exchanges. In fact, South Africa has managed to set up a comparatively well-functioning and sustainable exchange market, as opposed to most other countries, which actually failed in developing such commodity markets.[487]

Consumption and Trade

South Africa is a net exporter of agriculture and food products and, hence, an important source of foreign exchange earnings.[488] Agriculture and food figure prominently in South Africa's exports, reaching US$8.7 billion, or 11.5% of total exports, in 2016. This figure includes live animals, primary agricultural produce, food and beverage preparations, edible fats and oils, plants and cut flowers, animal fodder, tobacco, and hides, skins, and leather.[489]

Policy & Regulatory Framework

South Africa has one of the more liberal agricultural policy regimes in the world. Starting in the 1990s, the Government of South Africa began to reduce its financial support to agriculture during the 1990s, and fell from over 15% in 1995 to less than 5% of gross farm receipts, and has remained at that level since 2010.[490] This compares to a current level of support of around 18% for OECD Member Countries in aggregate, which nevertheless represent a significant decline from more than 30% in the mid-1990s. The policy reforms of the 1990s included deregulation of the market of agricultural products, liberalization of domestic markets, and reduced barriers to agricultural trade.

[486] KPMG (2012), Small Enterprise Development Agency: Research on the Performance of the Agricultural Sector, available at http://www.seda.org.za/Publications/Publications/Research%20on%20the%20Performance%20of%20the%20Agriculture%20Sector.pdf [Accessed July 2017].
[487] Antonaci, L., Demeke, M., & Vezzani, A.(2014), "The challenges of managing agricultural price and production risks in sub-Saharan Africa," *ESA Working Paper*, No. 14-09, pp. 10-15.
[488] WTO (2015), *Trade Policy Review: Southern Africa Customs Union*, Geneva: World Trade Organization.
[489] ITC Trade Map (2017), ITC Trade Map, available at www.trademap.org and Market Access Map – www.macmap.org [Accessed May 2017].
[490] OECD (2016), Producer and Consumer Support Estimates, OECD Agriculture Statistics (database), available at http://dx.doi.org/10.1787/agr-pcse-data-en [Accessed May 2017].

The 2010 Agriculture Policy

In 2010 the Department of Agriculture, Forestry, and Fisheries issued a new policy document, whose purpose it was to help make South African agriculture more globally competitive.
It enshrined liberal principles of non-intervention in markets except to correct market failures or imbalances.

The underlying principles for the policy were:

1. Government intervention in agricultural market should be limited to the correction of market imperfections and socially unacceptable effects.
2. Government intervention in agricultural market should prioritize targeted non-market mechanisms over correction of socially unacceptable conditions.
3. Government intervention in agricultural market should allow for export market arrangements which enhance the welfare of the nation as a whole.

These principles informed a set of policy objectives, which in turn led to a set of policy interventions and mechanisms.

The policy objectives were to:

1. Promote competitiveness in agricultural markets;
2. Create a strong linkage between primary producers and markets;
3. Foster participation and success of smallholder farmers in the agricultural economy;
4. Promote market in value-added agricultural products;
5. Provide a common understanding and directives within Government and its institutions and the agriculture industry of agricultural market policy and the application and implementation of policy instruments;
6. Provide strategic policy direction that can form part of Government's plans of action and that can be reviewed and monitored to measure progress;
7. Provide broad direction on how agricultural market can contribute to the growth objectives of the Government.

The policy interventions and instruments that followed from these objectives were:

1. **Competition and pricing policy** - With deregulation of market arrangements for most, there was a danger that the potential benefits of deregulation could be counteracted by market concentrations that were nurtured by the former control board system. In ordinary circumstances, ordinary duties shall be applied, which are limited by negotiated agreements and obligations enshrined in the WTO. The tariff equivalents set through the process of complying with the WTO commitments represent the maximum level of tariff that can be levied, and these are bound against an increase. WTO rules also require that the bound tariff levels must be reduced by specified percentages over the periods indicated in the agreements. As a matter of policy, ordinary duties will be constantly reviewed in collaboration with the private sector to ensure that tariff levels applied are consistent with the stated policy objectives of making agriculture efficient and competitive.

2. **Agricultural tariff policy** - On both international and local markets, South African farmers have to compete not only with farmers in other countries, but in many cases with those farmers backed by market-distorting interventions their Governments use to protect their agricultural sectors. The Department of Agriculture, Forestry and Fisheries shall work with the Department of Trade and Industry (DTI) to design agriculturally defined guidelines on the use of anti-dumping, safeguards and countervailing duties. Such systems will not be burdensome, but predictable and able to respond swiftly to problems that arise.

3. **Agricultural market access facilitation** - While an enabling trade-policy environment is a critical element of an export-led growth strategy, the increased level of competition in the global economy demands that Governments design measures to improve the competitive edge of their own producers. The Government will, in consultation with the private sector, therefore use non-trade-distorting mechanisms to assist in providing an environment conducive to export growth.

4. **Agricultural market information** - The Government recognizes that there may be incomplete markets in areas where smallholder farmers are located. This results from, among other things, unequal access to market information. The Government will ensure that appropriate institutional arrangements and systems are established and maintained for collecting, analyzing and disseminating agricultural market information to smallholder farmers. The focus will be on information enabling smallholder farmers to make better decisions regarding what to produce, when to harvest and sell and where to sell.

5. **Agricultural market infrastructure and agro-logistics** - Transaction costs are often high for smallholder farmers in most rural areas of South Africa where there are no feeder roads. The Government will therefore develop a transport infrastructure that will permit low-cost and reliable movement of freight. Additionally, the Department of Agriculture, Forestry and Fisheries shall lobby the existing transport infrastructure set-up to accommodate the needs of the agricultural sector. The Government shall facilitate the development of alternative institutions that will break down barriers to participation. It may also reduce transaction costs through the provision of infra-structure, information, training and research.

6. **Commodity groups and agricultural market cooperatives** - Since deregulation, many agricultural industries, especially commercial farmers, organized themselves into successful commodity associations. The core task of these commodity organizations is to inform, train and empower producers, and make market information available. In some cases, this information is expensive and can only be afforded by certain agricultural participants. The Government shall support the formation of fully representative commodity associations among these smallholder farmers and support their future integration with the existing commodity associations for the future. The Government will also promote and encourage group market systems or collective actions by smallholder farmers to aggregate their produce and increase their bargaining power in negotiations with transporters.

7. **Agricultural market skills and capacity building** -The Department will implement an agricultural market skills and capacity building program in partnership with the

private sector and other role players, to help smallholder farmers and entrepreneurs to plan their production and market activities more effectively in accordance with market requirements, as well as to participate actively and effectively in the mainstream markets

8. **Agricultural market finance** - The commercial agriculture sector usually has access to finance through commercial banks, but finance has not been easily available to new and smallholder farmers. The Government will design a suitable financing program that will strive to support smallholder farmers and land reform beneficiaries in their market needs. The program will strive to increase access to, and improve the quality of, agricultural support services such as market infrastructure, agricultural market information, and market skills development. The Government will also use financing programs from various development finance institutions (DFIs) to achieve these goals.

Results of the 2010 Policy and Previous Reforms

Total support to agriculture was estimated at 0.3% of GDP in 2013-15. Direct market price support (MPS) to farms is the largest component of this support, which is based mainly on farm output and use of inputs. Other elements include payments to fund the national agricultural knowledge and innovation system, and expenditure on infrastructure.[491]

Price distortions are low, and except for sugar and, more recently, milk and wheat, domestic prices are "almost aligned with world price levels." Most policy measures and direct payments target smallholders, largely in the form of production loans to new farmers who have acquired land through redistribution. Reduced market price support and budgetary support to commercial farms (most of them white-owned) not only reduced the overall level of support to agriculture, but also freed up resources to fund land reform (hitherto based on a "willing seller-willing buyer principle to acquire white-owned farms) and support to its beneficiaries, principally black subsistence, smallholder, and commercial farmers.[492]

Land redistribution policies were also changed, following earlier, unsuccessful land redistribution programs, which failed to establish clear ownership rights and obligations and which transferred land to inexperienced cooperative groups on unfavorable terms. Under the New policies, all newly acquired land has been registered as state-owned on the Agricultural Land Holding Account – administered by the Department of Rural Development and Land Reform – and leased to selected beneficiaries, who have the right to dispose of the land after an agreed lease period, provided the project is economically viable.

Following severe droughts in 2014 and 2015 (which cut the maize harvest by 40%), Government repurposed some agriculture support funds to drought relief and committed new funds, much of which went for provision of water, transport, and livestock feed. The land reform process continues to receive funding, including support to recapitalize failing farms. The 2016 OECD Agricultural Monitoring and Evaluation review observed that;

- "The main challenge…continues to be implementing and effectively targeting support programs that are tailored to the needs of emerging farmers. Involving private stakeholders (experienced commercial farmers) in [these] programs in the form of

[491] OECD (2016), *Agricultural Policy Monitoring and Evaluation 2016*, Paris: OECD Publishing.
[492] Ibid

private-public partnerships is an efficient way to engage…available resources and address…weaknesses in [public] support…programs and services.

- "The pace of land reform should be closely linked to the development of the enabling environment for the beneficiaries of land reform; otherwise land redistribution by itself cannot deliver the expected outcomes, such as improving the welfare of the black rural population, increasing food security in rural areas and developing a viable commercial sector."[493]

In terms of market intervention, the Government of South Africa currently does not subsidize agricultural exports and only levies variable duties on a certain number of agricultural commodities (e.g. corn flour, preserved tomatoes, cherries, and some types of tobacco).[494] Tariff quotas restrict the import of animal products, vegetables, cereals, fruits, coffee, tea, oil seeds, sugar, food preparations, tobacco, cotton, and potatoes. Export levies are applied to a number of agricultural commodities, particularly fruits, vegetables, wine, and meat. These levies are collected to fund various agricultural organizations. For instance, the Wines of South Africa (WOSA), an association representing local wine exporters, is funded by a levy per litre collected on all wines exported. The exact export levy rates, which do not exceed 5% of the actual market price, are published in the Government Gazette, while the guideline prices are established taking into account the actual average market prices at the first point of sale for all products to which the expert levies are applied.

The Government's market intervention is restricted to development aid, supporting agricultural research, provision of veterinary and SPS-related services, quality control, and resource conservation and management.

5.5.2 Agricultural & Food Market Institutions

South Africa has a broad panoply of both public and private institutions that provide financial support, technical assistance, investment transaction support, and information to the agriculture and agribusiness sectors. They include:

- National public sector bodies;
- Private and non-profit institutions and companies;
- Municipal Governments; and
- Educational institutions.

They attempt to realize these agricultural ambitions of the Government of South Africa with regards to intervening, regulating, and enabling various market channels of the country's agricultural and food sector. The full institutional framework of South Africa agricultural market system is set and governed by a number of Government entities and non-Government entities. This section only focuses on selected agricultural market institutions which match the classification accentuated in the Conceptual Framework in Chapter 1 (**Table 9**).

The Government of South Africa operates a number of state-owned economic enterprises in various sectors, including agriculture.[495] Eight of the most important state-owned economic

[493] OECD (2016), *Agricultural Policy Monitoring and Evaluation 2016*, Paris: OECD Publishing.
[494] WTO (2015), *Trade Policy Review: Southern Africa Customs Union*, Geneva: World Trade Organization.
[495] WTO (2015), *Trade Policy Review: Southern Africa Customs Union*, Geneva: World Trade Organization.

enterprises fall under the supervision of the Department of Public Entities (DPE), while the less important state -owned economic enterprises are overseen by other line Ministries. The Public Finance Management Act (PFMA) of 1999 serves as legal framework for most state-owned economic enterprises, and classifies these into a number of groups:[496]

- Schedule 1 - Constitutional Institutions (e.g. Financial and Fiscal Commission and Municipal Demarcation Board);

- Schedule 2 - Major Public Entities, of which the Government is a major shareholder (e.g. Land and Agricultural Development Bank of South Africa, South African Airways (Pty) Limited, South African Broadcasting Corporation Limited, South African Forestry Company Limited, and Telkom SA Limited); and

- Schedule 3 – Other Public Entities.

    - Part A – Other National Public Entities (e.g. national research institutions, museums, foundations, funds, councils, and regulatory authorities as well as sector education and training authorities including Agricultural Research Council, Agricultural Sector Education and Training Authority, and Food and Beverages Manufacturing Industry);
    - Part B – National Government Business Enterprises (e.g. Inala Farms Ltd, Ncera Farms Ltd, and SA Bureau of Standards);
    - Part C – Provincial Public Entities (e.g. provincial gambling boards, housing boards, planning boards, and tourism and parks boards); and
    - Part D – Provincial Government Business Enterprises (e.g. provincial development corporations and IPAs).

State-owned economic enterprises are not – as opposed to for instance Indonesia – privatized but are increasingly redeveloped to become more financially sustainable and efficient, thereby taking into account the policy objectives of the long-term NDP and responding to public mandates.[497] This is also the case for the agricultural state-owned economic enterprises.

Table 9 – Overview of the six selected agricultural market institutions in South Africa

Classification	Institution	Description
Commodity Market Regulation Authority	*National Regulator for Compulsory Specifications*	National Regulator for Compulsory Specifications (NRCS) was established in accordance with the provisions of the National Regulator for Compulsory Specifications Act, (Act no.5 of 2008) (NRCS Act). It emerged as an independent organization from the original Regulatory Division of the South African Bureau of Standards, and falls under the responsibility of the Department of Trade and Industry (the dti). The NRCS's mandate includes promoting public health and safety, environmental protection and ensuring fair trade. This mandate is achieved through the development and administration of technical regulations and compulsory specifications as well as through market surveillance to ensure compliance with the requirements of the

[496] National Treasury (2017), Public Institutions Listed in PFMA Schedule 1, 2, 3A, 3B, 3C and 3D, available at http://www.treasury.gov.za/legislation/pfma/public%20entities/2017-02-24%20Public%20institutions%20Sch%201-3D.pdf [Accessed July 2017].
[497] WTO (2015), *Trade Policy Review: Southern Africa Customs Union*, Geneva: World Trade Organization.

Classification	Institution	Description
		compulsory specifications and technical regulations. It enforces and sets standard specifications for both locally produced and imported frozen seafood and canned and processed meat and fish products. NRCS also enforces regulations under the Trade Metrology Act, ensuring that the most common measurements used in trade transactions (mass, length, volume, number) are reliable, and that measuring instruments are reliable and accurate.
State-Owned Economic Enterprise	*South Africa Meat Industry Company*	South Africa Meat Industry Company (SAMIC) is not a fully state-owned economic enterprise but is DAFF's assignee for the classification and marking of meat intended for sale in South Africa. SAMIC coordinators across the country perform independent audits of quality indication marks used by farms, feedlots, abattoirs, deboning plants, and wholesale and retail outlets. These marks, which are registered with DAFF, certify provenance, farming standards, and other indications of quality such as "Certified Karoo Meat of Origin," "Free Range Meat," Grass-fed Meat," and many others. Many of the country's leading grocery chains have their own marks reflecting standards and specifications which are audited by SAMIC. SAMIC also audits hides and skins, and trains and certifies meat classifiers.
Commodity Exchange Platform	*Joburg Market*	Joburg Market is South Africa's largest wholesale produce market as well as the largest in Africa and, possibly, the world, as measured by volume. At 988,000 tonnes per year, the volume of produce sold at the Joburg Market is second only to that of Rungis International in Paris which is considered the largest produce market in the world, and which deals in dairy and meat products as well as fruits and vegetables. Wholly owned by the Johannesburg Municipal Government, Joburg Market was corporatized in 2000, becoming Johannesburg Fresh Produce Market (Pty) Ltd. It is governed by an independent Board of Directors. The Market serves about 5,000 farmers from across South Africa who send their fresh produce to be traded to a large buyer base, averaging about 10,000 daily. Trade takes place via a commission system with the Market charging the producer a 5% commission on all sales made on the commission floor. A further negotiable levy of 7.5% is paid to market agents for selling produce on behalf of the farmer. Trade takes place in three Foodhubs, namely: Fruit Hub, Potato & Onion Hub, and Vegetable Hub, measuring a total of 65,000 m^2. As value-adding services, the Market has 55 cold rooms, which can accommodate 4,561 pallets of fresh produce, and 50 banana ripening rooms, which can handle 1,590 pallets of bananas at any one time. Joburg Market provides a wide range of services that support its core function as a wholesale produce exchange. These include: • Assistance to emerging black farmers in reviving old pack houses, building new pack houses, and obtaining packing material. The Market provides food safety management systems to these emerging farmers. • An Export Facilitation Desk to assist buyers of fresh produce from SADC countries. The Joburg Market keeps a register of enquiries received, provides information on how to buy from the Market, and refers potential orders to export agents. It also assists in compliance with South African Government requirements, particularly inspections by the PPECB.

Classification	Institution	Description
		• An online database showing daily trade volumes and prices by product.
Commodity Exchange Platform	South African Futures Exchange	South African Futures Exchange (SAFEX) is the derivatives market of the Johannesburg Stock Exchange (JSE). It offers a platform for price discovery and efficient price risk management for the grains market in South and Southern Africa, with futures and options contracts available for white maize, yellow maize, wheat, soya beans and sorghum. In addition to agricultural derivatives, SAFEX offers currency and energy futures, which facilitate hedging against changes in fuel prices or exchange rates.
State-Owned Economic Enterprise	*South African Forestry Company Ltd.*	The South African Forestry Company Ltd. (SAFCOL) is a state-owned economic enterprise listed under Schedule 2 of the PFMA.
State-Owned Economic Enterprise	*Land and Agricultural Development Bank of South Africa*	The Land and Agricultural Development Bank of South Africa (Land Bank) is a state-owned economic enterprise listed under Schedule 2 of the PFMA. The Land Bank is a specialist agricultural bank guided by a Government mandate to provide financial services to the commercial farming sector and agribusiness, and makes available financial products to new entrants to agriculture from historically disadvantaged backgrounds. The Land Bank offers both long-term loans for capital expenditure and permanent working capital, and revolving loan facilities.
State-Owned Economic Enterprise	*Inala Farms Ltd*	Inala Farms Ltd is a state-owned economic enterprise listed under Schedule 3B of the PFMA. Inala Farms covers more than 1,300 hectares and is located Mpumalanga Province. The estate has been part of a land reform project and produces bananas, sugarcane, mangoes and litchis.[498]
State-Owned Economic Enterprise	*Ncera Farms Ltd*	Ncera Farms Ltd is a state-owned economic enterprise listed under Schedule 3B of the PFMA. Ncera Farms is located in the Eastern Cape province. It looked to increase the production capacity of local smallholders, and boost activities include livestock farming, open land and tunnel cropping, goat farming, beef processing, as well as hydroponic vegetable production.[499] Ncera Farms was supposed to create about 400 jobs.
State-Owned Economic Enterprise	*Kwazulu-Natal Agribusiness Development Agency*	Kwazulu-Natal Agri-Business Development Agency is a state-owned economic enterprise listed under Schedule 3C of the PFMA. Its key mandate is to support black commercial farmers, especially in the land reform program and in the context of food prices hikes, over-indebtedness, and lack of farming skills.[500] The agency's mandate recently shifted from solely agricultural value-addition to the whole agricultural market system. Services to support farmers include financial resources mobilization, agri-business market infrastructure services, agri-business facilitation services, and knowledge and information services.

Source: Investment Consulting Associates – ICA (2017)

[498] News24 (2005), Flagship farm in trouble, available at http://www.news24.com/SouthAfrica/News/Flagship-farm-in-trouble-20050622 [Accessed July 2017].
[499] BusinessLive (2016), Government is to deregister state-owned farm Ncera, available at https://www.businesslive.co.za/companies/agriculture/2016-10-21-government-is-to-deregister-state-owned-farm-ncera/ [Accessed July 2017].
[500] Kwazulu-Natal Agribusiness Development Agency (2014), Welcome to ADA, available at http://www.ada-kzn.co.za/ [Accessed July 2017].

5.5.3 Effectiveness of Agricultural & Food Market Institutions

Since the late 1990s, South Africa's trade and agriculture policies substantially liberalized, with reforms that include multilateral reductions in tariffs and subsidies through the country's WTO) commitments, the signing of several free trade agreements with important trading partners, and discussions and negotiations on future liberalization both in the context of Africa-EU Partnership Agreements (EPAs) and of regional trade agreements such as the Tripartite Area Free Trade Agreement (F-TPA), which entails integration of COMESA, the East African Community, and SADC into a single trade area of 27 countries with an aggregate population of more than 600 million. Agricultural liberalization also took place over the same period, reducing direct Government intervention in agricultural markets via control boards, import tariffs and quotas, and market price supports.

"Today, the sector is the most unregulated in the world but also one of the most structured and the most reliable, offering investors the full gamut of tools with which to manage risk. Within the international framework of renewal of agricultural investment, the country offers a favorable platform for financial experimentation as the country's land resources, as well as its role as regional power, further stimulate investor interest in this market."[501]

These developments have helped South Africa become one of the world's leading exporters of agro-food products such as wine, fresh fruit and sugar, both within Africa and to Europe, Asia, and the Americas. South Africa's agricultural export revenues reached almost 9% of the total value of national exports in the early 2000s.[502]

According to Bradley Yazbek, Farmsecure Fruit Market Manager, Europe was the leading destination for South Africa's top quality fruit for many years, but increased demand in China, Japan and other Asian countries meant that in 2012, Europe took only 42% of Farmsecure Fruit's total exports, with Asia accounting for 37% and the Middle East 21%.

The liberalization of trade and agriculture has had a marked effect on productivity: one 2010 study found that "trade liberalization has contributed significantly to augmenting South Africa's growth potential via its impact on TFP [total factor productivity]". Agricultural imports, however, have grown since liberalization, reaching 5-6% of total annual imports from 2000 to 2005[503]

South African agri-food producers have complained that European companies are dumping food products on the South African market. For example, RCL Foods (formerly Rainbow Chicken) claims it is the victim of dumping of European chicken legs and thighs (European consumers prefer white breast meat so producers can earn more by exporting the dark meat even at very low prices). RCL Foods reported a 11.9% loss in headline earnings for the year to June 2016 and in January of this year retrenched over 1,000 workers at a plant in KwaZulu-Natal.

[501] Ducastel, A. & Anseeuw, W. (2011), Le « production grabbing » et la transnationalisation de l'agriculture (sud-) africaine. Transcontinentales, No10/11, pp. 2-5.
[502] Ibid
[503] Ducastel, A. & Anseeuw, W. (2011), Le « production grabbing » et la transnationalisation de l'agriculture (sud-) africaine. Transcontinentales, No10/11, pp. 2-5.

In response, the International Trade Administration Commission of South Africa (ITAC) in December 2017 imposed a provisional safeguard duty of 13.9% on frozen bone-in-chicken from the EU. This followed anti-dumping tariffs ranging from 3.86% to 73.33% on some chicken from Germany, the Netherlands and the UK.

The EU has claimed, however, that the problem, is structural weakness, including a spike in costs for the domestic South African industry. Severe drought in 2016 caused the price of maize, the main ingredient in chicken feed, to jump by nearly 200%, from R1,700 per tonne in 2015 to a record high of over R5,000 in 2016. But according to a study by Wageningen University in the Netherlands, "South African poultry producers are more competitive than those in the EU, and…if the EU had to export whole birds to South Africa, it would be unable to compete on price…The study found that South Africa's whole-chicken costs were about 20% lower than in Europe…[though] this estimate is based on 2013 figures."

Liberalization has increased the attractiveness of South African agriculture and agribusiness to investment. In 2010 one Africa-focused private equity investor commented, "The number of investment projects in the agricultural sector in sub-Saharan Africa is unprecedented." Another fund manager stated that "Last year, private equity investments in the African agricultural sector generated some of the highest returns on investment."

A 2012 survey of Africa-focused private equity examined 158 private equity funds (115 fund managers) with a total of US$32.9 billion in capital closed since 2002 or currently being raised, and an average fund size of US$216.5 million. Of these funds, 23% have an exclusive focus or a preference for investing in the agro-food sector.[504]

The inflows of investment into the agricultural sector in South Africa have contributed to a process of industrialization or corporatization, in which many agricultural market systems are controlled by one or a small number of dominant players, achieved either through direct acquisition or by the contracting-in of other players, especially smallholder farmers. This process has been facilitated by the availability of finance from private equity, commercial banks, pension funds, and insurance companies, which are far more developed in South Africa and operate under far more secure legal and regulatory conditions than in most other African countries.

Farmsecure in 2012 received support from SwissRe for a large-scale maize project on 80,000 hectares in Free State, which would be expected to produce around 400,000 tonnes of grain in a normal year. SwissRe provides yield index cover: "if production falls below a given level, for whatever reason, they pay out." Also in 2012, the German development finance institution DEG took a 10% stake in Farmsecure. Investments and risk sharing of this kind depend on both liberalized agricultural markets and trade, and a strong financial and legal system.

Some evidence is available, which may shine light on the efficiency of the two state-owned economic enterprises of estate farms, Inala Farms Ltd and Ncera Farms Ltd. Initially, Inala Farms Ltd doubled its agricultural turnover from from US$600,000 (R7.8 million) in 1998 to US$1.27 million (R16.4 million) in 2005. It was reported in 2005, however, Inala Farms Ltd accumulated more than US$1.5 million (R20 million) in debt and is was, in fact, in the process

[504] Avanz Capital (2012)

of liquidation and rescue proposals were submitted to the Land and Agriculture Minister.[505] Ncera Farms Ltd recorded an accumulated deficit of US$1.70 million (R22 million) in the 2004-05 financial year, and almost US$1.85 million (R24 million) in the subsequent financial year.[506] It has been claimed the Government looks to de-register Ncera Farms Ltd. The then Department of Agriculture financed the shortfalls.

5.5.4 Conclusions and Lessons Learned

South Africa has one of the world's most competitive agri-food sectors. The main factors contributing to its competitiveness are:

- Trade liberalization;
- Liberalization of agricultural markets;
- Land reform;
- Highly-developed physical infrastructure;
- Good business and investment climate;
- Access to finance;
- Quality of Government health, safety, and market development policies, regulations, and standards, and the institutions responsible for their development and implementation; and
- Quality and strength of private sector institutions and associations in the agri-food sector and their influence on public policies and their provision of assistance to farmers.

Liberalization of South Africa's agriculture sector was accomplished deliberately and in the context of a strong policy and institutional framework, including both public and private sector institutions, without which liberalization would almost certainly have failed.

Liberalization of agricultural markets in South Africa, together with trade liberalization, has for the most part been good for South Africa. Agri-food imports in 2016 amounted to US$7.01 billion, nearly 9% less than in 2012, despite a severe drought, which caused a spike in South Africa's imports of cereals, oilseeds, vegetable oils, and several other commodities in 2016. In 2016, South Africa had an agri-food trade surplus of US$2.51 billion, compared to just US$1.70 billion in 2012, a rise of 48%.[507]

Liberalization has, however, led to "a new paradigm for agricultural development,"[508] in which large-scale private investors, backed by a variety of financial instruments and institutions, has come to dominate many agri-food subsectors through increasing vertical integration and consolidation. "Through partnerships and contractual agreements, these actors can extend

[505] News24 (2005), Flagship farm in trouble, available at http://www.news24.com/SouthAfrica/News/Flagship-farm-in-trouble-20050622 [Accessed July 2017].
[506] BusinessLive (2016), Government is to deregister state-owned farm Ncera, available at https://www.businesslive.co.za/companies/agriculture/2016-10-21-government-is-to-deregister-state-owned-farm-ncera/ [Accessed July 2017].
[507] ITC Trade Map (2017), ITC Trade Map, available at www.trademap.org and Market Access Map – www.macmap.org [Accessed May 2017].
[508] Ducastel, A. & Anseeuw, W. (2011), Le « production grabbing » et la transnationalisation de l'agriculture (sud-) africaine. Transcontinentales, No10/11, pp. 2-5.

their control over the productive cycle globally so as to limit the risks inherent in agricultural production."[509]

The financial system – including commercial banks, insurance companies, investment funds, and the SAFEX derivatives exchange – has come to play an increasingly central role in these developments, in large part by enabling large agribusinesses to "centralize all services needed by farmers, such as supply of inputs, technical assistance, and sales, in a single organization… the company provides inputs directly to the farmer and guarantees the sales price by taking a forward position in the futures market. During the production cycle, the company…monitor[s] production. Engineers are sent out to carry out inspections, operations are monitored via satellite observation, and the farmer's accounts are audited. After the harvest, the company takes charge of the sale of the crop, over which it holds the rights. Once the production is disposed of, the management company repays the loan provided by the bank, plus interest."[510]

There is no question that these developments have fundamentally altered the position of smallholders and family farmers in South Africa. "Traditionally, the family unit formed the foundation of the agricultural world, from the apartheid era to the present time, [but] the transition of the autonomous family farm to a unit absorbed into an entrepreneurial structure has inevitably forced changes in relationships in the agricultural world. Along with farmers and landowners, agricultural laborers have also experienced a worsening of their situation. Moreover, the precarious nature of farmworkers' existence is perpetuated by the application of cutting-edge agricultural technology, to the point where only a very small, often seasonal, labour force is required."[511]

Although this ongoing transformation has proven disruptive of traditional practices and of many individuals' and families' livelihoods, it is not wholly negative. First, there is evidence that industrialized agriculture has created new employment opportunities, even if many such opportunities are as salaried workers rather than self-employed farmers. An estimated 1.4 million people were employed in agriculture in 1975, a number that fell to 628,000 in 2005. But since then the numbers have increased to an estimated 953,000, as of September 2016.[512] Agricultural value added per worker rose from US$4,946 in 2000 to US$9,451 in 2015 (constant 2010 dollars),[513] while maize and wheat yields per hectare doubled between 1995 and 2015.

Though not well-paid, South African farm workers receive a minimum salary comparable to that of unskilled or semi-skilled workers in other sectors. The current (March 1, 2017 to February 28, 2018) minimum wage for farm workers is R3,001.13 per month/R138.52 per day/R15.39 per hour. This compares to minimum wages for a driver of a light vehicle in the retail/wholesale sector of R3,049.31 per month/R15.63 per hour.
South Africa's highly-developed physical infrastructure – including road and rail transport networks, efficient ports, ICT, water, and electricity – has helped lower production and distribution costs and made its agro-food products more competitive in both domestic and international markets. "Poor infrastructure is in fact found to be more constraining to agriculture prosperity than trade barriers."

[509] Ibid
[510] Ibid
[511] Ibid
[512] DAFF (2017), *Abstract of Agricultural Statistics*, Pretoria: Department of Agriculture, Forestry, and Fisheries.
[513] World Bank (2017), World Bank Open Data, available at http://data.worldbank.org/ [Accessed May 2017].

South Africa's institutions and policies have made equally important contributions to the efficiency and competitiveness of its agri-food sector. These include trade and agricultural policy liberalization, but they also include the country's business and investment climate. South Africa ranks 4th among countries in Africa, after Mauritius, Botswana, and Rwanda, 74th in the world, and 9th among OIC Member Countries in the 2017 *Doing Business* indicators.

South Africa's industry associations in the agri-food sector have played an important role, both as policy reform advocates and as providers of services to their members, especially those from previously disadvantaged groups. In many OIC member countries, chambers of commerce, many of which include agriculture sub-chapters, often function as de facto – and, not infrequently, de jure – arms of Government. Membership is often compulsory, and activities are mandated and limited by law. In South Africa, membership in industry associations such as Agri SA is voluntary, and revenue depends on members' contributions. This obliges such organizations to provide their members with useful services they are willing to pay for.

In the context of South African agriculture, it is difficult, if not impossible, to single out one or even a few key institutions. This may, in fact, be one of the key strengths that have enabled South African agriculture to thrive. The interplay of public and private, Government, for-profit and non-profit, financial, technical, commercial, educational, and research institutions has created a vibrant and interconnected system that offers essential support to virtually every participant in the agri-food sector. This system is underpinned by intelligent regulation which seeks to protect the integrity and proper functioning of markets, support technological development and dissemination of knowledge, protect public health and safety, and enhance the competitiveness of South African agribusinesses.

Chapter 6 – Conclusions & Policy Recommendations

6.1 Conclusions

This report has presented an in-depth review of food and agriculture market systems, with a goal of pointing out best practices and systems that may be adopted wholly or in part by OIC Member Countries. As this report has highlighted, the effective functioning of agricultural and food market systems depends on the support of a wide range of public and private sector institutions.

The current report presents an analysis of the functioning of agricultural markets in OIC Member Countries and the roles that agricultural market institutions play in improving or impeding market performance. The analysis is based on an examination of the different stages and processes in agro-food market systems, including production, handling, storage, transport, processing, packaging, and distribution, and the roles played by market institutions in each element of these market systems. The study covers the following subjects:

- Identification of both Government and non-Government agriculture and food market institutions and institutional systems, and examination of their effects on agricultural market performance;
- Assessment of specific market interventions, and of the regulatory power, market influence, and overall impact of agricultural and food market institutions and institutional systems on the supply and demand of agricultural commodities;
- Measurement of the effectiveness of market institutions and the role of both state and non-state institutions and institutional systems in the agriculture and food sector;
- Identification of best practices by agro-food market institutions and systems, in both OIC member and non-Member Countries;
- Policy recommendations for the OIC Member Countries, based on these assessments and selected best practices, which can strengthen market institutions and systems and improve market performance.

Agriculture differs from other sectors in many ways. Food security is foremost among these. In even the most prosperous OIC Member Countries, food security is an important preoccupation, especially since many of these countries are situated in some of the most arid parts of the world, and cannot become self-sufficient, except at an uneconomic cost. Consequently, the Governments and populations of many of these countries, even though they can easily afford to buy staple commodities on international markets, have a sense of vulnerability when it comes to securing adequate food supplies, and their agriculture policies, and the mandates of the institutions responsible for their implementation, reflect this.

In other OIC Member Countries, many of them less-developed or developing countries, agriculture remains the largest source of employment and livelihoods. In these countries, the challenge – in addition to food security – is to increase agricultural productivity, enabling rural populations to share in the benefits from economic growth, while ensuring adequate food supplies and moderate prices to urban populations.

Yet another distinctive feature of agriculture is its place in the culture and identity of many countries, both within and outside the OIC. The first agrarian societies emerged in Egypt and the Levant, and agriculture consequently assumed, and retains, an important place in their

history and culture. Livestock is a central element in the cultures of the Arabian Peninsula and the Sahel. The social and cultural significance of agriculture in so many societies often gives rural populations greater political weight than their contributions to national economies might otherwise indicate.

Given the special place of agriculture in so many societies, it would be surprising, if Governments were to prize market efficiency and liberalization above all other considerations, and unreasonable to expect them to do so. And although some countries profiled in this analysis – South Africa in particular – have pursued aggressive forms of liberalization with considerable success, this does not mean that such policies are always and everywhere appropriate.

Setting and implementing policies for the agro-food sector, even more than in many other sectors, requires balancing of competing and often contradictory interests and objectives: efficiency and social protection, rural and urban, tradition and innovation, high producer prices and low consumer prices, openness to trade and protection of domestic producers, among others. What this study has illuminated is the ways in which countries have sought to address these challenges in an equitable manner, and the ways in which both public and private sector agricultural market institutions have evolved in response to these often-competing objectives. This study also illustrates the degree to which agricultural market institutions everywhere are parts of a system in which these questions are resolved, both through collaboration and cooperation and through competition and advocacy.

The direct observations of agricultural market institutions, obtained through the case studies and surveys carried out as part of this study, together with the observations and analyses obtained from extensive desk research and literature reviews, have led to several conclusions:

1. The Governments examined for this study all intervene in agricultural markets. The question is therefore not whether intervention is warranted, but rather what kind of intervention can produce the desired outcomes, and how Government and non-Government institutions can interact most effectively to achieve those outcomes.

2. For the countries examined, the performance of agricultural markets is subject to the influence of a great many institutions and policies, many of them only tangentially connected to the agriculture sector. These include Ministries of Finance, Ministries of Trade and Industry, and Central Banks, among others. These institutions in many cases exercise a more substantial influence on market performance than institutions with a specific agriculture-related mandate.

3. Given the many complex interactions among market institutions, their effectiveness can be assessed only by looking at the entire system of institutions, and the position of those institutions within a wider policy context.

4. Independent, private sector institutions are critical to the effective functioning of market systems. Though Governments set and implement policy, the voice of non-Government institutions is essential to help ensure that the right policies are adopted. Robust non-Government market institutions such as sector associations cooperatives, and exporters' federations, are also essential if markets are to work effectively.

5. Markets tend to perform better when institutions harness market forces to serve social goals and try to make markets work more effectively, than when they try to supplant market forces with uneconomic and ultimately unsustainable controls.

6. Both Government and non-Government market institutions tend to be most effective when their interventions focus on transmitting information, mediating transactions, reducing volatility in commodity markets, facilitating the transfer and enforcement of property rights and contracts, managing competition, increasing the market power of producers and exporters, improving product quality, and, above all, eliminating or mitigating market failures.

These conclusions form the basis for a number of specific recommendations that are differentiated with respect to the following subjects:

- Farmer registration;
- Institutional coordination & human capacity;
- The role of inputs;
- The role of warehousing;
- Traceability and standards;
- Research laboratories; and
- International collaborative efforts.

6.2 Recommendations for National Efforts

There is considerable variability of sophistication, size, and capabilities among the food and agricultural market systems of the OIC Member Countries. Even the approaches to market institutions may vary greatly. For example, Tunisia has quite a range of market institutions which facilitate the implementation of its agricultural price support measures and regulations such as subsidized inputs, guaranteed minimum prices, and direct market intervention. UTAP has the ability to directly intervene in the market in collaboration with the Inter-Professional Agricultural Associations and private sector in order to balance supply and demand of the market, guarantee reasonable prices for the farmers, and ensure regulatory stock (i.e. control and location of stock per governorate). SOTUMAG manages the largest wholesale market of Tunisia, where the country's circuits of agri-food distribution are consolidated and unified through monitoring and regulatory enforcement mechanisms. SOTUMAG's mandate also concerns diffusion of the standard for prices of products. Marketing boards have a relatively strong market interference power, as they can negotiate this price freely, thereby guaranteeing a certain minimum price (i.e. ONH) or buy common wheat and durum at prices set by the Government while selling domestic and imported cereals at fixed prices to processing facilities (i.e. OC).

In contrast, the agricultural market system of Uganda is to a great extent liberalized and market institutions are only responsible for promotion, extension services, and (some) regulatory and promotional functions (e.g. marketing board such as UCDA, DDA, and CDO). Government intervention in the agricultural and food market in Uganda traditionally included a number of participants, particularly some concerned line Ministries and their marketing boards and state-owned economic enterprises. The Government of Uganda followed international developments and trends with respect to market institutions and started large-scale privatization of its agricultural market institutions (particularly marketing boards and

state-owned economic enterprises) in the early 1990s. The Government of Uganda withdrew its agricultural market institutions as the common rationale was the marketing system should be private-sector led and not restricted by Government involvement in agricultural marketing.

Indonesia's approach can somewhat be positioned between the more controlled price support measures of Tunisia and Uganda's liberalized agricultural market system, where Government intervention is limited. The Government of Indonesia does not let market forces entirely decide the supply and demand of the agricultural sector and leaves room for Government intervention. The Indonesian approach is somewhat mixed, with public intervention in certain agricultural commodities (rice and other strategic commodities) as well as private sector-led activities. For example, the Government of Indonesia keeps about 7 to 8% of the total rice production stock, while the remaining portion is produced and stored by the private sector.

6.2.1 Farmer Registration

Provide for better registration of farmers so that training and certification may be provided, thereby improving both the ability of farmers to succeed and also enhancing markets' acceptance of the goods produced.

From Chapter 5 it emerged, there is no authority in Tunisia nor Uganda where farmers are registered. A registration of farmers and their treats may ease the collection of market intelligence, which may enable Governments and Ministries to develop customized policies and provide specialized support to address certain issues. In Tunisia, it has also been mentioned non-farmers enjoy incentives specifically designed for farmers to support them with investment and protect their income.

In Indonesia, farmers are registered for purposes of input subsidization. PT Putuk Indonesia, the state-owned economic enterprise which manufactures approximately nine million tonnes of subsidized fertilizers per year, sells at below-market prices to smallholders registered with local agricultural departments. The Government of Indonesia can determine the quantity and price of subsidized fertilizers PT Putuk Indonesia needs to produce and distribute. Such market intelligence based on farmers registration enables Governments to target specific segments, areas, and commodities with inputs and services.

Hence, the creation of a farmer administration may contribute to an improvement of market intelligence as this registration could function as an instrument to collect, analyze, and disseminate statistics, data, and information on the agricultural sector. This also increases the efficiency and performance of the overall agricultural market system as the available market intelligence would show opportunities for connecting agricultural production (i.e. smallholders and small-scale farmers) with processing, value-addition, and other post-harvest activities, and, eventually, consumption (i.e. final stage of the agricultural market system).

Finally, this data could also be used for granting and monitoring incentives and other subsidies to support famers in upgrading their production capacity and informing them on indicative prices through daily reports and the use of other media.

A good example of such a system may be Turkey's farmer registration system, which is supervised by the Ministry of Food, Agriculture, and Livestock. The farmer registration system – Çiftçi Kayıt Sistemi (CKS) - has been incorporated as part of Turkey's transition to direct

income support and has been applied through 2000 to 2007. Farmers registered with this system qualify for direct income support programs (e.g. support for organic agriculture and good farming practices).[514] The development of the CKS system was supported by US$35 million through the World Bank's Agricultural Reform Implementation Project, which was, however, gradually reduced to US$20 million in 2005 and US$11 million in 2007.[515] The number of farmers registered with the CKS increased from 2.1 million at its inception in 2001 to 2.77 million 2003, though dropped again to 2.3 million in 2011. Despite these challenges, the CKS may be a good point-of-departure in this context for other OIC Member Countries looking to develop such a system.

6.2.2 Institutional Coordination & Human Capacity

Develop, implement, and synchronize agricultural and food market strategies at a national level to ensure agreement on mission and goals and also to provide a means for coordination between and among the various market institutions.

The need for institutional coordination may be coupled with the previous conclusion on farmer registration as part of more wider administration and control systems. Indeed, all OIC Member Countries have a multiplicity of agro-food market institutions, and there is often a lack of coordination among them. As the country case study of Indonesia demonstrated, conflict of interest may arise among Ministries as well as fragmented statistics and data discrepancies (e.g. Ministry of Agriculture, providing data on supply, and Ministry of Trade, providing data on demand). Turkey's CKS registration system provides a good point-of-departure as it adheres to improved institutional coordination on the basis of a farmers' registration system.

Every country has a Ministry of Agriculture or equivalent and a Ministry of Trade and Industry, or equivalent. Many Member Countries also have a Ministry of Investment or equivalent, and a Ministry of Land Use Planning or equivalent, and a Ministry of Water Resources or equivalent. Most have trade and investment promotion agencies, and all countries have tax and customs services. Each Ministry has different directorates or departments, each exercising different responsibilities. Each of these Ministries and their directorates or departments, and every one of the many responsible agencies and services, may perform optimally, but there is often a critical lack of coordination and communication. This is not unique to the agro-food sector: in many Governments, communications within and, especially, between Ministries and agencies are hampered by excessive hierarchy and formality. This makes timely communications difficult, and it also impedes the development of informal contacts and communications, which may be equally important.

As a result, people even within a single Ministry may not know what people in other directorates do, much less what people in other agencies or Ministries do. A private business person or farmer, or officials of associations that represent the business and agricultural communities, may find it difficult to identify the appropriate Government officials to whom they should address concerns, and may never receive a satisfactory response to communications. Both private farmers and business people and Government officials thus

[514] OECD (2016), Turkey: Estimates of Support to Agriculture, available at https://www.oecd.org/tad/agricultural-policies/TUR_cookbook_2016.pdf [Accessed July 2017].
[515] Atasoy, Y. (2017), *Commodification of Global Agrifood Systems and Agro-Ecology: Convergence, Divergence and Beyond in Turkey*, pp. 43-44, Abingdon: Routledge.

operate with insufficient knowledge of how the system works and how to get things done within the system.

Hence, human capacity development of both agricultural market institutions as well as of other Government entities should become a policy priority. The provision of high-quality services, proper communication with agricultural market participants, other Government officials, potential investors, and the business community, and accurate representation of farmers and their interests requires human capacity development of agricultural market institutions staff in order to understand the current circumstances and challenges of the agricultural market systems and how to anticipate and address these. Similarly, human capacity development of other Government officials should contribute to bridging their unawareness and lack of knowledge of agricultural market institutions, their mandates, functions, activities, and services, eventually improving inter-Ministerial coordination and collaboration.

To overcome these difficulties in communication and coordination, countries should consider establishing a high-level commission or authority on which all stakeholder groups from Government and the private sector are represented. Such a commission would serve both as a policy advisory body and a forum for public-private dialogue. For some reason, such commissions are common for issues of investment or private sector development, but much less so for agriculture. For such a commission to work effectively, it should ideally be constituted under the authority of a Prime Minister or President; otherwise it may be under the tutelage of the Ministry of Agriculture, which is likely to carry less weight than other Ministries such as Finance or Industry. Within such a commission, various subsector- or issue-specific working groups should be constituted, which will carry out more detailed analysis and negotiations, and which are likely to meet more frequently than the full commission (though the full commission should probably meet at least semiannually, if not quarterly). A Secretariat to the commission should also be appointed, a function which could be fulfilled by a policy unit in the Ministry of Agriculture.

In this sense, Indonesia's country case study may provide inspiration for other OIC Member Countries. Food Law 2012 has initiated the establishment of a National Food Authority in response to fragmented statistics, data discrepancies, and conflicts of interest among various Ministries. Moreover, integrating human capacity development and institutional coordination may require an OIC-wide human and administration capacity development initiative, where good practices and lessons can be shared and institutional coordination fostered.

6.2.3 The Role of Inputs

Develop means by which the access to quality inputs (e.g. seeds, pesticides, fertilizers, and other key ingredients) may be assured, thereby improving the quality and market acceptance of end products.

Many smallholders and small-scale farmers are now challenged by limited access to high-quality, certified inputs and often only have access to low-quality or even fake inputs (e.g. fillers or substitutes that are not the actual purported materials). Content of such inferior inputs in agricultural products may even be banned in other countries and export markets, hence reducing market access and export opportunities of smallholders using these inputs.

The country case study of Indonesia shows the Government operates a state-owned economic enterprise, which is responsible for producing a fixed volume of pesticides and fertilizers. These fertilizers and pesticides function as subsidized inputs for smallholders but are not provided to plantations and industrial processors (e.g. other fertilizer producers). Even though this is an approach to mainly provide subsidized inputs, it may also be a method to supervise input manufacturing and ensure the quality of inputs is in compliance with international standards.

Additionally, Governments may develop and supervise authorities responsible for quality assurance and distribution of inputs (e.g. feeds, seeds, fertilizers, pesticides, and equipment). This authority should be mandated to develop certification for inputs which meet a certain quality standard, which would increase the overall productivity and performance of the entire agricultural market system. Such an authority, which ideally is placed under the Ministry of Agriculture, should enforce these standards through representatives inspecting domestic input producers and on imported inputs.

6.2.4 The Role of Warehousing

Where not currently in place, provide means whereby small producers may gain access to warehousing and storage capacity, thereby allowing small producers to better manage when their products may come to market.

During interviews in the three country case studies, it became evident farmers need to sell their produce immediately after harvest partly if there is a lack of storage, warehouse, and post-harvest facilities. This generates a great amount of supply, leading to lower prices. WRS have been implemented in Uganda (managed by UWSRA) and Indonesia (managed by COFTRA) to enable smallholders' access to storage facilities, which would enable them to trade receipts (e.g. at the auction markets in Indonesia) and release and sell their produce at later point in time, when supply is low(er) and, hence, market prices are better and fairer. In addition, storage facilities to enable smallholders' access to credit (storage of produces as form of collateral).

However, by the time the harvest comes around, smallholders have typically run out of money and need to sell for whatever price they can get. The WRS in Indonesia is challenged as there is no guaranteed farmers' income during periods of storage and processing. Storing goods to sell at a later point has a higher return on investment but requires to convince farmers. A "change in farmers' mindset" has been mentioned across the three case study countries.

Organizing farmers into cooperatives that can set up warehouses of their own may prove to be an alternative solution. Warehouses need to be efficiently managed. As a somewhat direct result of this need, there needs to be a critical mass of products to be stored in order to justify the required infrastructure and organization. Therefore, the formation of agricultural private sector-led cooperatives should be (further) encouraged to increase the economies of scale and volume of agricultural products and goods which can be stored in the warehouse. A key to success for cooperatives is control, by the primary producers, through direct ownership or contractual arrangements backed by the producers' common market power, of the downstream processing, marketing, and distribution elements of the agricultural market system. Without such control, the producers are price-takers and their share of the overall proceeds from the market system tends to be much smaller.

6.2.5 Traceability & Standards

Improve overall food quality standards and implement means for ingredient and input traceability in order to further enhance both safety and market acceptance of agricultural and food products.

Traceability of origin for many (strategic and priority) agricultural products can also be lost if issue of farmers' registration is not addressed. For instance, in Tunisia - where an efficient distribution channel is the key missing market channel in the agricultural market system (as too many intermediaries and traders are involved) - the traceability of agricultural products is nearly impossible. For many products, it's a "story without a story-teller" – there is no clear global positioning and branding of the product (e.g. Ugandan coffee). The traceability of food in the market system is critical for food safety, but also for broader strategic and market monitoring purposes. The functioning of the broader food market system is considerably hampered without this data.

A good point-of-departure – besides Turkey's CKS - is provided by Indonesia's attempt to improve the traceability of products. Indonesia has been looking to improve the traceability of its agricultural products in response to export commodities, which were not in compliance with international standards and, therefore, were refused access to certain export markets. Regulation is currently designed, which will firstly require intermediaries, traders, and distributors to be registered online with the Ministry of Trade, after which they will be licensed. This online system, INATRADE, should enable the Ministry of Trade to improve market surveillance, product traceability and monitoring of agricultural products and market participants as, for instance, producers should register their middlemen and intermediaries, while importers need to register their domestic distributors. In the future, the system should be integrated with other Ministries' systems (e.g. Ministry of Finance, Ministry of Economy Affairs, and COFTRA), which would also enable Indonesia's agricultural market institutions to trace farmers or areas not meeting export requirements in terms of standardization, food safety, and SPS, and address these issues.

In fact, standardization of products (e.g. size, volume, and ingredients) is critically needed to improve international market access for smallholders' products and therefore for the overall economic success of many OIC Member Countries. The absence and/or weak enforcement of standardization of agri-food products also undermines the potential for processing and vale-addition activities and has, in fact, led to countries losing out on agri-processing FDI, as has been mentioned by the IPA of Uganda. So long as local products do not adhere to international standards, international markets will not accept them as appropriate inputs, closing doors for economic opportunity.

6.2.5 Research Laboratories

Invest in national or multi-national research laboratories to support food standards and also provide local best-practices for growing, crop rotation, food production, safety, and other agricultural and food knowledge-bases.

The review of national food and agricultural institutions highlighted the importance of research laboratories in the adoption of new technologies and farming practices and adaptation of seed varieties to local soil and climate conditions. Not all OIC Member Countries

have such institutions, but they may not be necessary or especially cost-effective in countries with small populations, limited financial resources, and/or small agricultural sectors.
Also, as discussed in Chapter 1, the Consultative Group on International Agricultural Research (CGIAR) and its many subsidiary research organizations, which focus on specific subsectors or climatic regions (ICRISAT, for example) work actively in many OIC Member Countries, often in partnership with other local and international organizations. It may be possible for these institutions to integrate more fully with local institutions in some OIC countries in which such coordination is relatively weak compared to other countries.

6.3 Recommendations for International Collaborative Efforts

International collaborative efforts are important to address similar challenges faced by OIC Member Countries. In general, most OIC Member Countries need to create an enabling environment attractive to agriculture, thereby specifically taking into account the small-scale and fragmented nature of their agricultural marketing systems and the absence of integration of small-scale subsistence farmers into agricultural markets. It is especially this enabling role which market institutions could play. A first step to do would be to create a market institution responsible for registering farmers as already advocated in the previous Section. This would be critical in monitoring, measuring, and evaluating the performance of the agricultural market system through collecting, analyzing, and disseminating market intelligence. This would also enable to better connect agricultural supply with processing and value-addition activities, and, eventually, trade and export, as well as introducing and enforcing standards for quality inputs.

More specifically, several bottlenecks common across the three selected case study countries demonstrate the inability of domestic farmers to get integrated in the agricultural marketing system. These bottlenecks include:

- Missing coordination between the various market participants of domestic agricultural market channels (e.g. producers, collectors, distributors, and suppliers);
- Absence of post-harvest management through a lack of collection and storage infrastructure;
- Ineffective overall management of the agricultural market, which adversely impacts the quality and perishability of domestic commodities;
- Drive to realize self-sufficiency with respect to basic food products and staple foods;
- Lack of industrial competitiveness, value-addition, and the downstream processing of agricultural products, which is vital for upgrading the export portfolio of the agricultural sector;
- Need for diversification of agricultural production to generate more and different forms of rural employment; and
- Protection of agricultural producers as opposed to only ensuring reasonable and stable food prices for consumers.

Many examples from the case studies may serve as models for similar initiatives in other OIC Member Countries to address (some of) these bottlenecks, while other bottlenecks may be addressed through OIC collaboration and initiatives. The OIC, based on some of the examples and recommendations in this study, could play an important role in disseminating some of this information and providing support in their implementation in new locations. Examples include:

- In general, the harmonization of standards may be more pressing for certain OIC Member Countries compared to other Member Countries. The Standards and Metrology Institute for the Islamic Countries (SMIIC) located in Istanbul is a good starting point for harmonization of standards among the OIC Member Countries. Widening such collaboration could, in addition to improving and standardizing certification of foodstuffs, also help connect suppliers with markets.

- Further cooperation on agricultural research, building on existing connections with international research organizations, could help diffuse seed varieties and agricultural techniques among OIC countries with similar climate conditions and natural resource endowments. COMCEC could play a role in facilitating these exchanges and collaborations.

- Tunisia has set up free trade zones on the borders with Algeria and Libya, where farmers can sell their agricultural products directly to foreign buyers without the payment of duties. This could serve as a model for similar cooperation among other OIC Member Countries.

- Within the COMESA free trade area, which includes among its members Egypt, Sudan, and Uganda, standards for seeds have been harmonized, facilitating cross-border trade and improving smallholders' access to high-quality seeds.

- As emerged from previous sections, Turkey has a strong proposition for collaboration on areas such as farmer registry, integrated administration and control systems, human capacity development of market institutions, and standardization.

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Appendix A – Overview of Line Ministries & Market Institutions per OIC Member Country

OIC MC	LINE MINISTRY	MARKET INSTITUTION	CLASSIFICATION(S)	FUNCTION(S)
Afghanistan	• Ministry of Agriculture and Livestock • Ministry of Energy and Water • Ministry of Rural Rehabilitation and Development • Ministry of Commerce and Industry	a) Storage facilities for pistachios (planned)	a) Licensed public warehousing company	a) Exchange & physical
Albania	• Ministry of Agriculture, Food, & Consumer Protection (MAFCP) • Ministry of Environment, Forests, and Water Administration	a) Cooperatives	a) Cooperatives	a) Exchange & facilitating
Algeria	• Ministry of Commerce • Ministry of Trade • Ministry of Agriculture	a) National Office of Marketing of Wine Products (ONCV)	a) Marketing Board	a) Facilitating
		b) Cooperatives	b) Cooperatives	b) Exchange & facilitating
Azerbaijan	• Ministry of Agriculture and Food (MAF)	a) Agricultural cooperatives and cooperative unions	a) Cooperatives	a) Exchange & facilitating
Kingdom of Bahrain	• Ministry of Municipal Affairs and Agriculture • Ministry of Health • Ministry of Commerce Directorate of Standards and Metrology	a) General Poultry Company (B.S.C.)	a) State-owned economic enterprise	a) Exchange & physical
Bangladesh°	• Ministry of Agriculture • Ministry of Fisheries and Livestock	a) Cooperatives	a) Cooperatives	a) Exchange & facilitating
Benin	• Ministry of	a) National Agricultural	a) Commodity	a) Facilitating

OIC MC	LINE MINISTRY	MARKET INSTITUTION	CLASSIFICATION(S)	FUNCTION(S)
	Agriculture, Livestock, and Fisheries	Income Support Board (ONS)	market regulation authority	
		b) Societe pour le Developpement du Coton (SODECO)	b) Marketing Board	b) Facilitating
		c) Société Nationale pour la Promotion Agricole (SONAPRA)	c) Commodity market regulation authority	c) Facilitating
		d) State plantations	d) State-owned economic enterprise	d) Exchange & physical
Brunei-Darussalam°	• Ministry of Agriculture and Tourism • Ministry of Health	a) State-owned agro-industry	a) State-owned economic enterprise	a) Exchange & physical
Burkina-Faso	• Ministry of Health • Ministries of Agriculture and Health	a) Burkina Joint Trade Cotton Association (AICB)	a) Commodity market regulation authority	a) Facilitating
		b) Cattle, Meat and Services Trading Company (SOCOBVI)	b) Commodity market regulation authority	b) Facilitating
		c) National Sugar Observatory	c) Commodity market regulation authority	c) Facilitating
		d) National Stock Management Company (SONAGES)	d) Licensed public warehousing company	d) Exchange & physical
		e) National Union of Cotton Producers (UNPCB)	e) Marketing Board	e) Facilitating
		f) Nouvelle société sucrière de la Comoé (SN SOSUCO)	f) State-owned economic enterprise	f) Exchange & physical
		g) Sugar Distribution Company (SODI Sucre)	g) Commodity market regulation authority	g) Facilitating
Cameroon°	• Ministry of Agriculture and Rural Development (MINADER) • Ministry of Health	a) Development Fund for the Cocoa and Coffee Subsectors (FODECC)	a) Marketing Board	a) Facilitating
		b) SODECOTON	b) State-owned economic enterprise	b) Exchange & physical
		c) Cameroon Development Corporation (CDC)	c) State-owned economic enterprise	c) Exchange & physical
		d) SODEPA	d) State-owned economic enterprise	d) Exchange & physical

OIC MC	LINE MINISTRY	MARKET INSTITUTION	CLASSIFICATION(S)	FUNCTION(S)
Chad°	• Ministry of Agriculture and Irrigation • Ministry of Animal Resources	a) Slaughterhouse in N'Djamena	a) State-owned economic enterprise	a) Exchange & physical
		b) CotonTchad SN	b) State-owned economic enterprise	b) Exchange & physical
The Comoros°	• Ministry of Agriculture, Fishing, Industrial Development, Artisan Artifacts, and the Environment • Ministry of Trade	a) Development Company for Small-Scale Fisheries of the Comoros	a) Marketing Board	a) Facilitating
		b) Agricultural cooperatives	b) Cooperative	b) Exchange & facilitating
Côte d'Ivoire	• Ministry of Agriculture • National Center for Agricultural Research • Ministry of Finance • Ministry of Rural Development	a) Authority for the Cotton and Cashew Nut Subsector (ARECA)	a) Commodity market regulation authority	a) Facilitating
		b) Banana, Pineapple, Mango Organization (OBAM CI)	b) Cooperative	b) Exchange & facilitating
		c) Cattle, Meat and Services Trading Company (SOCOBVI)	c) Commodity market regulation authority	c) Facilitating
		d) Coffee and Cocoa Regulatory and Supervisory Authority (ARCC)	d) Commodity market regulation authority	d) Facilitating
		e) Conseil du Café-Cacao	e) Marketing Board	e) Facilitating
		f) Coffee Cocoa Exchange (BCC)	f) Commodity exchange platform	f) Exchange & facilitating
		g) INTERCAJOU	g) Commodity market regulation authority	g) Facilitating
		h) INTERCOTON	h) Commodity market regulation authority	h) Facilitating
		i) National Rice Growing Development Office (ONDR)	i) Marketing board	i) Facilitating
		j) Pineapple and Banana Growers' Organization (OCAB)	j) Cooperative	j) Exchange & facilitating
		k) Forest Development Company (SODEFOR)	k) State-owned economic enterprise	k) Exchange & physical
Djibouti°	• Ministry of Agriculture,	a) Djiboutian Food Security Company	a) State-owned economic	a) Exchange & physical

OIC MC	LINE MINISTRY	MARKET INSTITUTION	CLASSIFICATION(S)	FUNCTION(S)
	Livestock, and Water Resources • Ministry of Health • Ministry of Trade	(SDCA)	enterprise	
Egypt°	• Ministry of Health • Ministry of Agriculture and Land Reclamation	a) The Principal Bank for Development and Agricultural Credit	a) State-owned economic enterprise	a) Facilitating
Gabon°	• Ministry of Trade • Ministry of Agriculture, Farming, and Rural Development • Ministry of Health	a) Stabilization and Equalization Fund (CAISTAB)	a) Marketing Board	a) Facilitating
		b) Cooperatives	b) Cooperatives	b) Exchange & facilitating
The Gambia°	• Ministry of Agriculture	a) Cooperatives	a) Cooperatives	a) Exchange & facilitating
		b) Gambia Agricultural Marketing Company (GAMCO)	b) Marketing Board	b) Facilitating
Guinea°	• Ministry of Agriculture	a) Soguicoda	a) State-owned economic enterprise	a) Exchange & physical
		b) SOGUIPECHE; Koba Aquaculture Company (SAKOBA)	b) State-owned economic enterprise	b) Exchange & physical
Guinea-Bissau°	• Ministry of Agriculture and Rural Development	a) National Association of Guinean Cashew Nut Producers (ANAG)	a) Marketing Board	a) Facilitating
Guyana°	• Ministry of Agriculture	a) Guyana Sugar Corporation (GUYSUCO)	a) State-owned economic enterprise	a) Exchange & physical
		b) Guyana Rice Development Board	b) Marketing Board	b) Facilitating
		c) Forest Products Development Marketing Council	c) Marketing Board	c) Facilitating
Indonesia*	• Ministry of Finance • Ministry of Agriculture • Ministry of Trade • Ministry of Industry	a) Chamber of Commerce and Industry	a) Commodity market regulation authority	a) Facilitating
		b) Dewan Koperasi Indonesia (DEKOPIN)	b) Cooperative	b) Exchange & facilitating
		c) Commodity Futures Trading Regulatory Agency (COFTRA)	c) Commodity market regulation authority;	c) Exchange & physical & facilitating

OIC MC	LINE MINISTRY	MARKET INSTITUTION	CLASSIFICATION(S)	FUNCTION(S)
			Licensed public warehousing company; Commodity exchange platform	
		d) National Logistics Board (BULOG)	d) Marketing Board; Commodity market regulation authority	d) Exchange & facilitating
		e) PT Pupuk Indonesia	e) State-owned economic enterprise	e) Exchange & physical
		f) Perkebunan Nusantara III (PTPN3)	f) State-owned economic enterprise	f) Exchange & physical
		g) Perkebunan Nusantara IV (PTPN4)	g) State-owned economic enterprise	g) Exchange & physical
Iran	• Ministry of Agriculture • Ministry of Health	a) Government Trading Corporation (GTC)	a) State-owned economic enterprise	a) Exchange & physical
		b) Iran Mercantile Exchange (IME)	b) Commodity exchange platform	b) Exchange & facilitating
		c) Livestock Affairs Logistic Co (SLAL)	c) State-owned economic enterprise	c) Exchange & physical
		d) Government Grain Trading Agency	d) State-owned economic enterprise	d) Exchange & physical
		e) Agricultural cooperatives	e) Cooperative	e) Exchange & facilitating
		f) Tabriz Tractor Company	f) State-owned economic enterprise	f) Exchange & physical
Iraq	• Ministry of Agriculture (MOA) • Ministry of Health	a) Green Mada'in Association for Agricultural Development (GMAAD)	a) Cooperative	a) Exchange & facilitating
		b) Agricultural Cooperative Bank of Iraq	b) State-owned economic enterprise	b) Facilitating
		c) State Company for Agricultural Supplies	c) State-owned economic enterprise	c) Exchange & physical
Jordan°	• Ministry of Agriculture • Ministry of Health	a) Agricultural Credit Corporation (ACC)	a) State-owned economic enterprise	a) Facilitating
		b) Village cooperative societies	b) Cooperative	b) Exchange & facilitating
Kazakhstan	• Ministry of	a) KazAgro	a) State-owned economic	a) Exchange & physical

OIC MC	LINE MINISTRY	MARKET INSTITUTION	CLASSIFICATION(S)	FUNCTION(S)
	Agriculture (MOA) • Ministry of National Economy (MONE)		enterprise	
		b) Grain warehouse receipt system	b) Licensed public warehousing company	b) Exchange & physical
		c) Agricultural service cooperatives	c) Cooperative	c) Exchange & facilitating
		d) Eurasian Trade System Commodity Exchange JSC (ETS)	d) Commodity exchange platform	d) Exchange & facilitating
Kuwait°	• Ministry of Public Health • Ministry of Commerce and Industry	a) State-owned corporations	a) State-owned economic enterprise	a) Exchange & physical
		b) Public Authority for Agricultural Affairs and Fish Resources (PAAF)	b) Commodity market regulation authority	b) Facilitating
Kyrgyz Republic°	• Ministry of Agriculture, Water Resources, and Processing Industry (MAWRPI)	a) Kyrgyz Agricultural Finance Corporation (KAFC)	a) State-owned economic enterprise	a) Facilitating
		b) Agri-processing and agri-business	b) State-owned economic enterprise	b) Exchange & physical
		c) Agri-cooperatives	c) Cooperative	c) Exchange & facilitating
Lebanon	• Ministry of Agriculture	a) Agricultural cooperatives	a) Cooperative	a) Exchange & facilitating
Libya	• Ministry of Agriculture, Livestock, and Fisheries • Ministry of Health	a) Agricultural Bank of Libya	a) State-owned economic enterprise	a) Facilitating
		b) Agricultural cooperatives	b) Cooperative	b) Exchange & facilitating
Malaysia°	• Ministry of Health (MOH)	a) Padiberas Nasional Berhad (BERNAS)	a) State-owned economic enterprise	a) Exchange & physical
		b) Boustead Holdings BHD; Sime Darby BHD	b) State-owned economic enterprise	b) Exchange & physical
Maldives°	• Ministry of Fisheries and Agriculture • Ministry of Health	a) Maldives Industrial Fisheries Company (MIFCO)	a) State-owned economic enterprise	a) Exchange & physical
		b) State Trading Organization	b) State-owned economic enterprise	b) Exchange & physical
Mali	• Ministry of Agriculture • Ministry of Livestock and Fisheries • Ministry of Health • Ministry of Trade & Industry	a) Cattle, Meat and Services Trading Company (SOCOBVI)	a) State-owned economic enterprise	a) Exchange & physical
		b) Co-operative associations (SCPC)	b) Cooperative	b) Exchange & facilitating
		c) Cotton Grading Board (OCC)	c) Marketing board	c) Facilitating
		d) Compagnie Malienne pour Développement des Textiles (CMDT)	d) State-owned economic enterprise	d) Exchange & physical
		e) Niger Board (ON)	e) State-owned	e) Exchange &

OIC MC	LINE MINISTRY	MARKET INSTITUTION	CLASSIFICATION(S)	FUNCTION(S)
			economic enterprise	physical
Mauritania°	• Ministry of Agriculture, Food Technology, and Natural Resources • Ministry of Health • Ministry of Trade • Ministry of Fisheries and Maritime Economy	a) Savings and Loan Cooperatives	a) Cooperative	a) Exchange & facilitating
		b) National Import and Export Company (SONIMEX)	b) State-owned economic enterprise	b) Exchange & physical
		c) Mauritanian Fish Marketing Company (SMCP)	c) State-owned economic enterprise	c) Exchange & physical
Morocco°	• Ministry of Agriculture	a) Moroccan Agricultural Credit Bank	a) State-owned economic enterprise	a) Facilitating
		b) State farms	b) State-owned economic enterprise	b) Exchange & physical
		c) National Fisheries Board (ONP)	c) Marketing Board	c) Facilitating
		d) Coopératives	d) Cooperative	d) Exchange & facilitating
Mozambique°	• Ministries of Fisheries, Trade and Agriculture • Ministry of Trade • Ministry of Health	a) Cotton Institute of Mozambique (IAM)	a) Marketing Board	a) Facilitating
		b) National Institute of Sugar (INA)	b) Marketing Board	b) Facilitating
		c) National Institute for Cashews (INCAJU)	c) Marketing Board	c) Facilitating
Niger°	• Ministry of Agricultural Development • Ministry of Rural Development • Ministry of Public Health • Ministry of Trade & Industry	a) Niger Food Products Board (OPVN)	a) Marketing Board	a) Facilitating
		b) Niger Rice Company (SRN)	b) State-owned economic enterprise	b) Exchange & physical
Nigeria	• Federal Ministry of Health • Federal Ministry of Agriculture	a) National Agency for Food and Drug Administration and Control (NAFDAC)	a) Commodity market regulation authority	a) Facilitating
Oman°	• Ministry of Agriculture and Fisheries (MAF) • Ministry of Health (MOH)	a) Oman Fisheries Company	a) State-owned economic enterprise	a) Exchange & physical

OIC MC	LINE MINISTRY	MARKET INSTITUTION	CLASSIFICATION(S)	FUNCTION(S)
Pakistan°	• Ministry of National Food Security and Research • Ministry of Science and Technology • Ministry of Health • Ministry of Commerce	a) Trading Corporation of Pakistan	a) State-owned economic enterprise	a) Exchange & physical
		b) Pakistan Agricultural Storage and Services Corporation (PASSCO)	b) Licensed public warehousing company	b) Exchange & physical
		c) Pakistan Tobacco Board	c) Marketing Board	c) Facilitating
		d) Pakistan Oilseed Development Board	d) Marketing Board	d) Facilitating
		e) Fisheries Development Board (FDB)	e) Marketing Board	e) Facilitating
Palestine°	• Ministry of Agriculture • Ministry of National Economy	a) Agricultural cooperatives	a) Cooperative	a) Exchange & facilitating
Qatar°	• Ministry of Health (MOH) • Ministry of Municipal Affairs and Agriculture (MOMAA)	• N/a	• N/a	• N/a
Saudi Arabia°	• Ministry of Agriculture	a) Saudi Grain Organization (SAGO)	a) Licensed public warehousing company	a) Exchange & physical
Senegal°	• Ministry of Agriculture and Livestock • Ministry of Mines, Industry, and Food Transformation of Agricultural Products • Ministry of Health	a) Cooperatives	a) Cooperative	a) Exchange & facilitating
		b) Agricultural Development Corporation (SODAGRI)	b) State-owned economic enterprise	b) Exchange & physical
		c) Market Regulation Board (ARM)	c) Commodity market regulation authority	c) Facilitating
		d) National Oilseed Marketing Corporation of Senegal (SONACOS/SUNEOR)	d) Marketing Board	d) Facilitating
Sierra Leone°	• Ministry of Health & Sanitation • Ministry of Agriculture, Forestry & Food Security	a) Sierra Leone Produce Marketing Company (SLPMC)	a) Marketing Board	a) Facilitating
		b) Cooperatives	b) Cooperative	b) Exchange & facilitating
Somalia	• Ministry of Livestock, Agriculture, and Environment	a) Agricultural cooperatives	a) Cooperatives	a) Exchange & facilitating
		b) Public storage facilities	b) Licensed public warehousing company	b) Exchange & physical
Sudan	• Federal Ministry of Health	c) Agricultural cooperatives	c) Cooperatives	c) Exchange & facilitating
		d) Sudan Gezira Board	d) Marketing Board	d) Facilitating

OIC MC	LINE MINISTRY	MARKET INSTITUTION	CLASSIFICATION(S)	FUNCTION(S)
	• Federal Ministry of Agriculture and Irrigation • Federal Ministry of Animal Resources, Fisheries, and Ranges			
Suriname°	• Ministry of Agriculture, Animal Husbandry and Fishery • Ministry of Trade and Industry	a) Stichting Behoud Bananen Sector (SBBS)	a) State-owned economic enterprise	a) Exchange & physical
		b) Surinam American Industries Limited (SAIL)	b) State-owned economic enterprise	b) Exchange & physical
		c) Central Fisheries Port Suriname (CEVIHAS)	c) State-owned economic enterprise	c) Exchange & physical
Syria	• Ministry of Agriculture and Agrarian Reform • Ministry of Economy and Trade	• N/a	• N/a	• N/a
Tajikistan	• Ministry of Agriculture and Environment Protection	a) Agricultural service cooperatives	a) Cooperative	a) Exchange & facilitating
		b) Universal Commodity Exchange (UCE)	b) Commodity exchange platform	b) Exchange & facilitating
Togo°	• Ministry of Agriculture, Livestock, and Fishery • Ministry of Commerce and Industry, Finance • Ministry of Health	a) Agricultural Input Supply and Management Pool (CAGIA)	a) State-owned economic enterprise	a) Exchange & physical
		b) National Food Security Agency (ANSAT)	b) Licensed public warehousing company	b) Exchange & physical
		c) New Cotton Company of Togo (NSCT)	c) State-owned economic enterprise	c) Exchange & physical
Tunisia*	• Ministry of Agriculture and Water Resources • Ministry of Commerce and Industry	a) Agency for Urban Rehabilitation and Renovation (ARRU)	a) Commodity market regulation authority	a) Facilitating
		b) Bir El Kassaa	b) Commodity exchange platform	b) Exchange & facilitating
		c) Chambers of	c) Commodity	c) Facilitating

OIC MC	LINE MINISTRY	MARKET INSTITUTION	CLASSIFICATION(S)	FUNCTION(S)
	• Ministry of Finance • Ministry of Health Ministry of Development • Ministry of Public Health	Agriculture	market regulation authority	
		d) Central Cooperatives	d) Cooperative	d) Exchange & facilitating
		e) Cereals Board (OC)	e) Marketing board	e) Facilitating
		f) Ellouhoum Company	f) State-owned economic enterprise	f) Exchange & physical
		g) Inter-Professional Agricultural Associations	g) Commodity market regulation authority	g) Facilitating
		h) Tunisian Association for Agriculture and Fisheries (UTAP)	h) Commodity market regulation authority	h) Facilitating
		i) National Observatory of Supply and Prices (ONAP)	i) Commodity market regulation authority	i) Facilitating
		j) National Oil Board (ONH)	j) Marketing board	j) Facilitating
		k) Tunisian Company of Wholesale Markets (SOTUMAG)	k) Commodity market regulation authority; Commodity exchange platform	k) Exchange & facilitating
		l) Tunisian Sugar Company (STS)	l) State-owned economic enterprise	l) Exchange & physical
		m) Tunisian Trade Board (OCT)	m) State-owned economic enterprise	m) Exchange & physical
Turkey	• Ministry of Food, Agriculture, and Livestock • Ministry of Health	a) Meat and Milk Board (ESK)	a) Marketing board	a) Facilitating
		b) Sugar Authority	b) Commodity market regulation authority	b) Facilitating
		c) Tobacco and Alcohol Market Regulatory Authority (TAPDK)	c) Commodity market regulation authority	c) Facilitating
		d) Turkish Grain Board	d) Marketing board	d) Facilitating
Turkmenistan	• Ministry of Agriculture	a) State Raw Material and Commodity Exchange	a) Commodity exchange platform	a) Exchange & facilitating
		b) State-owned dairy farms	b) State-owned economic enterprise	b) Exchange & physical
		c) Turkmengallaonumleri	c) State-owned economic	c) Exchange & physical

OIC MC	LINE MINISTRY	MARKET INSTITUTION	CLASSIFICATION(S)	FUNCTION(S)
			enterprise	
Uganda*	• Ministry of Health, Tourism, Trade & Industry • Ministry of Agriculture, Animal Industry & Fisheries	a) Uganda Co-operative Alliance Ltd	a) Cooperative	a) Exchange & facilitating
		b) Cotton Development Organisation (CDO)	b) Marketing board	b) Facilitating
		c) Dairy Development Authority (DDA)	c) Marketing board	c) Facilitating
		d) Uganda Coffee Development Authority (UCDA)	d) Marketing board	d) Facilitating
		e) Uganda Commodity Exchange (UCE)	e) Commodity exchange platform	e) Exchange & facilitating
		f) Uganda Warehouse Receipt System Authority (UWRSA)	f) Licensed public warehousing company	f) Exchange & physical
United Arab Emirates	• Ministry of Environment and Water (MOEW)	a) Fishery marketing cooperatives	a) Cooperative	a) Exchange & facilitating
Uzbekistan	• Ministry of Agriculture and Water Resources (MAWR) • Ministry of Health (MOH)	a) Agricultural production cooperatives	a) Cooperative	a) Exchange & facilitating
		b) Uzvinprom-Holding	b) State-owned economic enterprise	b) Exchange & physical
Yemen	• Ministry of Agriculture and Irrigation	a) Agriculture Cooperative Union	a) Cooperative	a) Exchange & facilitating
		b) Credit and Agricultural Cooperative Bank	b) State-owned economic enterprise	b) Facilitating
		c) National Corporation for Services and Fish Marketing	c) Marketing board	c) Facilitating
		d) Fisheries Cooperatives Union	d) Cooperative	d) Exchange & facilitating
		e) Coastal Fisheries Corporation	e) State-owned economic enterprise	e) Exchange & physical

*Based on country case studies in Chapter 5 – Other OIC Member Countries based on web and desk research
°Based on the WTO's Trade Policy Reviews
The remainder is based on further desk research including sources of FAO (2017), World Bank (2017), US Department of Commerce – export.gov (2017), and Global Forum for Rural Advisory Services (2017).