March 2017 | Agriculture

Agricultural Policies, Trade and Sustainable Development in Egypt

Isin Tellioglu

Panos Konandreas

ICTSD

International Centre for Trade and Sustainable Development

Food and Agriculture Organization of the United Nations

Issue Paper

Agricultural Policies, Trade and Sustainable Development in Egypt

Isin Tellioglu
Food and Agriculture Organization of the United Nations

Panos Konandreas
Independent Consultant

ICTSD
International Centre for Trade and Sustainable Development

Food and Agriculture Organization of the United Nations

Issue Paper

Published by

International Centre for Trade and Sustainable Development (ICTSD)
International Environment House 2
7 Chemin de Balexert, 1219 Geneva, Switzerland

Tel: +41 22 917 8492
ictsd@ictsd.ch

Fax: +41 22 917 8093
www.ictsd.org

Publisher and Chief Executive: Ricardo Meléndez-Ortiz
Senior Programme Manager, Agriculture: Jonathan Hepburn

FAO Regional Office for the Near East and North Africa
11 Al-Eslah Al-Zerai Street, Dokki, P.O. BOX 2223, Cairo, Egypt.

Tel: +202 3331 6000 to 3331 6007
FAO-RNE@fao.org

Fax: +202 3749 5981, (202) 3337 3419
www.fao.org/neareast/en/

Representative, FAO Regional Office for the Near East and North Africa: Abdessalam Ould Ahmed

---

Acknowledgements

This issue paper is produced by ICTSD's Programme on Agricultural Trade and Sustainable Development.

ICTSD, FAO, and the authors wish to thank all those who contributed comments and feedback on earlier drafts of this publication, including in particular Abdessalam Ould Ahmed, Gamal Bayoumi, Christophe Bellmann, Nasredin Hag Elamin, Jonathan Hepburn, Hany Hussein, Ingrid Jegou, Sandra Hakim Mikhail, Peter Talks, Monika Tothova, and Saad Nassar.

ICTSD is grateful for the generous support from its core donors including the UK Department for International Development (DFID); the Swedish International Development Cooperation Agency (SIDA); the Ministry of Foreign Affairs of Denmark (Danida); the Netherlands Directorate-General of Development Cooperation (DGIS); and the Ministry of Foreign Affairs of Norway.

ICTSD welcomes feedback on this publication. This can be sent to Jonathan Hepburn (jhepburn@ictsd.ch) or Fabrice Lehmann, ICTSD's Executive Editor (flehmann@ictsd.ch).

Citation: Tellioglu, Isin, and Panos Konandreas. 2017. *Agricultural Policies, Trade and Sustainable Development in Egypt*. Geneva: International Centre for Trade and Sustainable Development (ICTSD) and Rome: United Nations Food and Agriculture Organization (FAO).

Copyright © ICTSD and FAO, 2017. Readers are encouraged to quote and reproduce this material for educational and non-profit purposes, provided the source is acknowledged. This work is licensed under the Creative Commons Attribution-NonCommercial-ShareAlike 3.0 IGO License. To view a copy of this license, visit https://creativecommons.org/licenses/by-nc-sa/3.0/igo/

The designations employed and the presentation of material in this information product do not imply the expression of any opinion whatsoever on the part of the Food and Agriculture Organization of the United Nations (FAO) or the International Centre for Trade and Sustainable Development (ICTSD) concerning the legal or development status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. The mention of specific companies or products of manufacturers, whether or not these have been patented, does not imply that these have been endorsed or recommended by FAO or ICTSD in preference to others of a similar nature that are not mentioned. The views expressed in this information product are those of the author(s) and do not necessarily reflect the views or policies of FAO or ICTSD, or the funding institutions.

ISSN 1817-356X

TABLE OF CONTENTS

LIST OF FIGURES AND TABLES

LIST OF ABBREVIATIONS

AoA	Agreement on Agriculture
AMS	aggregate measurement of support
CAPMAS	Central Agency for Public Mobilization and Statistics
c.i.f.	cost-insurance-freight
Comtrade	Commodity Trade Database
EU	European Union
EUR	Euro
FAO	Food and Agriculture Organization of the United Nations
FAO AMIS	Food and Agriculture Organization of the United Nations: Agricultural Market Information System
FAO GIEWS	Food and Agriculture Organization of the United Nations: Global Information and Early Warning System
FAOSTAT	Food and Agriculture Organization of the United Nations Corporate Statistical Database
FAS	Foreign Agricultural Service
GAIN	Global Agriculture Information Network
GASC	General Authority for the Supply of Commodities
GDP	Gross Domestic Product
GlobalGap	Global Good Agricultural Practices
GOEIC	General Organization for Export and Import Control
GSP	Generalized System of Preferences
HACCP	hazard analysis and critical control point
ha	hectares
HTS	Harmonized Tariff Schedule
IMF	International Monetary Fund
ITC	International Trade Center
MALR	Ministry of Agriculture and Land Reclamation
MFN	most favoured nation
MIP	minimum import price
MT	metric tonne
MTE	maximum tariff equivalent
NENA	Near East and North Africa
NSADP	North Sinai Agricultural Development Project
OECD	Organisation for Economic Co-operation and Development
SADS	Sustainable Agricultural Development Strategy
SDG	Sustainable Development Goal
SDT	Special and Differential Treatment
SIV	standard import value
SPS	sanitary and phytosanitary
TARIC	Tarif Intégré de la Communauté (Integrated Tariff of the European Community)
UAE	United Arab Emirates
UN	United Nations
USAID	United States of America Agency for International Development
USD	United States Dollars
WEF	World Economic Forum
WFP	United Nations World Food Programme
WTO	World Trade Organization
VNR	voluntary national review

FOREWORD

At the United Nations, governments have committed to a bold new set of objectives on sustainable development, including ending hunger and malnutrition by 2030. Achieving these goals will require action in all countries and world regions to improve the functioning of global markets for food and agriculture, including through measures to improve environmental sustainability.

However, climate change is likely to mean that some parts of the world face exceptional challenges as they seek to move ahead on the commitments laid out in the 2030 Agenda. The Near East and North African region in particular could be especially vulnerable to changes in temperature and precipitation patterns, and the increased frequency and intensity of extreme weather events. Rules and policies affecting markets for food and agriculture will therefore have to be part of the set of responses supporting food security and rural livelihoods, without undermining the ability of other countries to achieve agreed shared global goals in these areas.

In this respect, the challenges and opportunities that Egypt's farm sector faces in the years ahead provide important insights to other low-income, food-importing countries as they seek to identify ways to allocate resources as efficiently, sustainably and equitably as possible, while taking into account new market trends and regulatory frameworks affecting food and agriculture.

This paper therefore seeks to provide domestic and international policy-makers and other stakeholders with an impartial, evidence-based assessment of the extent to which Egypt's farm trade policies can best contribute to achieving economic, social and environmental objectives, including those relating to food security, poverty reduction and environmental sustainability. The authors, Panos Konandreas and Isin Tellioglu, place this analysis in the context of the evolving framework of multilateral rules on farm trade at the World Trade Organization, as well as regional and bilateral agreements to which Egypt is a party.

We hope that, as such, this study represents a significant contribution to the emerging debate on how policies affecting food and agricultural markets can contribute to the achievement of the Sustainable Development Goals, in Egypt, the broader region and also beyond.

Ricardo Meléndez-Ortiz
Chief Executive, ICTSD

Abdessalam Ould Ahmed
Representative, Regional Office
for the Near East, FAO

EXECUTIVE SUMMARY

Although Egypt has been dependent on imports to provide sufficient food for its increasing population for several decades, agriculture remains one of the major economic activities in the country. Agriculture and the River Nile have been associated with Egypt since ancient times, and this connection remains strong. Plentiful year-round sunlight favour crops such as rice, wheat, corn, sugar, onions and tobacco, using the fertile soils of the Nile Valley and Delta.

However, one recent characteristic of Egypt's agricultural sector is insufficient food production to meet domestic demand and resulting food import dependency. The cost of agricultural imports exceeded agricultural export earnings for the first time in 1974, and since then the agricultural trade deficit of the country has been increasing continuously. The main drivers of Egypt's increasing import dependency are its rapidly increasing demand for food due to a growing population, coupled with scarcity of agricultural land and water resources limiting domestic food production. In addition to these resource constraints, Egypt's shortcomings in achieving sustainable agriculture and food security include weak institutions and infrastructure, unclear direction in agricultural development with frequently changing priorities, as well as deficiencies in the design of specific intervention policies such as the long-standing universal food consumption subsidies.

Agricultural policies in Egypt have revolved around two main objectives: i) providing adequate basic foodstuffs for the population, ii) providing adequate incomes and employment to the sizable population employed in the agricultural sector. Egypt's resource and population parameters interact with policy choices and political decisions in shaping its agriculture: arable land and water remain severely limited while the population is growing at relatively high rates. Government, pursuing its objective to provide adequate food to its people affected by persistent inflation in food prices and prevailing high poverty rates, intervenes in the agricultural sector with costly support mechanisms, such as food subsidies and government procurement of basic food stuffs at higher than market prices. The situation is not likely to improve as climate change and population growth combine to exert pressure on limited natural resources. Increasing productivity of land and water through more efficient use of those limited resources is a *sine qua non* for increasing agricultural production. Land reclamation projects that had been conceived in the 1990s have been revived in the aftermath of the 2007/08 spikes in food prices, together with the modernisation of irrigation systems and related infrastructure, as well as the recognition of the need for pricing and recycling of water.

Egypt is the largest importer of wheat in the world, with the Egyptian government importing more than half of its total food consumption. According to the Food and Agriculture Organization's Global Information and Early Warning System (GIEWS) country brief dated November 2016, Egypt's cereal requirement in the 2016/17 marketing year is estimated at about 17.8 million tons and its import requirement about 12 million tons, implying that two-thirds of cereals consumed are imported. Costs of these imports are high, leaving the country with large budget deficits.

However, Egypt is not without advantages to help meet its food deficit: it has a unique climate, ecology and location. There is potential for increasing production and exports of selected high value produce—especially fresh fruit and vegetables (grapes, oranges, dates, cabbage, and green beans among others) and aromatic plants. In this report, untapped potential in the production and exports of Egyptian oranges and grapes is explored in some depth, with the aim to better understand constraining factors.

In the orange market, Egypt competes with large and traditional producers such as Spain, Morocco, South Africa and Turkey. Constraints to increasing export volumes further in its export destination markets relate mainly to difficulties in maintaining reliable yields due to delay in adapting new high-

yielding cultivars and compliance with globally accepted quality and safety standards, especially in the EU market. Grapes are the second most exported fruit and face similar problems, including poor agronomic practices and difficulties in meeting importer country quality and safety requirements, usually because of pesticide damage and/or residues and other defects due to high humidity during pre-export storage.

Economic value that would be derived from using already scarce fresh water to grow high value crops, such as fruit and vegetables, is estimated to be higher than growing most other crops. Growing fresh fruit and vegetables would support sustainable use of natural resources due to their higher economic value and lower water requirements. Improving infrastructure, market intelligence, introducing modern production techniques, as well as taking advantage of current concessions in existing trade agreements and opportunities in negotiating new ones, would benefit the country's exports of such high value crops. Market diversification to new emerging markets in Asia, such as China and Malaysia, as well as product diversification towards high quality varieties, would be beneficial steps towards tapping the country's potential.

The country's *Sustainable Development Strategy Towards 2030* places emphasis on increasing self-sufficiency with regard to the agricultural products that contribute much to consumption, such as wheat and maize, with the objective of making the most of the water and land resources in a sustainable way. However, such a strategy is at odds with the low economic value of cereals in relation to water used and Egypt's limitations in increasing production of these crops due to severe scarcity of land and water resources. The strategy specifies two milestones with target levels of production for these key commodities, one for 2017 and another for 2030. However, modest progress towards production targets so far suggests that the dependency on imports in basic food stuffs will persist. At the same time, tapping the potential exportable production in high value crops remains a challenge.

1. INTRODUCTION

This study analyses Egypt's agricultural sector and its performance over time, identifies constraints to increasing production and exports, and examines the key role of trade in inclusive agriculture development.

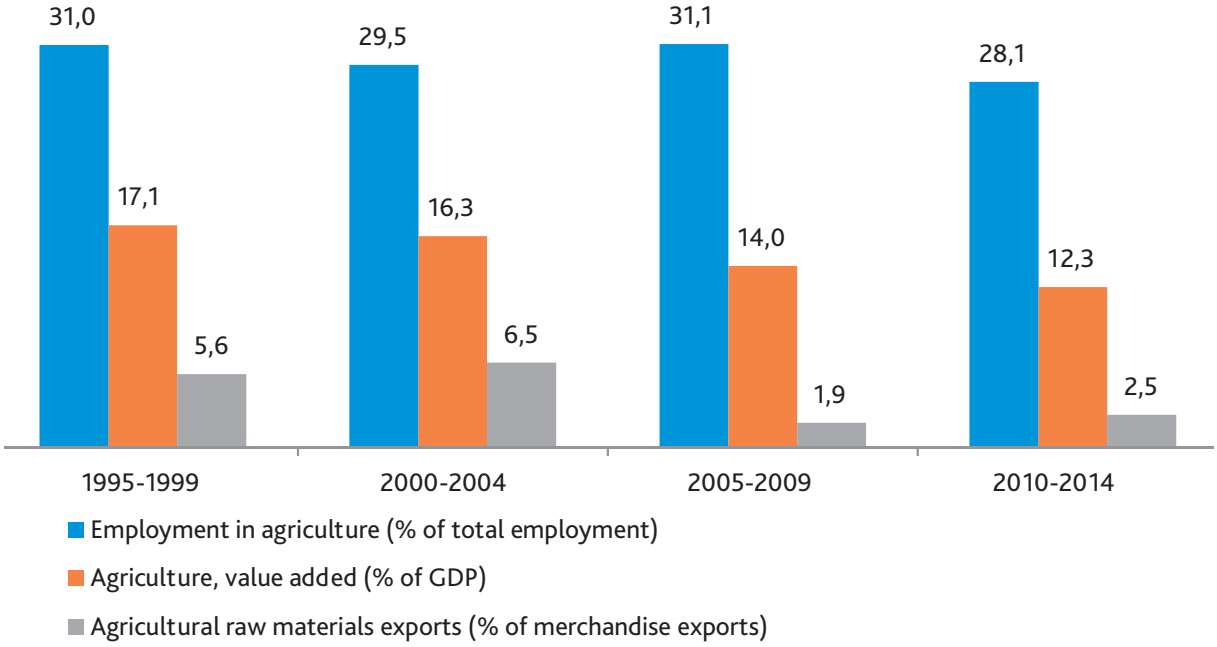
After a review of current trends in the agricultural sector and trade policies, the study elaborates on the main pillars of Egypt's current agricultural development strategy and the factors inhibiting growth of agricultural production and trade. The study concludes by identifying recommended policy changes for improving trade performance such that it could serve to improve food security, incomes, and sustainability in agriculture, with a specific look at the fresh fruit and vegetables markets, in particular analysing Egypt's orange and grapes exports.

The study is timely, as the negative effects of the 2007/08 and 2011 food price crises have been felt at political, social, and economic levels and provide opportunities for re-evaluating policy in support of the country's changing objectives. In the aftermath of these recent episodes, the country's short- and long-term strategies assign a key role to agriculture as a driver of sustainable economic growth and increasing food self-reliance.

2. THE AGRICULTURAL SECTOR'S CONTRIBUTION TO THE MAIN SOCIO-ECONOMIC INDICATORS IN EGYPT

Agricultural production in Egypt still plays an important role in the country's economy despite the decline in its relative importance in recent decades.[1] It contributes to the overall food needs of the country, provides domestic industries with raw materials, and adds to export revenues, in addition to generating income for agricultural labour as well as other groups such as wholesalers, processors, exporters, transporters of agricultural commodities. Agricultural value added as a share of Gross Domestic Product (GDP), at about 11 percent of GDP in 2015, experienced a clear slowdown from 16 percent in the early 2000s and 20 percent in the early 1980s. Agricultural exports were 2 percent of all merchandise exports in 2013, down from twice that share in the early 2000s (World Bank 2016). However, employment in agriculture as a share of total employment in the economy has not declined in the same way and still amounts to almost 29 percent, the same share it had in the early 2000s (Figure 1). Agriculture in Egypt is still labour-intensive; productivity of labour in agriculture, as measured by agriculture value added per worker in constant USD, only increased by around 1 percent on average during the last decade (FAOSTAT 2016).

Figure 1: Agriculture's role in the Egyptian economy, 1995-2014

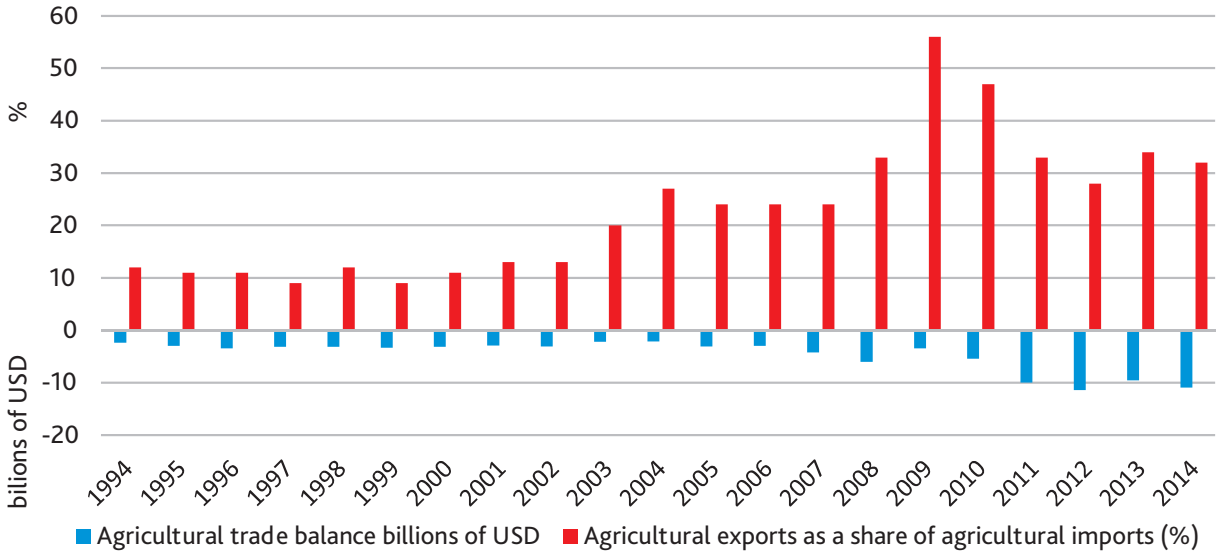


Source: World Bank 2016

1 With regards to discussions related to trade, all individual products belonging to product groups with 2-digit HTS codes between 01 and 24 are accepted as agricultural products and agri-food and agriculture are used interchangeably as adjectives throughout the study. This definition excludes products used as raw materials in textile industry, such as cotton and wool.

Egypt is geographically well positioned for trade, near the large markets of European, Middle Eastern, and African countries. From ancient times, Egyptian agriculture was export-oriented, especially in basic foodstuffs. However, in recent times, its relative importance in global agricultural exports has been low and decreasing; at the same time, the country has become a growing importer of basic foodstuffs, especially wheat. Deficits in the agricultural balance of trade have been continuous over the last two decades: in absolute terms, the agricultural trade deficit has increased from USD 2.3 billion in 1994 to USD 10.8 billion in 2014. The value of Egypt's agricultural trade deficit in 2014 was about four times the deficit in 1994; in addition to the absolute increase in its agricultural trade deficit over the last two decades, agricultural export revenues relative to agricultural imports costs have also increased during the 2000s as compared to the 1990s (Figure 2). This means Egypt's agricultural exports increased in relative terms when compared to its agricultural imports.

Figure 2: Evolution of trade in agricultural products in Egypt, 1994-2014

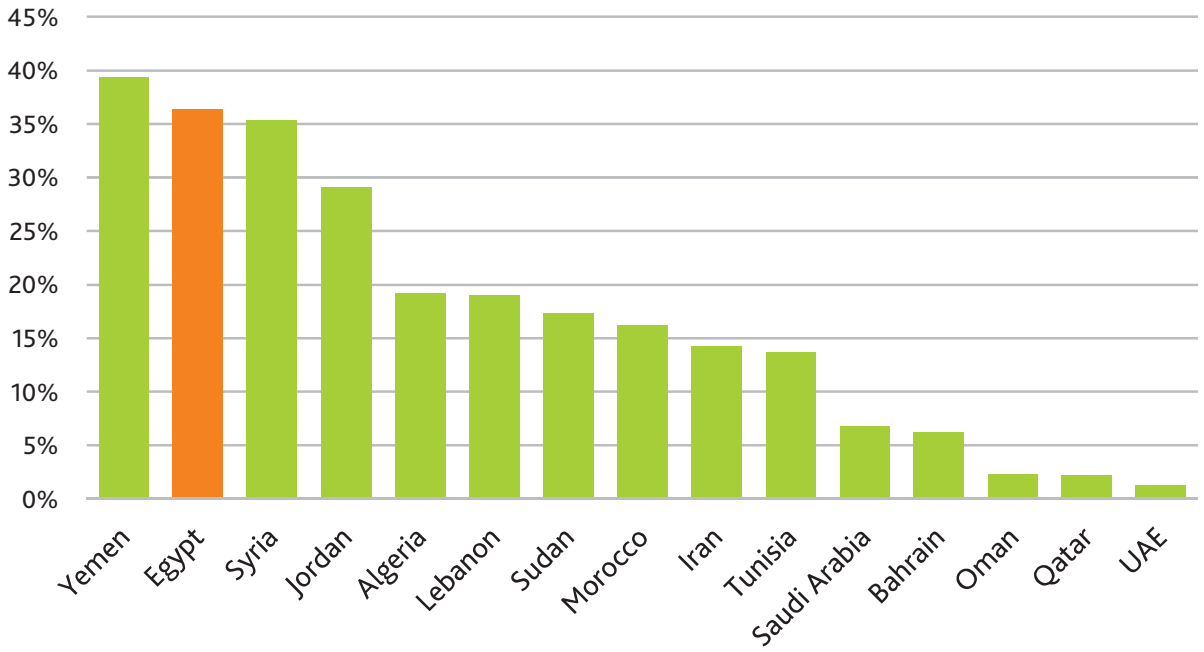


Source: FAOSTAT and World Bank 2016, authors' estimations

As Egypt relies on imports for more than 50 percent of its food consumption, the country is highly vulnerable to changes in international food prices and supplies (Ghoneim 2012). This growing food deficit is usually attributed to long-standing structural challenges facing the economy and agricultural sector in Egypt which will be discussed in the next sections.

The share of total expenditure on agricultural imports in total revenue from merchandise and services exports in Egypt was the second highest among the countries of the Near East and North Africa (NENA) region in 2015. This share was only 3 percentage points lower than that of Yemen (Figure 3). It can be seen that almost 40 percent of all the earnings from Egypt's exports were spent on agricultural imports into the country.

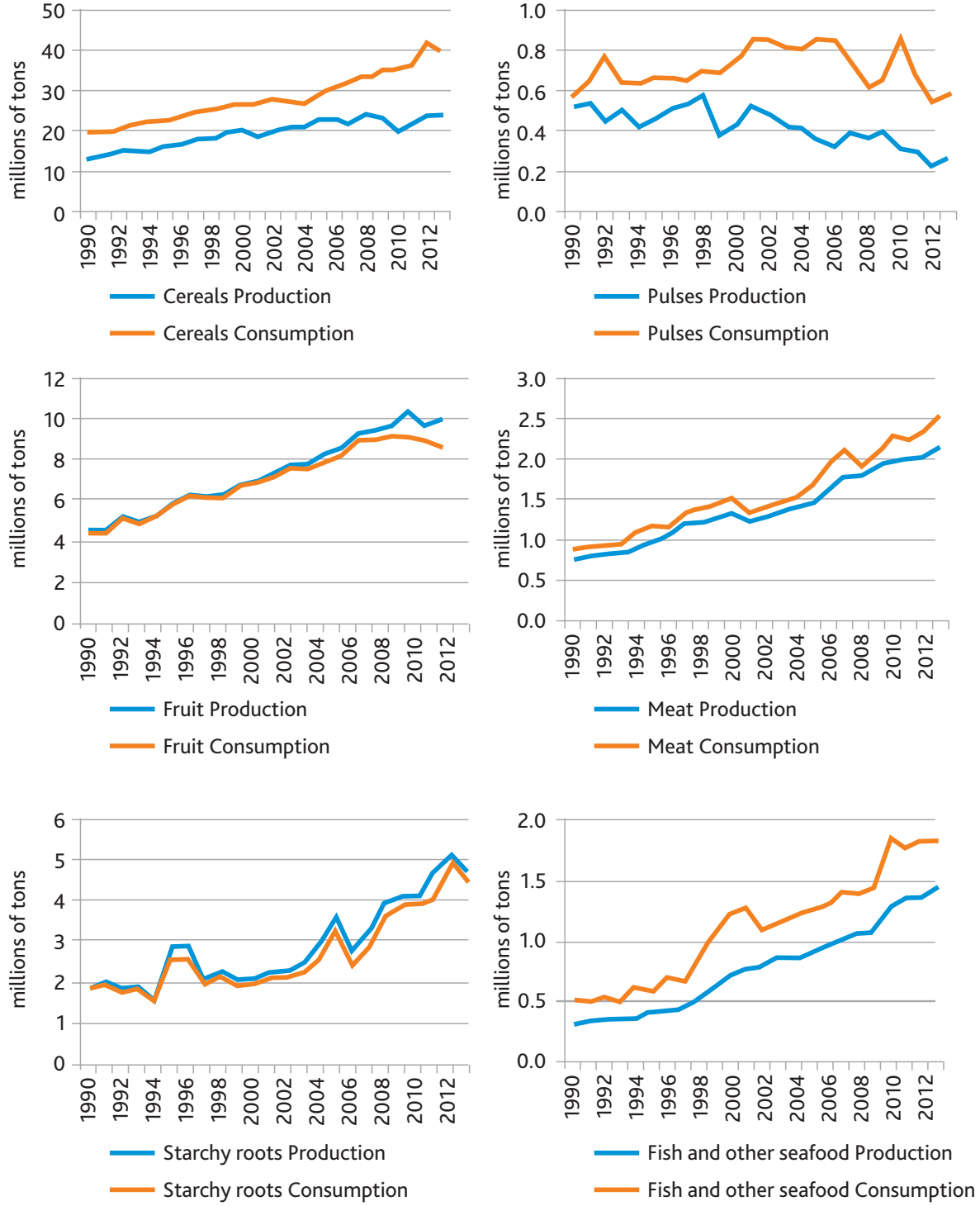
Figure 3: Agricultural import expenditures as a share of total export revenues, Egypt vs selected NENA countries, 2015



Source: UN Comtrade 2016 and authors' estimations

Figure 4 shows the evolution of domestic consumption and production in Egypt for groups of agricultural products. Production exceeds consumption only for fruit and starchy roots, implying that Egypt is self-sufficient only in those groups. Other product groups, especially cereals and pulses, have historically been produced at volumes far lower than their consumption levels. Furthermore, this gap has been rising, especially since 2008. While the country also had a deficit in milk, meat, and fish, the gap between consumption and production remained almost constant through the years 1990–2013.

Figure 4: Production and consumption of main food commodity groups in Egypt, 1990-2013



Source: FAOSTAT 2016

3. EVOLUTION OF AGRICULTURAL AND FOOD POLICIES IN RECENT YEARS

3.1. Pursuing Strategic Development Plan Goals in Agricultural Production

High food import dependency and exposure to high and volatile global food prices have been among the leading concerns of policy makers in Egypt since the 1970s. These concerns intensified recently during the world food price spikes of 2007/08, because of the adverse effects on food security and social and economic stability in Egypt.

Heightened food security concerns are reflected in the importance assigned by the Egyptian government to basic food commodities in both its 2017 and 2030 strategic development plan. For instance, in the five-year 2012–2017 strategic development plan, the government looked to increase wheat production to reach a self-sufficiency level of 74 percent by 2017. In the revised plan for 2015–2030, this target level of wheat self-sufficiency is maintained for 2017 and set at 81 percent for 2030 (MALR 2014; FAO 2013—Table 1). Wheat production and import values for 2015 are already realised, and near-term projections for 2017 are now possible too. For the government's 2030 target wheat self-sufficiency ratio to be met, wheat production need to increase by 50 percent from its projected level in 2025.

Table 1. Current and projected wheat production and self-sufficiency levels versus Egyptian government targets

Year	Current and Projected Values			
	Self-sufficiency Ratio*	Production (thousand tons)	Exports (thousand tons)	Imports (thousand tons)
2007	49%	7,370	0	7,550
2015	44%	9,000	0	11,300
2017	43%	9,071	0	11,896
2025	42%	10,097	0	13,755
	Government Targets			
	Self-sufficiency Ratio	Production (thousand tons)	Exports (thousand tons)	Imports (thousand tons)
2017	74%	12,000	0	4,238
2030	81%	15,120	0	3,509

**FAO definition of 'self-sufficiency ratio' (i.e., production x 100/(production + imports – exports) is used in estimations.*

Source: MALR 2014 (for government target levels), FAO Agricultural Market Information System (AMIS) Database (for 2007 and 2015 values), and OECD/FAO Outlook 2016-2025 (for 2017 and 2025 projected values)

Meeting the government's ambitious wheat self-sufficiency targets will depend on the achievement of various other of its objectives: the wheat productivity level is expected to increase by 18 percent over 10 years from 2007 to 2017, and by 12 percent over the next 13 years from 2017 to 2030. In addition to productivity increases, areas planted with wheat are also foreseen to increase to 4.2 million feddans (1.8 million hectares) by 2030.[2]

Government has set prospective self-sufficiency ratios for maize at 78 percent and 92 percent, for 2017 and 2030, respectively (Table 2). In addition to targeted increases in maize productivity, the area harvested in maize is also projected to double in size from 2007 to 2017.

2 A feddan is a non-metric unit which remained in use following the switch to the metric system in Egypt. 1 feddan is 0.42 hectares

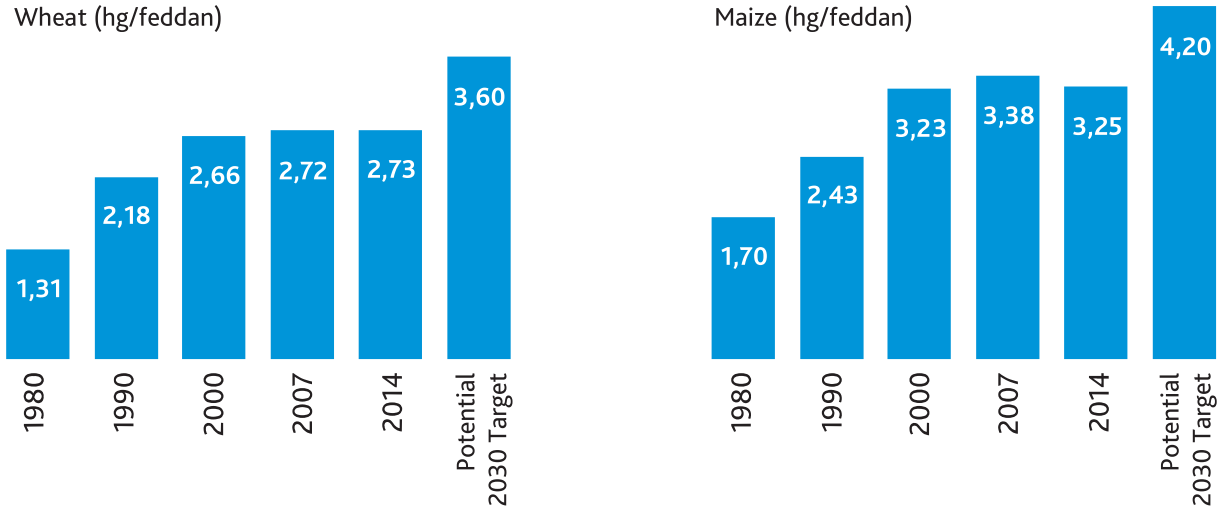
Table 2. Current and projected maize production and self-sufficiency levels versus Egyptian government targets

Year	Current and Projected Values			
	Self-sufficiency Ratio*	Production (thousand tons)	Exports (thousand tons)	Imports (thousand tons)
2007	62%	6,930	0	4,300
2015	41%	6,000	0	8,500
2017	43%	6,086	0	7,996
2025	43%	6,889	0	9,106
	Government Targets			
	Self-sufficiency Ratio	Production (thousand tons)	Exports (thousand tons)	Imports (thousand tons)
2017	78%	12,600	0	3,500
2030	92%	18,500	0	1,608

** FAO definition of 'self-sufficiency ratio' (i.e., (production x 100)/(production + imports – exports) is used in estimations.*
Source: MALR 2014 (for government target levels), FAO AMIS Database (for 2007 and 2015 values), and OECD/FAO Outlook 2016-2025 (for 2017 and 2015 projected values)

In its strategic development plan towards 2030, the Egyptian government stated that these targets of increased productivity in maize and wheat production would be achieved by expanding the use of improved seed varieties and allocating some of the suitable areas in the newly claimed lands to cultivate such varieties. Wheat and maize productivity are projected to increase up to 3.60 and 4.20 hg/feddan (or 6.5 and 7.7 tons/ha)[3] by 2030, respectively (Figure 5).

Figure 5: Past, current and potential wheat and maize yields in Egypt, 1980-2030



Source: FAOSTAT 2016 and MALR 2014

Decreased pre- and post-harvest losses in both wheat and maize are also anticipated, mainly through stricter controls over in-kind food subsidies, increasing per-capita shares of domestically produced as well as imported production.

3 Crop yields are often expressed in hectogram (which is abbreviated as hg). One hectogram is equivalent to 0.1 kilogram (abbreviated as kg).

In addition to its objective of increasing and maintaining higher self-sufficiency levels in strategic crops such as wheat and maize, with the ultimate aim of achieving greater food security in those crops, the Egyptian government plans to align its development objectives with sustainability concerns. Increasing production of wheat and maize through increasing productivity and area harvested is not the only of its objectives. According to Egypt's *Sustainable Agricultural Development Strategy Towards 2030*, or SADS 2030, sustainable agriculture implies that such increases in crop production are considered along with the efficient use of natural resources, now and in the future (please see Section 3.3 for detail).

Specifically, SADS 2030 mentions i) a gradual improvement of the efficiency of irrigation systems, ii) sustainable expansion in reclaimed areas by using the water saved through more efficient irrigation, iii) maximising returns to rain-fed agriculture through improved water harvesting techniques, iv) maintaining and protecting agricultural land from degradation using periodical soil surveys.

3.2. Egyptian Government's Food Subsidy Policies

Providing affordable and adequate food to all population groups has been one of two major objectives of Egyptian farm policy (the other one being to provide adequate incomes to those employed in the agricultural sector). The food subsidy system, introduced in the late 1950s, has remained an important element of overall social protection mechanism in the country, aiming to fulfil Egyptian farm policy objectives.

The food subsidy system in Egypt is mainly characterised by extensive government involvement at all stages of the wheat value chain: the Egyptian government purchases almost all of the domestically produced wheat from farmers, at or above the global market prices for cost, insurance, freight (c.i.f), with the aim of promoting domestic wheat production; it is also the largest wheat importer from global markets in the country by far, and owns inland wheat storage facilities and public mills. The government sells domestically procured and imported wheat flour to bakeries at subsidised prices and provides eligible consumers with subsidies for bread. The system suffers from cost inefficiencies, physical losses, and incentives for corruption at all stages. Along with a growing population, weaker currency, and higher world prices, leakages and wastage have led to escalated costs for the government (McGill et al. 2015).

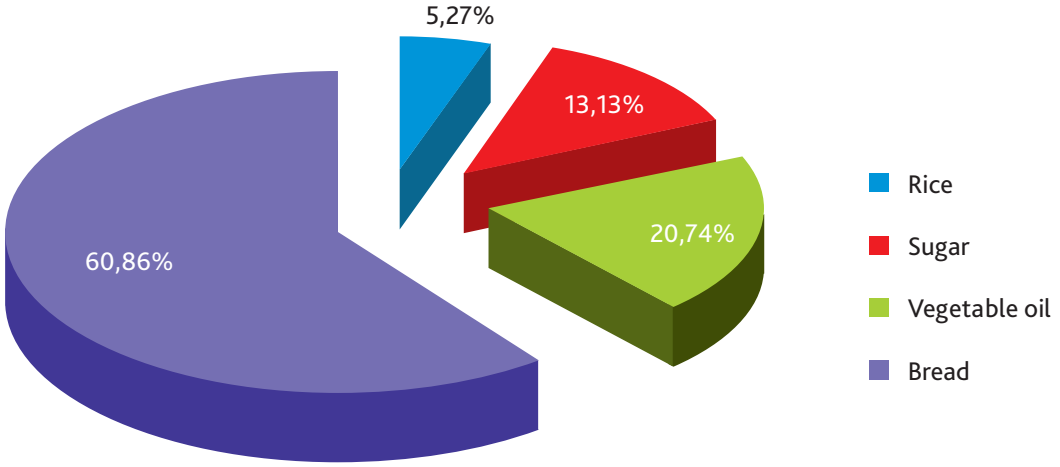
However, poverty and related food insecurity have not ceased to exist in Egypt. Budget allocations to the food subsidy schemes have more than doubled from LE[4] 17.7 billion (in the financial year 2009/10 to LE 36.1 billion in 2013/14 with limited effect on improved living standards (Egypt 2016).[5] Targeted reforms in the subsidy system would promote a sustainable agricultural sector as agriculture would benefit from policies facilitating farmer incentives to focus on other food products in which there is a greater comparative advantage, such as fresh fruit and vegetables and processed foods. These have the potential to secure more foreign exchange which could be used to import wheat at global market prices that are lower than the artificial procurement prices of the government (as described in Section 5 of this report).

4 The Egyptian pound is the currency of Egypt. The Egyptian pound is frequently abbreviated as LE or L.E., which stands for Livre Égyptienne (French for Egyptian pound).

5 Egypt was among 22 countries that had volunteered to submit progress reports towards the Sustainable Development Goals (i.e. as stipulated in paragraph 84 of the 2030 Agenda, regular reviews by the UN's High Level Political Forum are to be voluntary, state-led, undertaken by both developed and developing countries, and involve multiple stakeholders). The voluntary national reviews (VNRs) aim to facilitate sharing experiences, including successes, challenges, and lessons learned, with a view to accelerating the implementation of the 2030 Agenda. The reports are expected to be submitted every two years up to 2030.

The Egyptian government is not only involved in procuring wheat, but purchases some other key food commodities and also subsidises consumption of these for eligible consumers. For instance, 'baladi bread'[6] accounted for over 70 percent of the total cost of food subsidies, and smart cards provided fixed monthly quotas of other subsidised basic foods (sugar, cooking oil, and rice) to those eligible in 2013 (Figure 6).

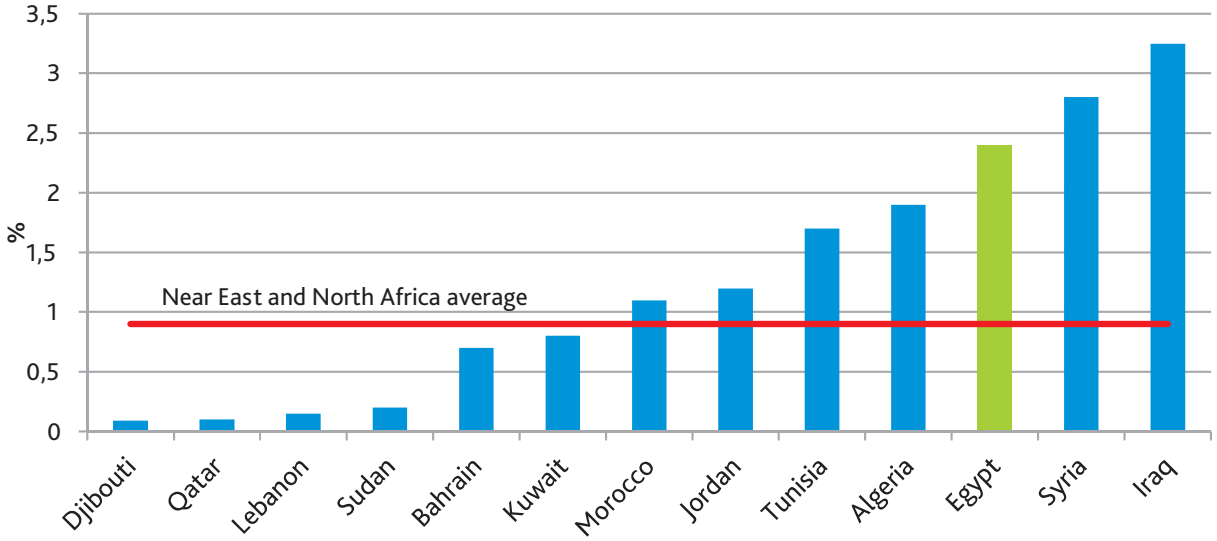
Figure 6: Proportion of Egyptian food subsidies spent on four key products, 2013



Source: General Authority for the Supply of Commodities (GASC), unpublished data, 2013

Egypt's spending on food subsidies in 2011 was not the highest in the NENA region; however, it was more than double the average of the region (see Figure 7).

Figure 7: Food subsidies as a percentage of GDP in selected NENA countries, 2011

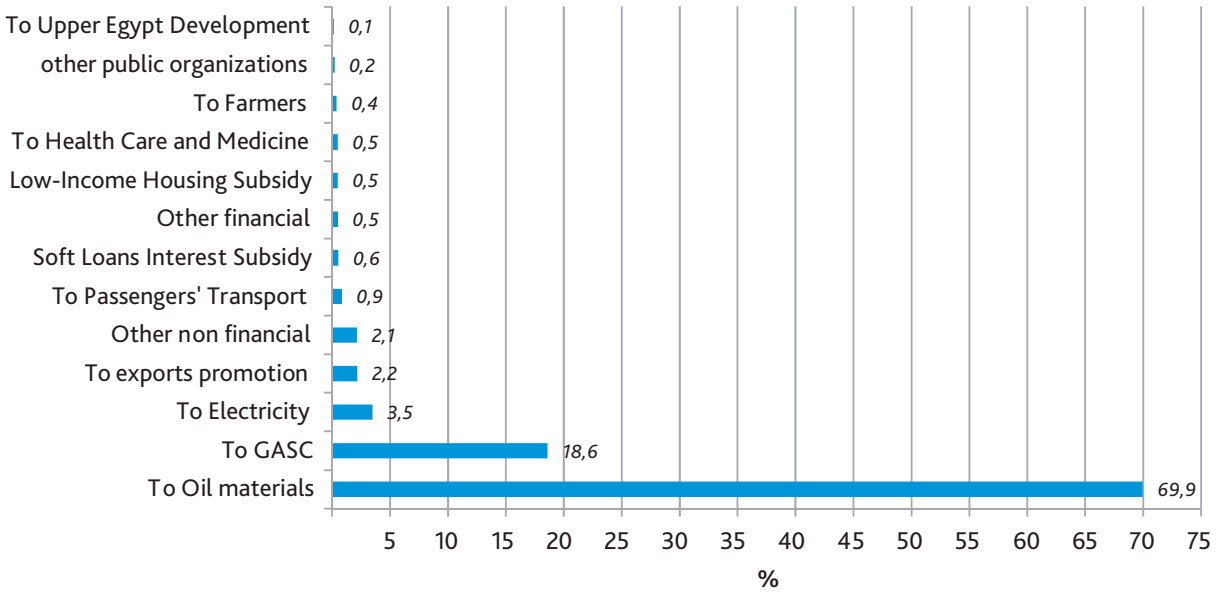


Source: Reproduced from Sdralevich et al. 2014

Furthermore, its food subsidy system was expanded in the 1960s and 1970s, becoming part of a broader set of consumer welfare programmes that also subsidised transport, housing, and energy (see Figure 8). These policies helped to keep consumer prices down in the face of urbanisation, rapid population growth, inflation, and currency devaluations.

6 Traditional Egyptian flat-bread.

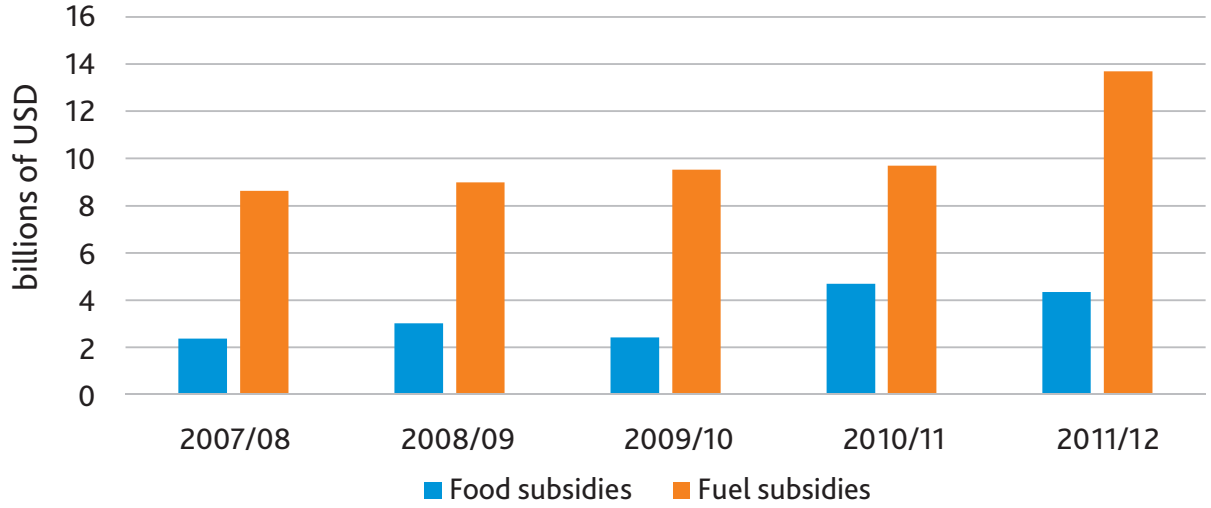
Figure 8: Subsidy distribution by sector in Egypt, 2012



Note: Subsidies to GASC stand for food subsidies.
Source: GASC, unpublished data

The subsidy system has been a major drain on the country's fiscal resources: for instance, in the fiscal year 2011/12, subsidies on food and fuels alone amounted to roughly USD 18 billion (Figure 9).

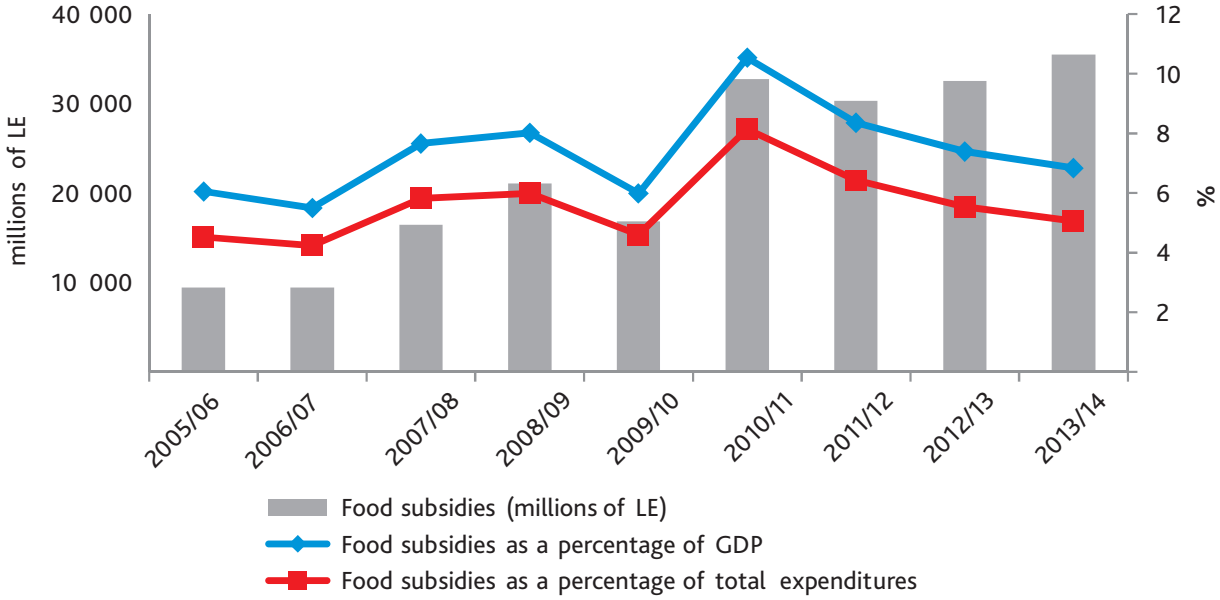
Figure 9: Egypt's spending on selected subsidies (billions of USD, current prices)



Source: Egyptian Ministry of Finance State Budget, various releases

The government attempted to contain the cost of its food subsidy programme several times by reducing the subsidised margin, and reducing the number of rationed items or the quotas being subsidised. For instance, in January 1977, the government raised the prices of most subsidised and rationed commodities; however, riots broke out all over the country and all price rises were rescinded. Recently, the food price spikes of 2007/08 and 2011 left the poor more vulnerable to food price increases and made it even more difficult to reform food subsidy schemes. The fear of increasing social unrest, which was also one of the many factors that resulted in the change of cabinet in January 2011 in Egypt, suggested to the Ministry of Finance that the planned reforms of the food subsidy system could not be undertaken (Ghoneim 2012). These recent crises and inability to reform the system effectively have contributed to increasing budget deficits. The total amount spent on food subsidies during 2010/11 nearly doubled compared to the amount spent a year earlier (see Figure 10).

Figure 10: Egyptian food subsidies, as a share of GDP and total expenditures, 2005/06-2013/14



Source: Egyptian Ministry of Finance, various releases

Although kept in place, the food subsidy system suffers from corruption, waste, and ineffective targeting (Sdralevich et al. 2014; Akhter et al. 2001; World Bank 2005, 2010; WFP 2008). Reforms undertaken at different times to improve the food subsidy system remained incomplete and unable to tackle the roots of the associated problems. At the same time, due to lack of targeting, food subsidies fail to reach the most vulnerable, especially in rural areas. At all stages of the subsidised commodity supply chain a serious amount of waste and leakages occurs. Estimates of the waste and leakage resulting from subsidised bread and flour ranged from 41 percent in 2005 to 31 percent in 2010 (WFP 2010). Combined with inefficient subsidy schemes, food losses and waste exacerbate further dependency on imports and deteriorating budget deficits to sustain them (World Bank 2010).

Recognising the substantial losses and leakages incurred by the government due to waste and ineffective targeting of beneficiaries, the government introduced a system in mid-2014 where each eligible person is entitled to five loaves of bread at the subsidised price of five piaster[7] (0.05 LE), using a smart card to purchase the bread and determine the subsidies to which the baker is entitled by the monitored sales. As of January 2015, it is understood that the new system has been introduced by more than half of the governors in Egypt (McGill et al. 2015). As of November 2015, 67 million citizens (out of a total population of 92 million) are carrying the smart cards to benefit from the food subsidy system.

Inflation and associated poverty are among the main reasons for the food subsidy system to remain in place although subject to reforms. Another episode of food price inflation is expected following the sharp currency depreciation in November 2016. In May 2016, the government already increased its food subsidy allocation by 20 percent per beneficiary. The Ministry of Supply and Internal Trade is committed to reviewing eligibility criteria (FAO GIEWS 2016).

The Egyptian government plans to complete reform of the existing poorly targeted subsidies in five years (starting from 2014); in between, the government aims to finalise the distribution of smart cards and expand priority social programmes and targeted cash

7 The piaster or piastre is a monetary unit of Egypt and some other Middle Eastern countries, equal to one hundredth of an Egyptian pound.

transfers. Cash transfers are planned to be financed using savings generated from reforms of fuel and food subsidy programmes. Schemes such as the so-called Takaful and Karama are cash transfer programmes recently designed by the government. Takaful, for instance, provides support to poor families conditional on the child's school attendance, on medical check-ups for mothers and children under six and on attending nutrition classes. Karama provides unconditional income support to the elderly and people with disabilities. Some half a million people have been supported by the Takaful and Karama programmes by March 2016 and the government intends that the programmes reach some 1.5 million families by 2017 (Egypt 2016).

3.3. Evolution of Land and Water Policies

Growing land and water scarcity are the two main structural challenges to Egypt's sustainable agricultural development. Egyptian agricultural production is almost entirely dependent on irrigation, and irrigation mostly depends on a single source, the river Nile.[8] In addition, the amount of arable land available in the country is almost fixed, with limited capacity to expand it. Hence, the Egyptian government strategy has focused on the sustainable use of existing agricultural land, reclaiming desert areas, and increasing productivity through improved irrigation and cultivation methods. The government could also consider devoting scarce land area to grow crops higher in economic value but lower in water use, which would then increase exports and foreign exchange available for staple imports (this option is feasible depending on additional conditions, such as availability of markets, harmonisation of safety and quality standards, etc.).

3.3.1. Historical review of land policies in the context of agricultural policies

Land policies in Egypt have focused on two aspects: i) land reclamation, and ii) land fragmentation. Arable land is scarce, and this scarce land is further fragmented into small units, limiting the contribution existing land resources can make to sustainable agricultural development in Egypt. Land fragmentation started as a government policy in 1952, when the Egyptian government limited the maximum agricultural land holding per person to 190 feddans. The objective of the policy was to protect the income of small scale farmers and increasing equity among farmers (El-Nahrawy 2011). The 1952 law was followed by others in 1961 and 1969 that aimed at deepening the reform, further reducing the maximum size of land ownership to 100 feddans in 1961 and to 50 feddans in 1969 (Metz 1990). Current tax law in Egypt creates incentives not to sell or combine land, further contributing to status quo; please see Table 3 for an overview of the proportions of farm holdings (by size) for five regions. Land property taxes increase in proportion with the size of land holdings, and farmers that own less than two feddans of land are exempt from taxes on their land.

8 Although very limited in terms of quantity compared to the total water resources, groundwater is the sole source of water for people living in the desert areas. The source of irrigation for the '1.5 million feddans for life', a project of land reclamation for agriculture inaugurated in December 2015, are the fossil aquifers located in the Western Desert of Egypt.

Table 3. Distribution of farms by size for regions in Egypt

Size of farms (in feddans and percentage per region)				
Regions	**Extra small < 1**	**Small 1 to < 3**	**Medium 3 to < 5**	**Large 5 and more**
Metropolitan	7.30	22.63	18.97	51.10
Lower Egypt	36.10	37.49	11.01	14.89
Middle Egypt	40.14	41.54	10.63	7.69
Upper Egypt	50.20	32.82	8.59	8.39
Border	8.48	18.94	15.91	56.67

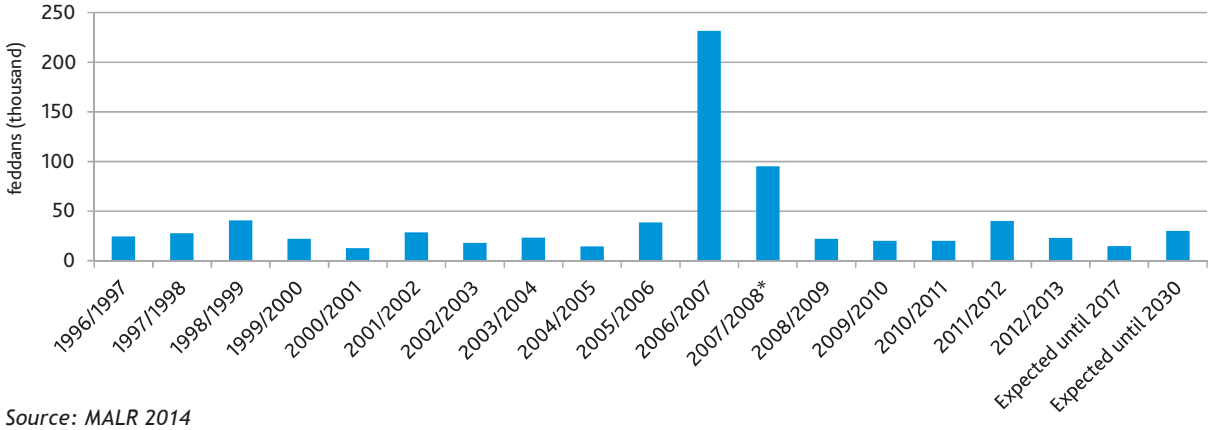
Source: Abou-Ali and Kheir-El-Din 2010, calculated using Agricultural Farm Income Survey, 2003/2004.

The extent of the achievements of these fragmentation policies is questionable as Gini coefficients used to measure the distributive impact of the agrarian reform for the period 1950–1979 indicate only a moderate movement towards less inequality (see Verme et al. 2014).

Fragmentation of agricultural land is recognised as an impediment to agricultural development in SADS 2030, acknowledging that no policy has been instituted for protecting agricultural land against fragmentation. Agricultural production on small plots of land is unsustainable for a variety of reasons. Increased land sizes will promote economies of scale in production, increasing the economic benefits per unit in relation to all associated costs, including land and water use. Introducing extension services and technology to each small farming unit is not economically viable; most small scale farmers continue old and inefficient production practices, without any shifts in crops, and remain in poverty.

Expanding arable land by reclaiming it from desert areas has long been used as a method to extend agricultural production in Egypt. Although efforts to reclaim land from the desert dates back to the 1950s, the North Sinai Agricultural Development Project (NSADP) and the Toshka project (also known as the New Valley Project)[9] were the only notable efforts to irrigate desert areas and create more land for agricultural production: these resulted in an increase of over 80 percent in reclaimed agricultural land in Egypt in 2006/07 and 2007/08 (see Figure 11).

Figure 11: Reclaimed agricultural land in Egypt, 1996/97-2030



Source: MALR 2014

9 The cost of the Toshka Project runs up to USD 90 billion, at a time when Egypt struggled with low growth and high deficits. Foreign investment is expected to provide some relief from these problems. The United Arab Emirates (UAE) Sheikh Zayed provided start-up funds for the main canal, which was named after him. Investors from Saudi Arabia lent large swathes of fertile land at bargain prices, and exported the high value produce to Europe. The investors could obtain seeds without Egyptian government supervision, could hire foreign labourers that were granted immediate work permits, could cultivate the crops they had chosen, and could export any or all of the produce anywhere outside of Egypt (see Dixon 2014 and Allan et al. 2013).

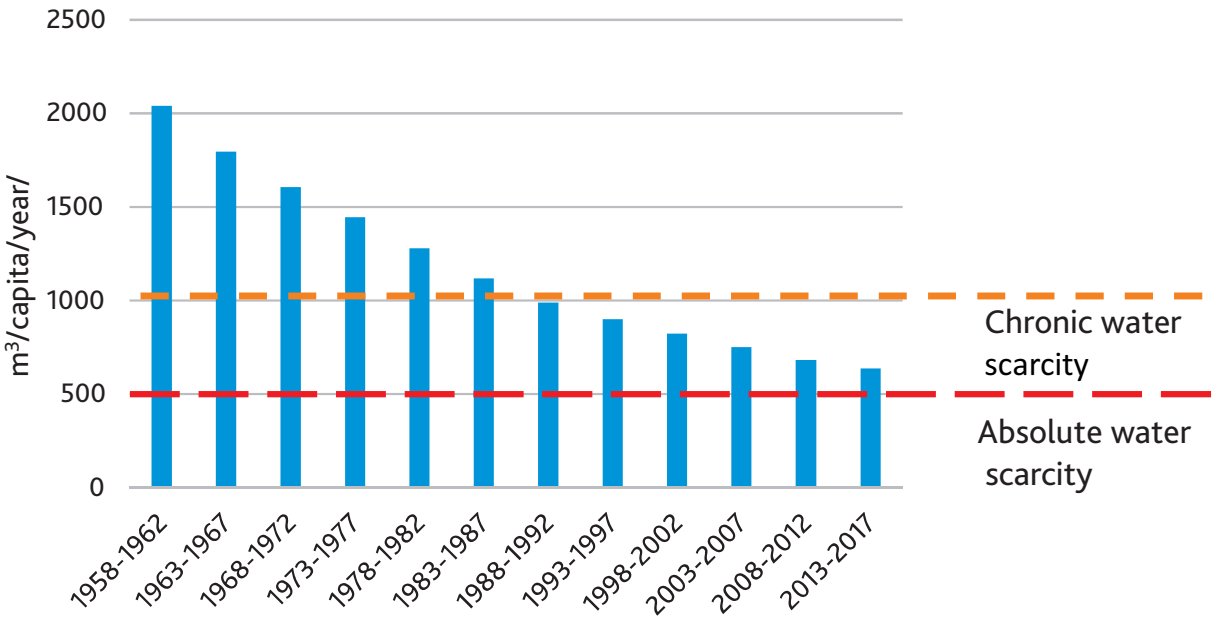
Land reclamation in Egypt has not been without problems. Resettling people and cultivating the desert pose agro-ecological and socio-economic issues. The soils in the new lands were mainly sandy and calcareous (El-Nahrawy 2011), assigning a more significant role to the management of soil characteristics such as moisture-holding capacity, soil conditioning and agro-chemical applications such as fertilisers in order to obtain economic yields. Converting desert areas to agricultural land was achieved mainly by introducing water to those areas through irrigation, which makes less water available elsewhere. The new areas were also farther from traditional markets, and the quality and availability of public services (such as education and sanitation) were limited.

Simultaneous conversion of the traditional agricultural use of fertile land in the Nile Delta to non-agricultural uses, such as tourism and housing, has also undermined the agricultural sector's gains from land reclamation. Stringent inspections and effective penalties where agricultural land is used for other purposes should be implemented as the land converted for non-agricultural uses cannot be used in agriculture again. The intended use of reclaimed lands for agricultural production contributes to domestic food availability. However, most of the land reclaimed and irrigated through the Toshka Project has been rented to foreign investors (from the UAE, Saudi Arabia, etc.), and the investors have no obligation to provide the local market with what they produce on the land.[10,11]

3.3.2. Historical review of water policies in the context of agricultural policies

To a great degree, agriculture in Egypt is possible through irrigation from the Nile, and this same source is shared by ten other countries. Food security is threatened by water scarcity regionally, with Egypt especially affected by upstream Nile projects, an ever increasing population, and climate change, all of which are expected to intensify water scarcity (see Figure 12).

Figure 12: Trends in the availability of total renewable fresh water in Egypt, per capita, 1958-1962 to 2013-2017



Source: FAO Aquastat 2016

10 See Harrigan (2014) for further information on land acquisitions in Near East and North Africa.

11 Over 140,000 hectares given to Saudi Arabian and Emirate investors plus 378,000 new irrigation projects by the Egyptian government (FAS GAIN 2015).

Water conservation and increasing efficiency in agricultural use have been objectives of the Egyptian government for a long time.[12] The idea of constructing a large dam controlling Nile floods had been raised as early as 1952, and construction of the Aswan High Dam had started in 1960. The construction of the Aswan High Dam was a priority for the Egyptian government following the revolution of 1952, as the ability to control floods, provide water for irrigation, and generate hydroelectricity were seen as pivotal to Egypt's development. The dam has been in use since 1971, and the steady increase in agriculture's share in GDP over the 1970s can be explained largely by its ability to ensure the irrigation of hundreds of thousands of new hectares.[13] Despite these achievements, some important deficiencies were identified in a World Bank sector study (1995), including fragmentation of operational responsibility, poor maintenance, excessive water losses, inadequate levels of investment, shortage of skilled staff, low or no charges, and inadequate cost recovery.

Under the 'open-door policies'[14] of the 1980s and 1990s, the government discouraged farmers from growing water-intensive crops by eliminating government procurement at prices different from the global market prices for crops such as rice, and encouraged planting sugar beets instead of sugar cane as the latter is more water-intensive. Drip irrigation has been adopted across most of the reclaimed land as a strategy. Supported by the United States of America Agency for International Development (USAID) and the World Bank, various projects induced farmers to form water and drainage user associations in the 1980s and 1990s, to increase efficiency in agricultural water usage.[15] However, these efforts were only marginally helpful, since farmers received water for free (a form of indirect subsidy) and had few incentives for conservation.

A national programme for rationalising water use, the 'Modernized On-Farm Irrigation Project', is currently being implemented jointly by the Ministry of Agriculture and Land Reclamation (MALR) and the Ministry of Water Resources and Irrigation. The so-called 'Mega Project', introduced mainly to irrigate the 1.5 million feddans of new lands outside the natural flow of the Nile water, has not yet been completed.

Egypt is dependent on 'external' water. The external water dependency ratio of a country is an indicator, expressing the proportion of the water resources originating outside the country. An external dependency ratio equal to zero indicates that no water is received from other countries, while an external dependency ratio equal to 100 percent indicates all water is received from outside. Egypt's dependency on external water stands at 97 percent as the Nile water flows into Egypt from other countries (Hoekstra and Chapagain 2007; see Figure 13 for a comparison with other countries).

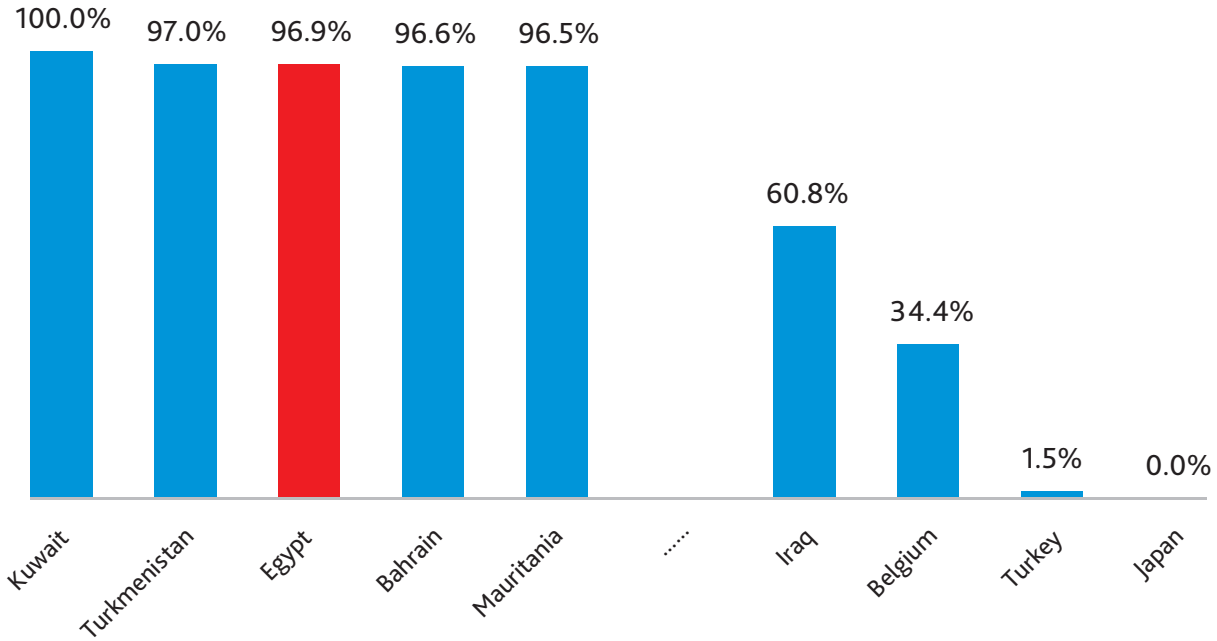
12 In 1979, Egyptian President Anwar Sadat said: "The only matter that could take Egypt to war again is water".

13 The Aswan High Dam allowed Egypt to reclaim about 2 million feddan (840,000 hectares) in the Delta and along the Nile Valley, increasing the country's irrigated area by a third. The increase was brought about both by irrigating what used to be desert and by bringing under cultivation of 385,000 hectares that were previously used as flood retention basins.

14 Officially initiated in 1974 by the President of Egypt at the time, Anwar Sadat, a different overall economic and agricultural strategy than that pursued earlier started to be implemented. The policies implemented during the 1980s and 1990s became known as 'open door policies (al-infitah al-iqtisadi)'. Open door policies were characterised by the tendency to favour importation of agricultural produce over domestic production.

15 The government initiated the reform in 1981 with two key elements: it merged the water and sanitation investment agencies in a single new entity and promoted the creation of autonomous water and waste water companies in each governorate, following the example of the existing companies in Cairo and Alexandria (World Bank 1995).

Figure 13: Dependency ratio on renewable water originating outside the country ('external water') for Egypt and selected comparator countries, 2013



Source: FAO Aquastat 2016

As water is a critical input for agriculture in Egypt and hence for the food security of the country, access to Nile water is historically considered as a national security issue. A treaty was signed between Egypt and Sudan as early as 1929, to the effect that these two signatory countries claimed access to 80 percent of the river's total water. In 2013, Ethiopia's parliament ratified a controversial treaty—signed by the upstream nations of Burundi, Kenya, Rwanda, Tanzania, and Uganda—to replace colonial-era agreements that gave Egypt and Sudan the biggest share of the Nile's water and started diverting the Blue Nile —a tributary of the Nile, building the 'Ethiopian Renaissance Dam', which will be Africa's largest when completed in 2017. In March 2015, Egyptian, Ethiopian, and Sudanese authorities came together to cooperate to 'achieve benefits and development for Ethiopia without harming Egypt and Sudan's interests'. Negotiations between the three countries continue into 2017.

4. AGRICULTURAL TRADE POLICIES

The majority of the rules currently governing trade in agricultural products were established during the Uruguay Round of multilateral trade negotiations in 1995, and outlined in the Agreement on Agriculture (AoA). The agreement, which is also the first multilaterally agreed set of rules governing agricultural trade, has three main pillars: i) market access, ii) domestic support, and iii) export subsidies and prohibitions Signatory countries were required to make commitments in these pillars, with some exemptions and differential treatment for least developed and developing countries. As Egypt is a signatory to the AoA, the country's commitments in market access, domestic support, and export subsidies and prohibitions have shaped its policies in relation to agricultural trade. These policies are reviewed and elaborated upon, highlighting possible links to Egypt's sustainable development, in what follows.

4.1. Market Access

Market access commitments refer to commitments made to reduce or eliminate tariff and non-tariff barriers that inhibit foreign agricultural commodities' accession to the markets of the committing country. A market access schedule is prepared for each World Trade Organization (WTO) member country, listing the rates and timetable for the tariff reductions. Such market access schedules are not simply announcements of tariff rates. They represent commitments not to increase tariffs above the listed rates—the maximum tariff rates that could be applied are 'bound' tariff rates.[16] For developed countries, the bound rates are generally the rates actually charged (i.e., applied tariff rates). Most developing countries have bound the rates somewhat higher than the actual rates charged, so the bound rates serve as ceilings (WTO 2016). Egypt has bound over 99 percent of its tariff lines, which is a much higher share than the developing country average of 73 percent. As of 2012, customs tariff rates on all agricultural goods are bound to some level. Average bound tariff rates for agricultural goods stand at 98.3 percent, whereas the simple average of actually applied tariffs on agricultural goods is 60.5 percent. If the tariff rates applied to individual agricultural goods are weighted by their shares in total agricultural imports, the (trade-weighted average) tariffs applied on agricultural imports stand at only 12.5 percent which is much lower than the rate applied by some other developing and developed countries (WTO 2016; see Table 4).

Furthermore, the applied tariffs ease the trade in essential products in Egypt with respect to food security. The size of tariff revenues are furthermore indirectly affected by relative prices of imported goods to Egypt.

16 Countries can break a commitment (i.e. raise a tariff above the bound rate), but only with difficulty. To do so they have to negotiate with the countries most concerned, which that could result in compensation for trading partners' loss of trade (see https://www.wto.org/english/thewto_e/whatis_e/tif_e/agrm2_e.htm).

Table 4. Egypt's tariff binding coverage compared to selected developing countries, 2014 and 2015

	Binding Coverage (% of all tariff lines) 2015		Simple Average Bound (%) 2015		Simple Average (%) MFN[17] Applied 2015		Trade-weighted Average (%) 2014	
Country	Total	Agri	Total	Agri	Total	Agri	Total	Agri
Egypt	99.3	100.0	36.8	98.3	16.8	60.5	10.5	12.5
Brazil	100.0	100.0	31.4	35.4	13.5	10.2	10.0	12.5
China	100.0	100.0	10.0	15.8	9.9	15.6	4.7	19.7
Japan	99.6	100.0	4.7	19.0	4.9	19.0	2.0	12.1
Thailand	75.0	100.0	27.8	38.9	11.4	29.9	6.2	27.8
Tunisia	58.0	100.0	57.9	116.0	15.5	33.0	13.9	28.5

Source: WTO 2016

In Egypt, higher than average agricultural bound and applied import duties are on beverages, tobacco, and cereals; oilseeds, fats, and oils are the least protected in terms of import duties applied (see Table 5).

Table 5. Tariffs and imports by product groups in Egypt, 2016

Product groups	Final bound duties				MFN applied duties			Imports	
	Average in %	Duty-free in %	Max in %	Binding in %	Average in %	Duty-free in %	Max in %	Share in %	Duty-free in %
Animal products	44.2	0.0	80	100	15.0	21.6	30	2.5	75.9
Dairy products	23.3	0.0	60	100	6.1	26.0	20	1.2	55.3
Fruit, vegetables, plants	37.8	0.0	80	100	11.2	4.9	40	1.6	36.3
Cereals, preparations	42.3	0.0	>1,000	100	12.9	21.9	>1,000	7.8	91.7
Oilseeds, fats, oils	19.9	0.0	60	100	3.8	26.5	30	4.2	71.1
Sugars and confectionery	37.5	0.0	60	100	10.5	0.0	40	0.5	0.0
Beverages tobacco	957.9	0.0	>1,000	100	802.5	0.0	>1,000	0.6	0.0
Cotton	5.0	0.0	5.0	100	4.0	20.0	5.0	0.2	99.2

Source: WTO 2016

The Egyptian government removed all customs service fees and charges on imports in 2004, and currently does not have any quotas or tariff quotas. Though all other charges have been removed, a general sales tax of between 5 percent and 45 percent still exists and is applied both to domestically produced and imported items, both at the wholesale and retail levels (WTO 2005; FAO 2010).

In an effort to increase customs revenues and protect markets for local production, by

17 Most favoured nation (MFN) tariffs are what countries promise to impose on imports from other members of the WTO, unless the country is part of a preferential trade agreement.

decreasing their relative prices in comparison to imported produce, Egypt has recently introduced changes to its tariff schedules which involve increases in tariffs on agricultural products imports. On 31 January 2016, a presidential decree was issued increasing tariff rates on 'luxury' imports. In addition to tariffs on clothing, shoes, watches, household appliances, and pet food items (which were increased by 30 to 40 percent), levies on some fruit and nuts were increased twofold. In December 2016, tariffs on some of these luxury imports were raised for the second time, by 30 to 40 percent from their levels in February 2016, including fruit such as avocados, pineapple, guavas, mangoes, and oranges, among others. Other foods covered include cocoa, biscuits, and ice cream. These new tariff rates are therefore not expected to increase prices for basic foods, while increasing Egypt's customs revenue (Reuters 2016). Given that Egypt is a large producer of some of these products such as guavas, mangoes, and oranges, another expected outcome is increased protection of national production of such items. Along with these tariff rate increases, a number of regulations have been issued during 2016, introducing additional formal requirements for goods imported into Egypt.[18]

Egypt also maintains import prohibitions on the basis of sanitary and phytosanitary (SPS) measures, which are applied regardless of the trading partner. For instance, an import prohibition currently applies to edible poultry offal (including liver), on the basis of metal content. Specific conditions set by the Egyptian General Organization for Veterinary Services, as well as some labelling requirements, are also imposed on the main imports of animal origin. Compliance with government set standards is also required for wheat imports (WTO 2005; FAO 2010). In January 2016, two wheat shipments originating from France and one wheat shipment originating from Canada were rejected by the Egyptian authorities due to SPS concerns in relation to ergot levels, although the domestic regulation that gave rise to this has since been revised to conform to international norms.

4.2. Domestic Support

The Egyptian government's intervention in the agricultural sector through its agricultural policies shapes the production decisions of its farmers, the allocation of scarce land and water, agri-food export potential, and import demand. AoA commitments under the domestic support pillar are particularly relevant for Egypt, as these aim to reduce or eliminate the impact of domestic support policies in agriculture that distort international agricultural markets.

Egypt has not provided details of its domestic support measures under the World Trade Organization (WTO)'s AoA of the Uruguay Round in 1995, essentially on the grounds that all its support measures fell under one of the categories exempted from reduction commitments. In May 1999, for the first time, it notified support measures to the WTO for the period 1995–1998, in respect of measures exempted from reduction commitments (under the Green Box of the AoA) and Special and Differential Treatment (SDT) provisions (measures covered by Article 6.2 of the AoA). This remains the country's only submission to date.

Total agricultural expenditures notified by Egypt to the WTO under the Green Box measures were USD 68.3 million for the year 1995. In 1996, the same total increased marginally, and then decreased by 42 percent in 1997. In 1998, total Green Box related expenditures were just under USD 1.3 million, due to the elimination of pest control subsidies, while over 90 percent

18 Foreign manufacturers are now required to register with the General Organization for Export and Import Control (GOEIC) prior to shipping their products to Egypt. Additionally, customs documentation that is related to customs transactions conducted through 'cash against documents' can only be exchanged through designated banks, which reduces the flexibility of exchanging customs documents and consequently increases the clearing time and associated costs. Import costs are further increased by the obligation to have commercial invoices certified, and the increase of the import customs duty on a significant number of goods imported into Egypt (PwC 2016).

of Green Box expenditures were due to the development of irrigation. Compared to a total value of agricultural output of about USD 13 billion, these outlays were relatively insignificant.

Some 73 percent of the expenditures that qualified under SDT provisions of the AoA in 1995 (listed as outlays within Agricultural Development Programmes) were fertiliser subsidies, the remainder being subsidies for seeds. The value of seed subsidies remained almost the same between 1995 and 1998. However, fertiliser subsidies decreased by 75 percent in 1996, and then remained almost constant until 1998: they too were insignificant as a share of the total value of agricultural production of those years.

Although Egypt has notified no trade-distorting support to date (the so-called Aggregate Measurement of Support or AMS), market price support has been estimated to be larger than the de *minimis* commitment of 10 percent of the total value of production for certain products. For instance, government support for wheat is estimated to have exceeded the 10 percent *de minimis* level in 2013/14 and 2014/15 (Table 6).

Table 6. Egyptian wheat market price support estimations, 2012/13-2014/15

Period	Purchase Price (USD/MT)	Total Production (MT)	Domestically Procured (MT)	Reference Price (USD/MT)
2012/13	361	85,000	37,000	309
2013/14	400	87,000	40,000	268
2014/15	400	89,500	40,000	223
	Wheat Market Price Support (USD)	Value of Total Wheat Production (USD)	Wheat Market Price Support as share of Total Wheat Production (%)	
2012/13	1,924,000	26,265,000	7.3	
2013/14	5,280,000	23,316,000	22.6	
2014/15	7,080,000	19,958,000	35.5	

Source: Adapted from Konandreas and Mermigkas 2014 using data from USDA, FAS GAIN Reports, Grains Annual, Various Releases

While there are several interpretations among WTO members regarding the method for the calculation of market price support in the context of the AoA, exceeding the 10 percent de minimis level as shown in Table 6 points to possible difficulties Egypt may face in complying with its WTO commitments.

Another area where Egypt shares concerns and approaches with some other developing countries is public stockholding programmes: countries can stock agricultural products for future consumption to secure domestic food availability and stability. Normally such support is within the limits agreed among WTO member countries, but some member countries are concerned that existing WTO rules unfairly constrain their ability to use these schemes to address food security concerns. Other countries fear that changing current rules could lead to farm support programmes causing significant distortions on global markets. The debate concerns only about the purchasing side as there are no limits on supplying subsidised or free food to people in need (ICTSD, 2016). These stockholding programmes are considered to distort trade when they involve purchases from farmers at prices fixed by the governments, known as 'administered' prices. At the WTO's Bali ministerial conference in 2013, governments agreed not to initiate legal challenges to these programmes while a 'permanent solution' to this issue was being negotiated, in exchange for greater transparency about the operation of these programmes in developing countries.

4.3. Export Subsidies and Prohibitions

Egypt does not grant export subsidies on any of its export commodities. However, pursuant

to Article 7 of its Law 118/1975, the export of certain commodities can be prohibited or restricted by Ministerial Decrees. For instance, in 2008, the government prohibited Egyptian rice exports with the aim of increasing rice supplies in the domestic market. Export licenses were issued to foreign buyers in 2013 and later suspended, and the prohibition on rice exports was finally removed in 2014.

Export prohibitions that formerly applied to some agricultural products have mostly been eliminated. For example, the ban on tanned leather exports was lifted in 1994, and that on raw hides in 1998. Previously, there had been export quotas on wool, wool waste, cotton waste, and tanned leather, but these were removed in 1993. At the WTO, Egypt has led efforts to update global rules in this area with a view to protecting vulnerable consumers in low-income, food-importing countries (ICTSD 2011).

Egypt uses public finance for export promotion; free zones are in place to promote investment, employment, and exports, and an 'Export Promotion Law' was adopted in 2002. Similarly, the Export Development Bank of Egypt provides short- and medium-term loans to finance capital assets of export-oriented industries and also credit to finance inputs for these industries. Processed agricultural products are among the beneficiaries of such credits.

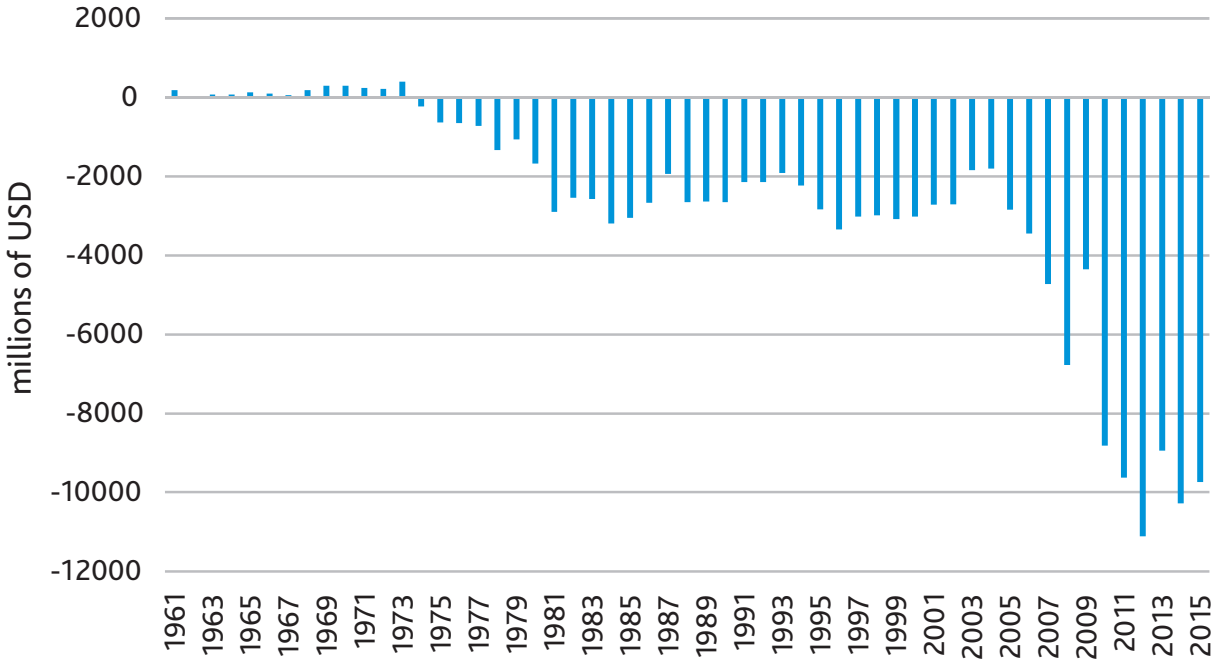
Under the WTO's Nairobi Package, developed countries agreed to abolish export subsidies and export credits which have provided cheap food imports to net food-importing developing countries (including Egypt) in the past and helped them meet short-term food needs. On the other hand, such measures helped developed country food exporters to compete unfairly with domestic farmers in developing countries with prices even lower than their domestic production costs. In recent years, export subsidies have declined substantially in practice. As highlighted by Díaz-Bonilla and Hepburn (2016), several product groups such as grains and oilseeds that had been the main recipients of subsidies have not received such support in recent years, and several countries with export subsidy entitlements only used a small proportion of their allowed levels.

5. EGYPT'S AGRICULTURAL TRADE AND TRADE BALANCES

5.1. Increasing Deficit in Agricultural Trade and Exploiting the Sustainable Potential of Egypt's Agricultural Exports

In Egypt, import dependence in agricultural products at an aggregate level actually started in 1974 when the value of agricultural imports exceeded the value of agricultural exports for the first time (see Figure 14). This import dependence has increased significantly, to a large extent caused by the 'open door' policies launched in the 1980s.

Figure 14: Increasing deficit in Egyptian agricultural trade, 1961-2015

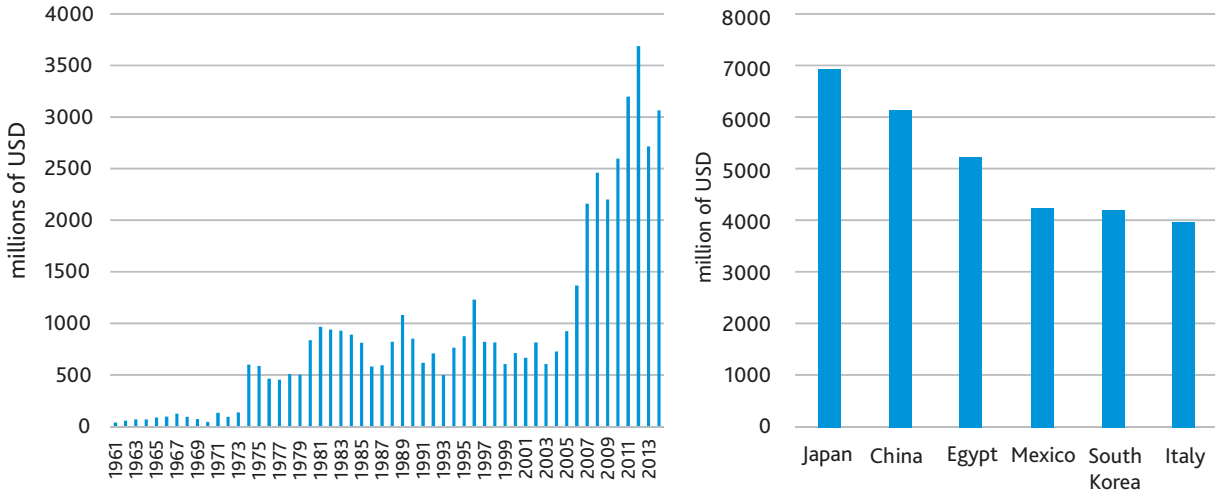


Source: FAOSTAT 2016 and UN Comtrade 2016

The deficit in the balance of trade in agriculture had increased to such a level in the 1980s that the government decided to review its policies on the production of strategic crops and to resume earlier interventions to increase domestic production of wheat and maize.

In recent years, Egypt has become the largest importer of wheat globally by value of exports (Figure 15).

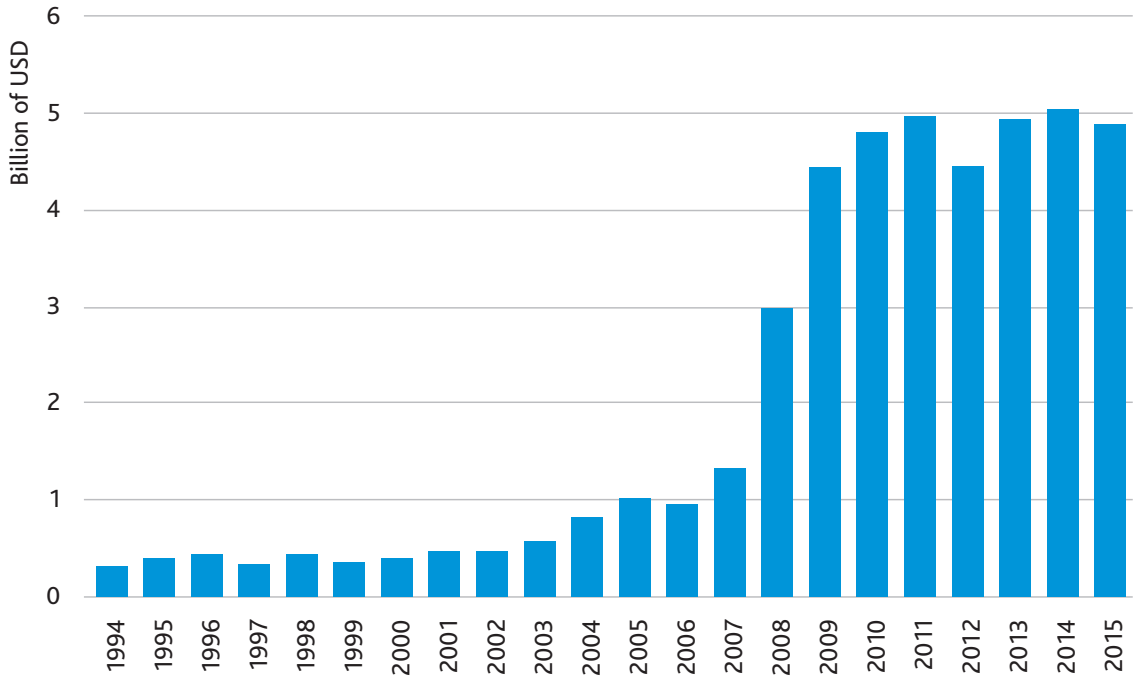
Figure 15: Evolution of Egyptian wheat imports costs, 1961-2014, and ranking of Egyptian wheat import values, 2014



Note that Italy is both an exporter and importer of wheat.
Source: FAOSTAT 2016 and UN Comtrade 2016

Not only the imports but also the exports of agricultural goods have increased in Egypt, especially over the last decade. At 19 percent, Egypt's agricultural exports share in its total export earnings in 2014 was at its highest since 2005, when it had been only 9 percent (UN Comtrade 2016; see Figure 16). Agricultural exports revenues in 2015 were four times the revenues a decade earlier.

Figure 16: Agricultural export revenues in Egypt, 1994-2015



Source: UN Comtrade 2016 and authors' estimations

In 2015, almost half of all Egypt's agricultural export revenues were generated by fresh fruit and fresh vegetables followed by earnings from dairy products and preparations of fruit and vegetables. Egypt has a (revealed) comparative advantage in exports of fresh vegetables, fresh fruit, and preparations of fruit and vegetables, i.e. Egypt's export share in those products is larger than the global share of exports (FAO and EBRD 2015; see Table 7 for the top five agricultural products in which Egypt has a comparative advantage).

Table 7. Revealed comparative advantage, top five product groups in Egypt, 2015

Ranking	HTS Code	Product name	Revealed Comparative Advantage Ratio
1st	07	Edible vegetables	5.74
2nd	08	Edible fruit and nuts	3.24
3rd	13	Lac; gums and resins	2.39
4th	20	Preparations of vegetables, fruit	2.08
5th	17	Sugars and sugar confectionary	2.05

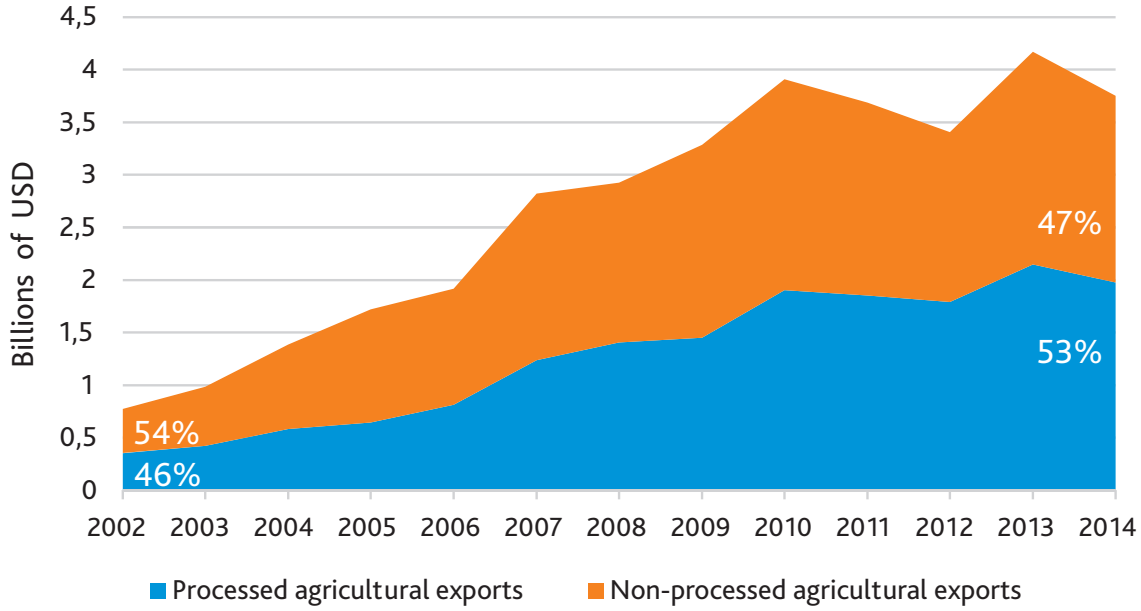
Source: Reproduced from FAO and EBRD 2015, using FAOSTAT data

Egypt's agricultural exports are destined for several large markets, such as the Russian Federation, Saudi Arabia, and the United Kingdom, and these markets have remained almost unchanged. During the recent period from 2013 to 2015, some of the traditional agricultural export destinations of Egypt have seen considerable declines in their agricultural imports from all sources, but their imports from Egypt have been affected to a much lesser extent, for a variety of reasons including sanctions, harvesting times, commodities imported, and prices in other markets. For example, agricultural imports from Egypt to Saudi Arabia have increased by 22 percent over that period, while overall agricultural imports in Saudi Arabia have decreased by 5 percent. Egyptian agricultural exports to Russian Federation decreased by only 0.2 percent over the period 2013-2015.

5.2. Opportunities for Value Addition in Egypt's Agricultural Exports

In the context of economic progress, the *Sustainable Agricultural Development Strategy Towards 2030* for Egypt includes targets on moving the country from low or non-value added to higher value added production and exports both in the industrial and agricultural sectors of the economy. In 2014, 53 percent of Egypt's agri-food exports were processed (Figure 17).[199] This share increased from 46 percent in 2002. Processed agri-food exports in Egypt were concentrated in fruit and vegetable and dairy products; in 2014, these product groups' share in all processed agri-food exports stood at 56 percent and 23 percent, respectively.

Figure 17: Agricultural exports value, processed and non-processed, in Egypt, 2002-2014



Source: UN Comtrade 2016 and authors' estimations

19 Processed agri-food products include items from product groups that might only be primarily processed without much value addition being generated, such as fresh and chilled meats and fish, frozen and prepared fruit and vegetables.

However, a significant proportion of these processed agri-food exports was subject only to semi-processing, without much value addition. If these semi-processed products (such as fresh, frozen or chilled meats, fruit, vegetables and fish) are not taken into account in the calculations,[20] then Egypt's processed agri-food exports were only 31 percent of its all agri-food exports in 2014.

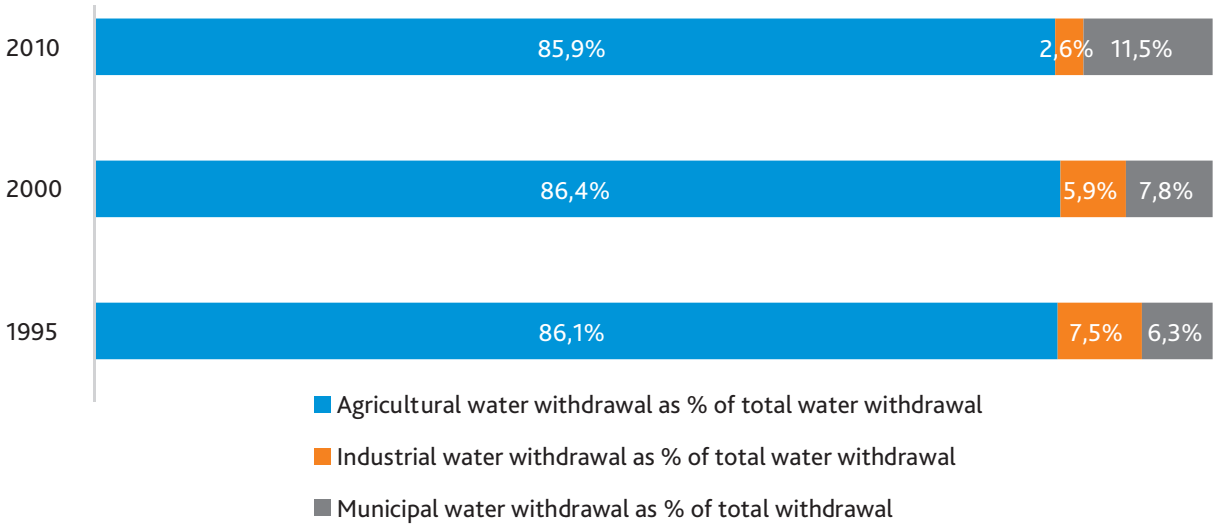
Improving value chain development in exported produce could enhance the sustainability of agricultural practices and food security in Egypt and, if targeted appropriately, will improve the country's focus on produce in which it possesses a comparative advantage. An increase in agro-food processing facilities has the potential to create job opportunities, particularly for the unemployed young population, and is expected to increase the earnings of existing farmers.

Not all domestically processed agri-food products can be exported, however. The quality and safety of the product play a key role in determining its suitability for export. Quality and safety are increasingly regulated through established costly certification mechanisms such as hazard analysis and critical control points (HACCP) and Global Good Agricultural Practices (GlobalGap), which require adherence to stringent rules. Investment, public-private partnerships, and an enabling institutional and legal framework would be priorities in developing production and marketing practices in Egypt that can lead to increased exports.

5.3. Sustainable Irrigation in Egypt: the Role of Agricultural Markets

Egypt's SADS 2030 highlights water scarcity as a major development challenge, given the high rates of population growth and associated production and consumption needs. Irrigation is by far the primary consumer of scarce water in Egypt (see Figure 18).

Figure 18: Water use trends by sector in Egypt, 1995-2010



Source: FAO Aquastat 2016

20 The remaining processed agri-food products used in estimations exclude selected products with 6-digit HTS codes belonging to groups 0201-0209, 0407-0410, 1101-1107, 0710-0713, 0811-0814, 1701-1704, 2001-2009, 1501-1522, 1901-1903, 1802-1806.

Increasing the net value of water used in crop production could be achieved in a number of ways. Economic value per unit of water could be increased by yield increases, crop shifting to higher value crops, water re-allocation to higher valued uses, and lowering the input costs including water. Other measures that would also increase economic value of water include increasing social, health and environmental benefits, and the value of other ecological services that crop production activities offer, or, conversely, decreasing social, health and environmental costs of water use (Molden et al. 2010). Crops' water productivity in economic, biological, or nutritional terms is shown with a range of values in Table 8: usually gains differ by location, season, and markets.

Table 8. Range of water productivities in economical, biological, and nutritional terms for selected commodities

Product / subgroup	USD per cubic metre*	Kilograms per cubic metre	Protein grams per cubic metre	Calories per cubic metre
Grains				
Wheat (USD 0.2 per kg)	0.04-0.30	0.2-1.2	50-150	660-4000
Rice (USD 0.31 per kg)	0.05-0.18	0.15-1.6	12-50	500-2000
Maize (USD 0.11 per kg)	0.03-0.22	0.30-2.00	30-200	1000-7000
Legumes				
Lentils (USD 0.30 per kg)	0.09-0.30	0.3-1.0	90-150	1060-3500
Fava beans (USD 0.30 per kg)	0.09-0.24	0.3-0.8	100-150	1260-3360
Fruit/Vegetables				
Potatoes (USD 0.10 per kg)	0.3-0.7	3-7	50-120	3000-7000
Tomatoes (USD 0.15 per kg)	0.75-3.0	5-20	50-200	1000-4000
Apples (USD 0.80 per kg)	0.8-4.0	1.0-5.0	Negligible	520-2600
Olives (USD 1.0 per kg)	1.0-3.0	1.0-3.0	10-30	1150-3450
Dates (USD 2.0 per kg)	0.8-1.6	0.4-0.8	8-16	1120-2240

Source: Molden et al. 2010, who adapted from Muir 1993, Verdegem et al. 2006, Renault and Wallender 2000, Oweis and Hachum 2003, and Zwart and Bastiaanssen 2004

** Note that although absolute market and producer prices for the listed products had changed since these values were published, under the assumption of almost stable relative prices, information on the second column might still be considered as valid.*

Water withdrawn for irrigation in Egypt is used to grow cereals, fibre crops, legumes, sugar crops, forages, fruit, and vegetables. In general, farmers' decisions in the allocation of water to different crops is driven by the principle of maximising the 'economic return' of water use, as is the case for other inputs to production. For the 'rational farmer', water use in the production of a particular crop would be up to the level where the marginal return from the last unit applied exceeds the marginal cost of water. Conversely, when several crops are being produced, it would be expected that the last unit of water used would be applied to the crop yielding the highest marginal economic return. Such a behaviour by farmers would ensure the generation of the highest aggregate economic return for a given aggregate quantity of water use.

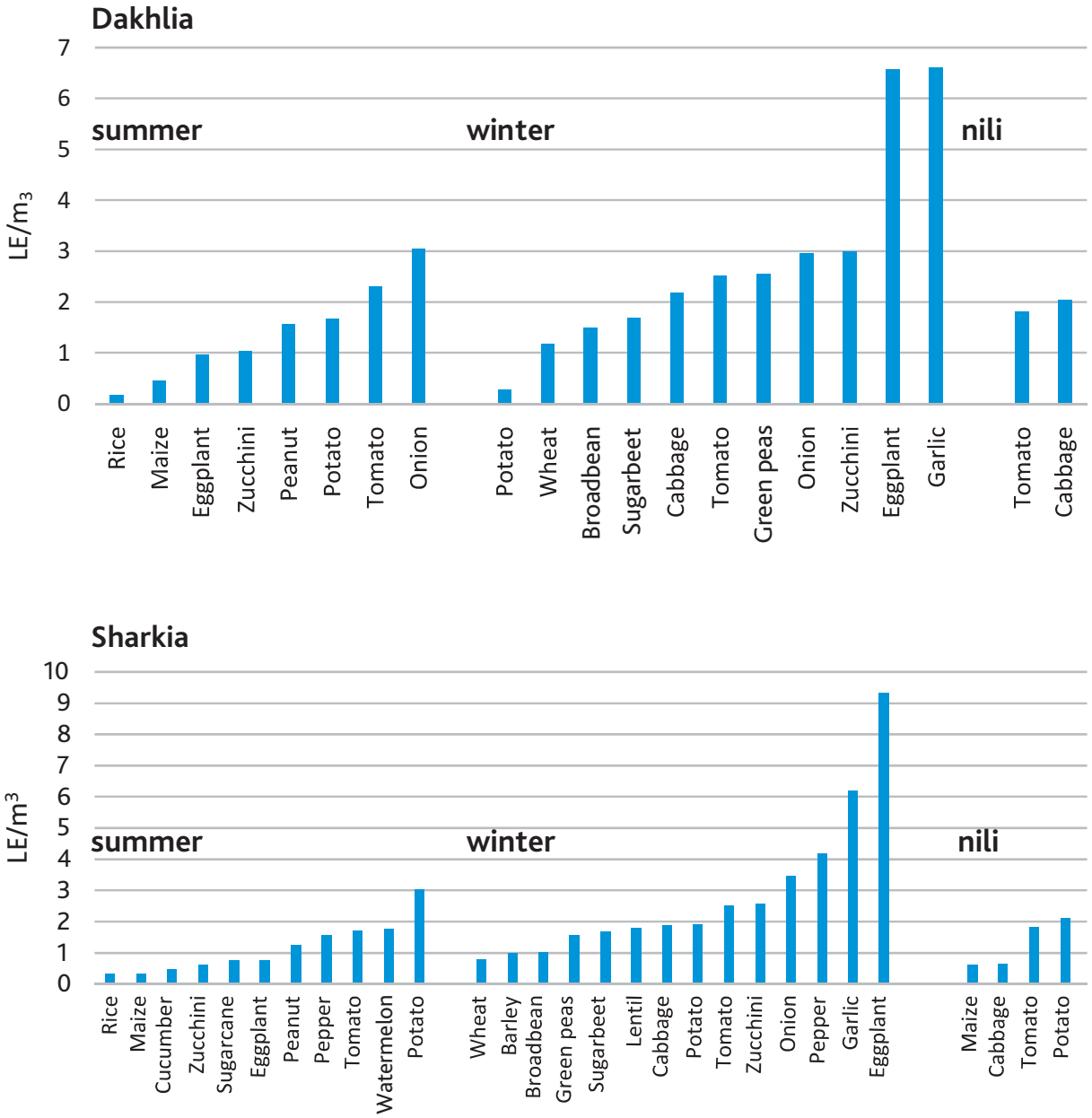
The extent to which this is actually the case in Egypt is an empirical question.[21] While comprehensive data of marginal economic returns are not available in the literature, an indication of rational water use can be obtained

21 The choice of crops by farmers are largely profit-driven, given the high poverty levels in rural Egypt. Crops that are the most likely to raise farmer incomes are therefore selected without much consideration of the economic value of the water used.

from existing estimates of average economic returns of water used in the cultivation of different crops in different geographical areas of the country.

Such estimated economic returns from water used in growing various crops in different locations and seasons in Egypt are given in Figure 19. It is evident from these numbers that growing fruit and vegetables results in much higher economic returns than growing most other crops, including cereals. Put differently, other things being equal, if the current demand for fresh water is deemed unsustainable and has to be reduced, farmers could maintain (or even increase) their economic returns by producing more fruit and vegetables and less of other crops.

Figure 19: Economic returns from crops grown in Egypt per unit of water*



** Please note that although tomatoes, watermelon, green peas are perennials and not competing with annual crops like wheat and maize in terms of land resources, both are grown under irrigated conditions and compete for water. Dakhlia and Sharkia are governorates in Egypt, in both governorates, there exist three farming seasons: summer (april/may to october), winter (november to may), and nili (july/august to october).*
Source: Hosni et al. 2014

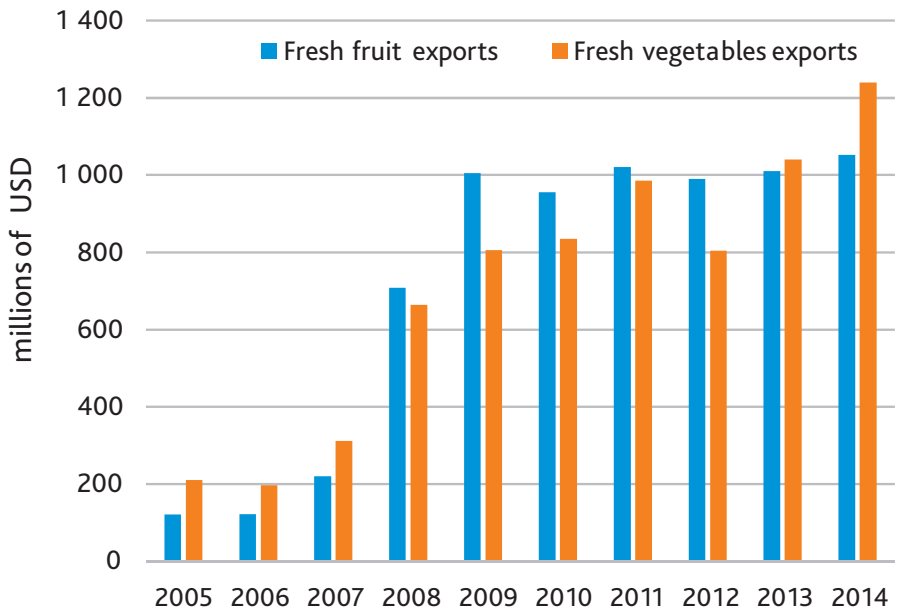
However, agricultural use of water in Egypt is free or effectively very low-cost. Furthermore, the Egyptian government has distorting policies for certain crops, such as buying them at higher than market prices, or has been providing inputs for their production at subsidised prices. Researchers differ in their views on the extent to which water pricing can improve the sustainability of agricultural production systems (Hellegers and Perry 2006; Molle and Berkoff 2006; Berbel and Gomez-Limon 2000).

Tapping higher economic gains offered by more water productive crops is also not simply a matter of farmers' decision to shift production to such crops. Availability of markets and farmers' access to these markets are a prerequisite for realising any such economic gains. Market access for agricultural commodities is determined by subsidies, tariffs, and increasingly, non-tariff barriers of other importing countries. As regards the latter (which are more prominent with regard to agricultural products), exporting countries have to comply with usually stringent sanitary and phytosanitary measures, often not harmonised across trading partners. These impose additional compliance costs in accessing such markets which the exporting country has to bear. It follows that increasing access to global markets necessitates meeting various product quality and safety standards, managing costs through value chain development, as well as improving farmers' access to technology and market information.

5.3.1. Current status of production and trade in high value crops

Maximising exports of key high value-generating agricultural crops has been seen as an important policy objective for Egypt. Such crops, for which Egypt may have a comparative advantage, could play a significant role in inclusive growth (creating job opportunities and raising incomes for farmers and other actors in the value chain) and in food security by generating foreign exchange needed for importing basic food stuffs.[22] In Figure 20, the evolution in fresh fruit and vegetables exports are shown.

Figure 20: Evolution of value of Egyptian exports of fresh fruit and fresh vegetables in USD, 2005-2014



Source: UN Comtrade 2016

22 All varieties of merchandise and services exports (tourism, manufacturing, financial services, etc.) could generate foreign exchange to be used to cover food import bills. Foreign exchange earned through high value crop exports contributes to total foreign exchange generated, increasing the ability of the country to continue securing food through imports.

In 2014, Egypt's leading exports of edible vegetables included potatoes, leguminous vegetables, onions, and tomatoes, while leading exports of edible fruit included oranges, grapes, dates, and figs (UN Comtrade 2016).

The composition and ranking of edible fruit and vegetables exports from Egypt has not changed much through the years. Between 2009 and 2014, the average value of potato exports was the highest in vegetables, followed by onions and frozen produce; while oranges ranked first among edible fruit exports, followed by grapes, dates, and figs.

Using reclaimed lands, especially for the production of fresh fruit and vegetables, has been a government policy in Egypt. The lower productivity and higher production expenses associated with the reclaimed desert land led policy makers to promote higher value crops, with a view to increasing exports and monetary return to the farmers, thereby providing an incentive for relocation (Sims 2015). However, despite government support in this area including exploiting irrigation possibilities for these reclaimed desert areas, it has been difficult to achieve the objective of covering part of the cost of Egypt's basic food import needs through high value crop export revenues, due to the ever growing demand for food and the fact that possible revenues from high value crop exports are limited in the absence of policies and investments that increase access to global markets.

5.3.2. Addressing Egypt's challenges in the production and trade of high value crops

Prominent high value crops with significant export potential are citrus fruit (mainly oranges) and table grapes. Their importance to Egypt's agricultural production and trade are explored in the Annex to this paper. Despite their recognised importance by the government to sustainable agricultural and trade growth, several issues constrain the realisation of this potential.

While the orange sector in Egypt is growing (supported by research, technology, and government incentives) and beginning to create its own market demand and supply, the sector could be further strengthened by addressing several constraining factors listed (see AGQ 2015; FAS GAIN 2013, 2014, 2015; Petit et al. 2015; Torayeh 2013; Wellons et al. 2005; AfDB 2012; WEF 2013):

- Although quality and safety standards are the key attributes determining competitiveness in the destination markets, there are few producers in Egypt implementing compulsory standards, especially for the EU market;
- The majority of orchards are too old and more susceptible to diseases than new cultivars; pests and diseases may emerge as important constraints to production, especially in desert areas; therefore, old cultivars need to be replaced by new, more productive, and disease resistant varieties, and the cultivar structure need to be diversified to offer supplies at different harvest times;
- Marketing services are still poor (with non-value adding intermediaries from farmer to exporter), while storage and adequate transportation capacity is limited (and expensive);
- Extension services in the form of trainings need to be intensified for improving fruit quality and safety; state support in the form of marketing support and standardisation needs to be offered; and more cooperative work could be established between institutions and extension services.

Similarly, production and trade of table grapes suffers from important constraints which have been identified and highlighted by sector assessments undertaken over the years; constraints include the following (see Lamb and Gribi 2002; Fitch et al. 2005; Wellons et al. 2005; El-Sawalhy et al. 2008; Toroyeh 2013; AGQ 2014; ITC 2014):

- The most serious problems that make table grapes unsuitable for export were found to have been caused by defective or ineffective growing practices which cause a lack of colour;[23] other problems include pesticide damage and residues, and other defects due to high humidity during storage before export;

- Most farms do not have opportunities to access international markets and rely on middlemen and exporters for the distribution of their production; interviews with exporters and farmers also revealed that a margin of about 25 percent to 40 percent is added to the prices that exporters purchase from farmers, decreasing the cost advantage of Egyptian grape exports;

- Grapes produced in Egypt mostly mature at the end of June, are exported to EU countries from the final weeks of June to mid-July, and face intense competition; existing cultivars which mature late in the season need to be replaced with early maturing cultivars so as to increase the market share for Egyptian grapes; government support to small- and medium-scale farmers will be necessary for this transition from old to new cultivars;

- Farmers need training to use farming practices that produce high quality, early maturing grapes; cooperation among farmers needs to be strengthened, and legal infrastructure should be provided to ensure that producers are able to capture a greater share of the profits which currently accrue to other actors in the value chain, such as intermediaries;

- Storage capacities need to be increased and transport duration should be decreased, as grapes are highly perishable.[24]

Although this report focuses specifically on the challenges that impede realisation of Egypt's potential in selling its production in international markets, it is important to note that domestic agricultural markets are not without problems with respect to their existing potential and contribution to sustainable development. Farmers, especially small-scale farmers, face difficulties accessing domestic as well as global markets. Taking up the example of fresh fruit and vegetables markets, problems and limitations that need to be addressed are large pre-harvest and post-harvest losses due to lack of education and sufficient infrastructure, the dominance of traditional varieties, presence of middle men and dealers rather than direct mechanisms connecting farmers to local markets and absence of quality and safety standards. Local markets in agricultural products also suffer from instability, as market signals are not communicated to producers, leading to improper production decisions due to the effects of confused market signals. Strengthening institutions and mechanisms that support the linkages between farmers and markets, including contract marketing as well as establishing specific commodity boards and associations, along with farmers' cooperatives, are recognised in SADS 2030 as steps that could improve matters.

23 Lack of normal colour may be related to harvest before maturation; exporters aim to enter the export market earlier than rival countries, which may lead to premature harvest. Grapes do not ripen after harvest unlike some other produce, so premature harvest can lead to rejection of consignments.

24 Transporting produce to market is challenging due to a lack of cold storage infrastructure in Upper Egypt. Farmers need to ship their produce several hundred kilometres to Cairo in temperatures which often reach more than 38 degrees Celsius.

6. CONCLUSIONS AND SOME POLICY RECOMMENDATIONS

Agriculture in Egypt suffers from low productivity, very scarce and over-exploited natural resources, lagging technological and human capital development, low and volatile incomes for farmers, and untapped potential for export-led growth of the sector. Policy making aimed at prioritising and promoting agricultural exports and sustainable use of already scarce resources could enhance rural incomes, motivate investment in agricultural education and technology (which in turn would increase productivity), create employment in rural areas, and ultimately contribute to inclusive and sustainable agricultural and economic development in the country.

The environmental sustainability of agricultural development is crucial in the country, given the scarcity of water and fertile land, coupled with growing demand for food to meet the needs of an increasing population. Increasing the efficiency of water and land used is a 'must'. *Inter alia*, this entails increasing the production of high value crops with a focus on global markets, taking into account Egypt's agricultural tradition, climate, and soil characteristics, relatively higher economic value of growing high value crops (per unit of water use), as well as its geographic proximity to lucrative markets where there is demand for these high value products.

Previously adopted strategies did not have a focused vision of how to achieve sustainable agricultural development through an integrated rural development programme, taking adequate account of the possible negative effects of agricultural production on natural resources. However, the agricultural component of the SADS 2030 aims at both 'vertical' and 'horizontal' agricultural development by increasing productivity in the 'old lands' of the Nile Valley and Delta, through improvements in water management systems and irrigation networks, and also by increasing the production capacity of 'new' reclaimable desert land (focusing on the Eastern and Western regions), through heavy investment in land preparation and the development of water resources from aquifers. Considering that water from the aquifers is not infinite, consideration has been given to establishing their equitable management and protecting aquifers from unsustainable withdrawals.

This study includes an Annex, considering the examples of improving the potential for orange and grape exports as an option to increase high value crop cultivation, towards the ultimate goal of accelerating sustainable agricultural development in Egypt.

The potential for increased high value exports is constrained by outdated production and harvesting methods, inadequate infrastructure for storage and transportation, and strained land and water resources. Priorities for sustainable agricultural production include importing and adapting water conservation techniques; treating used water; and updating the efficiency of irrigation through improved techniques. These measures are especially important as the country is confronted with the decreasing capacity of the Nile, and decreasing precipitation due to climatic change.

The government could usefully prioritise promoting high value agricultural commodity trade and improve coordination across policies, institutions and the investment environment for this purpose, including through building public-private sector linkages. However, while export promotion measures are important, it will also be vital that the government supports investment in research and development, training, infrastructure, and logistics. Egypt would therefore need to develop education and training programmes to improve labour productivity, and improve compliance with common standard systems so as to open up profitable quality-conscious international markets, such as in the EU.

REFERENCES

Abou-Ali, H., and H. Kheir-El-Din. 2010. "Economic Efficiency of Crop Production in Egypt." *The Egyptian Center for Economic Studies, Working Paper* No. 155 (Publication Number: ECESWP155-E).

AfDB (African Development Bank Group). 2012. "2011–12 Interim Strategy Paper: Egypt." AfDB Regional Department, North Africa Region.

AGQ Labs and Technical Services. 2014. "Table Grapes Exporting Season Starting in Egypt.", accessed December 2016. http://www.agq.com.es/article-en/table-grapes-exporting-season-starting-egypt.

AGQ Labs and Technical Services. 2015. "Egyptian Citrus Exporting Season: Challenges and Opportunities.", accessed December 2016. http://www.agq.com.es/article-en/egyptian-citrus-exporting-season-challenges-and-opportunities.

Akhter, U. A, Howarth, E. B., Tamar, G., and H. Lofgren. 2001. "The Egyptian Food Subsidy System: Structure, Performance, and Options for Reform." *IFPRI (International Food Policy Research Institute) Research Report* 119. Washington, DC: IFPRI.

Allan T., Keulertz, M., Sojamo, S., and J. Warner, eds. 2013. "Handbook of Land and Water Grabs in Africa: Foreign Direct Investment and Food and Water Security." Routledge. ISBN: 978-0-203-11094-2 (e-book).

Berbel, J., and , J. A. Gomez-Limon. 2000. "The Impact of Water-Pricing Policy in Spain: an Analysis of Three Irrigated Areas." *Agricultural Water Management* 43 (2): 219–238.

Dixon, M. 2014. "The Land Grab, Finance Capital, and Food Regime Restructuring: the Case of Egypt." *Review of African Political Economy* 41 (140): 232–248.

Diaz-Bonilla, E., and J. Hepburn. 2016. "Export Competition Issues After Nairobi." in *Evaluating Nairobi: What Does the Outcome Mean for Trade in Food and Farm Goods?* edited by J. Hepburn and C. Bellman, 19–36. Geneva: International Centre for Trade and Sustainable Development (ICTSD).

Egypt, The Arab Republic of. 2016. *National Voluntary Review on the Sustainable Development Goals: Input to the 2016 High-level Political Forum on Sustainable Development*.Accessed December 2016. https://sustainabledevelopment.un.org/content/documents/10738egypt.pdf.

El-Nahrawy, M. 2011. "Egypt: Country Pasture/Forage Resource Profiles." Rome: FAO.

El-Sawalhy, H. A., El-Azayem, M. G. M. A., and E. A. Zaghloul. 2008. "Analysis of Egyptian Grapes Market Shares in the World Markets." *American-Eurasian Journal of Agricultural and Environmental Sciences* 3: 656–662.

FAO. 2010. "Food and Agriculture Policy Review: Egypt." *Food and Agriculture Policy Review*, December. Rome: Near East and North Africa Regional Network for Agricultural Policies (NENARNAP), FAO.

FAO. 2013. "Country Programming Framework (CPF), Egypt, 2012–2017." Accessed December 2016. https://www.fao.org/tc/policy-support/types-of-support/country-programming-framework/en/

FAO AMIS (Agricultural Market Information System). 2016. "Market Monitor." 4 December, accessed December 2016. http://www.amis-outlook.org/.

FAO Aquastat (Global Water Information System). 2016. Accessed December 2016. http://www.fao.org/nr/water/aquastat/main/index.stm.

FAO and EBRD. 2015. "Jordan, Morocco, and Tunisia: Key Trends in Agrifood Sector". *Country Highlights*, FAO Investment Centre.

FAO GIEWS (Global Information and Early Warning System). 2016. *Country Briefs: Egypt*. November, accessed December 2016. http://www.fao.org/giews/countrybrief/country.jsp?code=EGY.

FAOSTAT (Food and Agriculture Organization of the United Nations: Statistical Database). 2016. "Trade Domain>Crops and Livestock Products." Accessed February 2016. http://faostat.fao.org/site/535/default.aspx#ancor.

FAS GAIN (Foreign Agricultural Service, Global Agricultural Information Network). Various dates. *Reports: Egypt*. USDA (United States Department of Agriculture).

Fitch, J., Thomas, W., Gomaa, M. Z., Hamada, M., and I. El Thouky. 2005. "Horticultural Export Improvement Association (HEIA): Final Evaluation [Egypt]." Report submitted to USAID/Egypt. Cairo: Development Associates, Inc.

General Authority for Supply Commodities (GASC). 2013. Unpublished Data.

Ghoneim, A. F. 2012. "The Political Economy of Food Price Policy in Egypt." UNU-WIDER Working Paper, No. 2012/96. Helsinki.

Harrigan, J. 2014. *The Political Economy of Arab Food Sovereignty*. London: Palgrave Macmillan.

Hellegers, P. J. G., and C. J. Perry. 2006. "Can Irrigation Water Use Be Guided by Market Forces? Theory and Practice" *Water Resources Development* 22 (1): 79–86.

Hoekstra, A. Y., and A.K. Chapagain. 2007. "Water Footprints of nations: Water use by people as a function of their consumption pattern" *Water Resource Management*, 21(35), 35-48.

Hosni, H., El-Gafy, I. K., Ibrahim, A. H., and A. S. Abowarda. 2014. "Maximizing the economic value of irrigation water and achieving self-sufficiency of main crops." *Ain Shams Engineering Journal* 5: 1005–1017.

ICTSD (International Centre for Trade and Sustainable Development). 2011. "Agricultural Export Restrictions Spark Controversy at the WTO." Bridges Weekly, Vol. 15, No. 12, 6 April. http://www.ictsd.org/bridges-news/bridges/news/agricultural-export-restrictions-spark-controversy-at-the-wto.

ICTSD (International Centre for Trade and Sustainable Development). 2016. *Public Stockholding for Food Security Purposes: Options for a Permanent Solution*. Geneva: ICTSD. http://www.ictsd.org/node/98585.

ITC (International Trade Centre). 2014. "Highly Promising Outlook for Egyptian Table Grapes, by Market Insider." 22 May, accessed December 2016. http://www.intracen.org/itc/log/market-insider/Highly-promising-outlook-for-Egyptian-table-grapes/.

ITC. 2016. "Market Info and Tools." Accessed December 2016. http://www.intracen.org/itc/market-info-tools/.

Konandreas, P., and G. Mermigkas. 2014. "WTO Domestic Support Disciplines: Options for Alleviating Constraints to Stockholding in Developing Countries in the Follow-up to Bali." *FAO Commodity and Trade Policy Research Working Paper* No.45. Rome: FAO.

Lamb, J. E., and N. Gribi. 2002. "The Impact on Horticultural Exports of Policy Reforms Under Agricultural Policy Reform Program." *Impact Assesment Report* No. 22. Cairo: Abt Associates.

McGill, J., Prikhodko, D., Sterk, B., and P. Talks. 2015. "Egypt. Wheat Sector Review.". *Country Highlights, FAO Investment Centre*. FAO, and EBRD (European Bank for Reconstruction and Development).

Metz, H., ed. 1990. *Egypt: A Country Study*. Washington, DC: GPO for the Library of Congress.

MALR (Ministry of Agriculture and Land Reclamation),. 2014. *Sustainable Agricultural Development Strategy Towards 2030*. Cairo: Arab Republic of Egypt.

Ministry of Finance, Egyptian, State Budget, various releases.

Molden, D., Oweis, T., Steduto, P., Bindraban P., Hanjra, M. A., and J. Kijne. 2010. "Improving Agricultural Water Productivity: Between Optimism and Caution." *Agricultural Water Management* 97: 528–535.

Molle, F., and J. Berkoff. 2006. "Cities versus Agriculture: Revisiting InterSectoral Water Transfers, Potential Gains and Conflicts". *Comprehensive Assessment Research* No., 8. IWMI (International Water Management Institute).

Muir, J. F. 1993. "Water Management for Aquaculture and Fisheries; Irrigation, Irritation or Integration?" In *Priorities for Water Resources Allocation and Management. Proceeding of the Natural Resources and Engineering Advisers Conference, Overseas Development Authority, July 1992, Southampton*. London : Overseas Development Administration.

OECD/FAO. 2016. *OECD-FAO Agricultural Outlook 2016-2025. Special Focus: Sub-Saharan Africa*. Paris: OECD Publishing Paris. https://dx.doi.org/10.1787/agr_outlook-2016-en.

Oweis, T. Y., and A. Y. Hachum. 2003. "Improving Water Productivity in the Dry Areas of West Asia and North Africa." InWater Productivity in Agriculture: Limits and Opportunities for Improvement, edited by Kijne, J. W., Barker, R., and D. Molden. CABI Publishing and International Water Management Institute.

Petit, M., Montaigne, E., El Hadad-Gauthier, F., Garcia-Alvarez-Coque, J. M., Mattas, K., and S. Milli, eds. 2015. *Sustainable Agricultural Development: Challenges and Approaches in Southern and Eastern Mediterranean Countries.*, Springer-Link.

PwC (PricewaterhouseCoopers). 2016. "Egypt Customs Alert: New Import Registration Requirements and Formalities, March 2016." *Tax Insights from Indirect Tax, PwC Middle East Customs and International Trade*. Accessed December 2016. https://www.pwc.com/m1/en/tax/documents/2016/new-import-registration-requirements-and-formalities-march-2016.pdf.

Renault, D., and W.W. Wallender. 2000. "Nutritional Water Productivity and Diets." *Agricultural Water Management* 45 (3): 275–296.

Reuters. 2016. "Egypt Sharply Increases Customs Duties As It Seeks to Curb Imports." 4 December, accessed December 2016. http://af.reuters.com/article/idAFKBN13T09U.

Sdralevich, Carlo, Sab, R., Zouhar, Y., and G. Albertin. 2014. *Subsidy Reform in the Middle East and North Africa: Recent Progress and Challenges Ahead*. Washingon DC: IMF (International Monetary Fund.

Sims, D. 2015. *Egypt's Desert Dreams: Development or Disaster?* Oxford: Oxford University Press.

TARIC (The integrated Tariff of the European Union). 2016. *TARIC Consultation*. Accessed December 2016. http://ec.europa.eu/taxation_customs/dds2/taric/taric_consultation.jsp?Lang=en.

Torayeh. N. M. 2013. "The Competitiveness of the Egyptian Agricultural Exports in the EU Market: Should Egypt diversify its trade pattern?" *Applied Econometrics and International Development* 13 (2): 137–156.

UN Comtrade (United Nations Commodity Trade Statistics Database). Accessed February 2016. http://comtrade.un.org.

Verdegem, M. C. J., Bosma, R. H., J. A.J. Verreth. 2006. "Reducing water use for animal production through aquaculture." *Water Resources Development* 22 (1): 101–113.

Verme, P., Milanovic, B., Al-Shawarby, S., El Tawila, S., Gadallah, M., and E. A. A. El-Majeed. 2014. *Inside Inequality in the Arab Republic of Egypt, Facts and Perceptions across People, Time, and Space*. Washington, DC: World Bank.

WEF (World Economic Forum). 2013. "The Global Competitiveness Report, 2013–2014." *Insight Report*. Geneva: WEF.

Wellons, R. L., Makary, S., and I. El Toukhy. 2005. "Egyptian Exporters Association (ExpoLink): Final Evaluation." Report for USAID Egypt.Washington, DC: USAID.

WFP (World Food Programme). 2008. "Marketing of Food in Egypt: Food Subsidies, Social and Economic Considerations.", Cairo: WFP Regional Bureau for Middle East, Central Asia and Eastern Europe (OMC).

WFP. 2010. *Analysis of Consumer Profiles and Behavior Patterns of Food Subsidy Evaluation System*. Cairo, Egypt, Egyptian Cabinet's Information and Decision Support Center (IDSC) and WFP.

World Bank. 1995. *Project Completion Report, Arab Republic of Egypt, Beheira Provincial Potable Water Supply Project (30 June)*. Washington, DC: World Bank.

World Bank. 2005. *Egypt: Toward a More Effective Social Policy-- Subsidies and Social Safety Net*. Report No: 33550-EG. Washington, DC: World Bank.

World Bank. 2010. "Egypt's Food Subsidies: Benefit, Incidence, and Leakages". Report No: 57446, Washington, DC: World Bank.

World Bank. 2016. *WDI (World Development Indicators)*. Accessed February 2016. http://data.worldbank.org/data-catalog/world-development-indicators.

WTO (World Trade Organization). 2005. "Trade Policy Review: Egypt. Report by the Secretariat." *Trade Policies and Practices by Measure, Report by the Secretariat* WT/TPR/S/150.

WTO (World Trade Organization). 2016. *World Tariff Profiles*. Accessed December 2016. https://www.wto.org/english/res_e/booksp_e/tariff_profiles15_e.pdf.

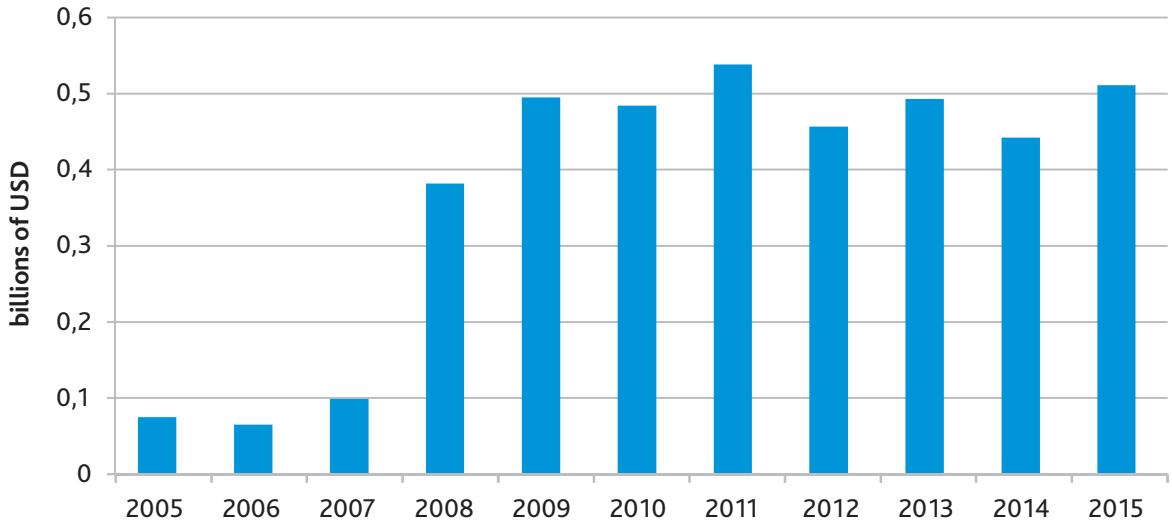
Zwart, S. J., and W. G. M. Bastiaanssen. 2004. "Review of Measured Crop Water Productivity Values for Irrigated Wheat, Rice, Cotton and Maize." *Agricultural Water Management* 69 (2): 115–133.

ANNEX: POTENTIAL OF SELECTED HIGH VALUE CROPS FOR THE EXPORT MARKET

ORANGES

Oranges are seen as a potential source of increased exports, considered as the most valuable fruit crops in international trade. Oranges are also the largest crop grown in Egypt, with around 520,000 acres of total cultivated area. Farmers choose to grow oranges over other high value crops due to their high export demand and value. The increase in orange export values over the last decade has been remarkable (see Figure 21); in 2015, Egypt's orange exports represented almost 12 percent of world exports of the product by value, meaning they ranked fourth in world exports.

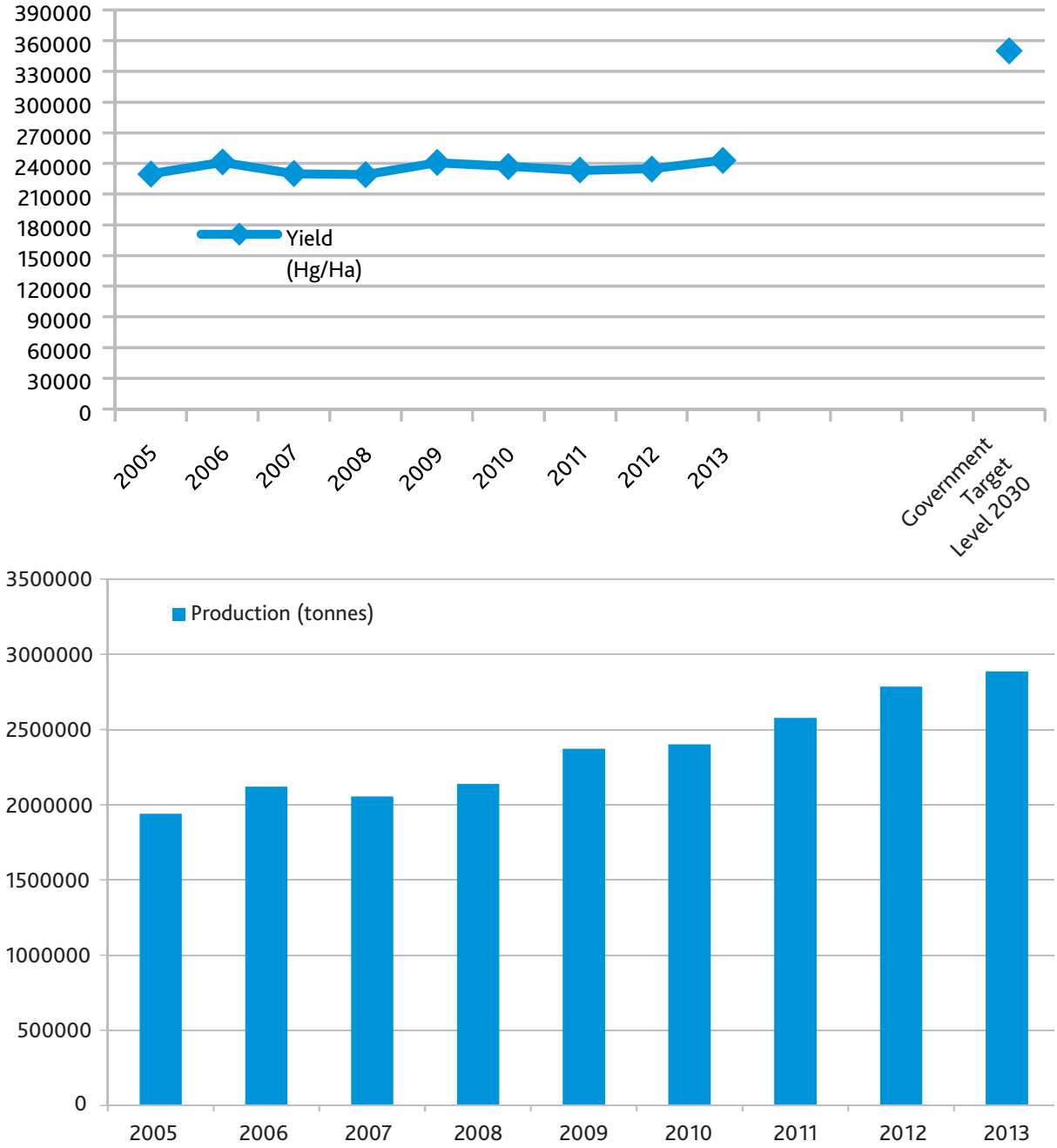
Figure 21: Evolution of orange export values in Egypt, 2005-2015



Source: UN Comtrade 2016

Orange production has increased over the last twenty years by around 50 percent due to the expansion in reclaimed desert areas, although yields have not increased significantly (Figure 22). Total annual production of oranges was around 2.8 million tons in 2013 (Figure 22), of which around 1.2 million tons were exported. The peak orange production in these new reclaimed areas is expected to reach its maximum by 2020, with 8 million tons of production annually from these areas alone.

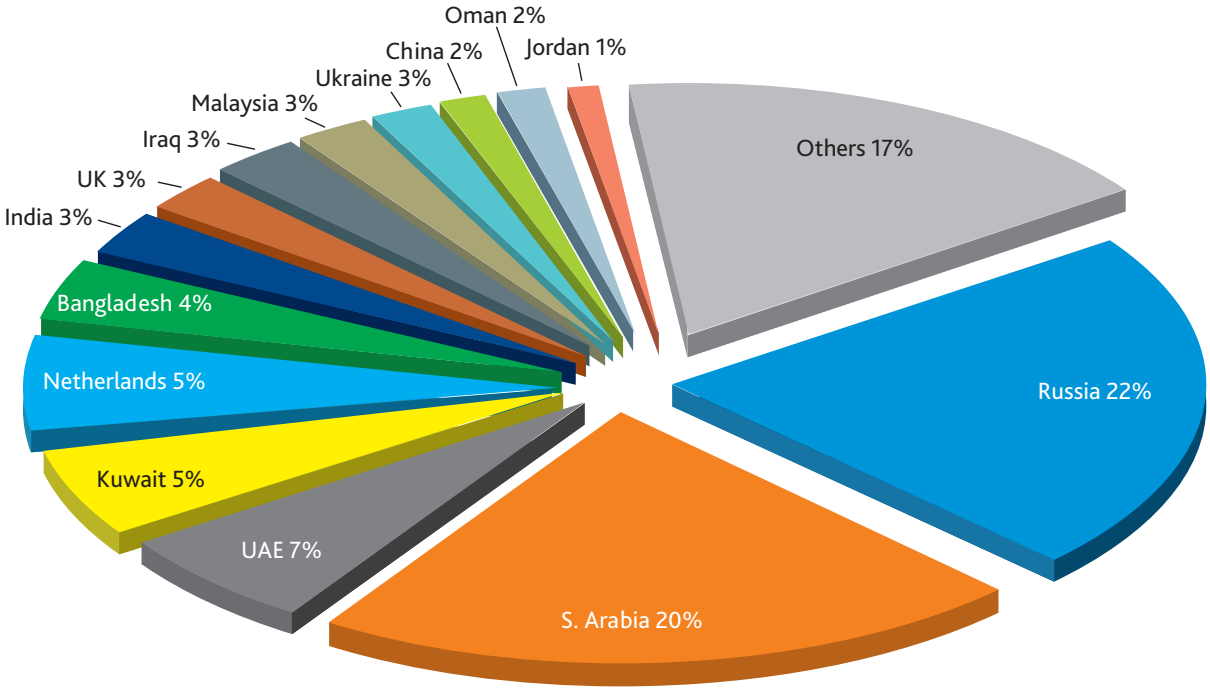
Figure 22: Production quantity and yield of oranges in Egypt, 2005-2013



Source: FAOSTAT 2016 and MALR 2014

In 2015, almost 22 percent of Egyptian exports by value were destined for the Russian Federation, and 20 percent were destined for Saudi Arabia (Figure 23). All other markets were a lot smaller: for example, only 7 percent of Egyptian exports are sent to the UAE, 5 percent to Kuwait and the Netherlands, and 4 percent to Bangladesh. Between 2011 and 2015, Egyptian orange exports to China and Malaysia also grew rapidly, increasing by 17 percent and 11 percent respectively (UN Comtrade 2016).

Figure 23: Destinations of Egyptian orange exports, 2015



Source: UN Comtrade 2016

The main competitors to Egyptian oranges are exported from Turkey, Morocco, South Africa, and Spain (based on the listed countries' share of orange exports in the markets they share with Egypt). Among European countries, Spain has a competitive advantage in the EU market, being able to access the EU's single market and as a result of its geographic proximity (which lowers transportation costs and time). As South Africa produces its Valencia oranges from July to September, it is able to saturate certain markets before Egypt begins harvesting the same variety. South Africa and Spain are competitors with Egypt in all its destinations: the Gulf Co-operation Council countries (mainly Saudi Arabia), Russian Federation, and EU (mainly Germany, France, Netherlands, and the United Kingdom).

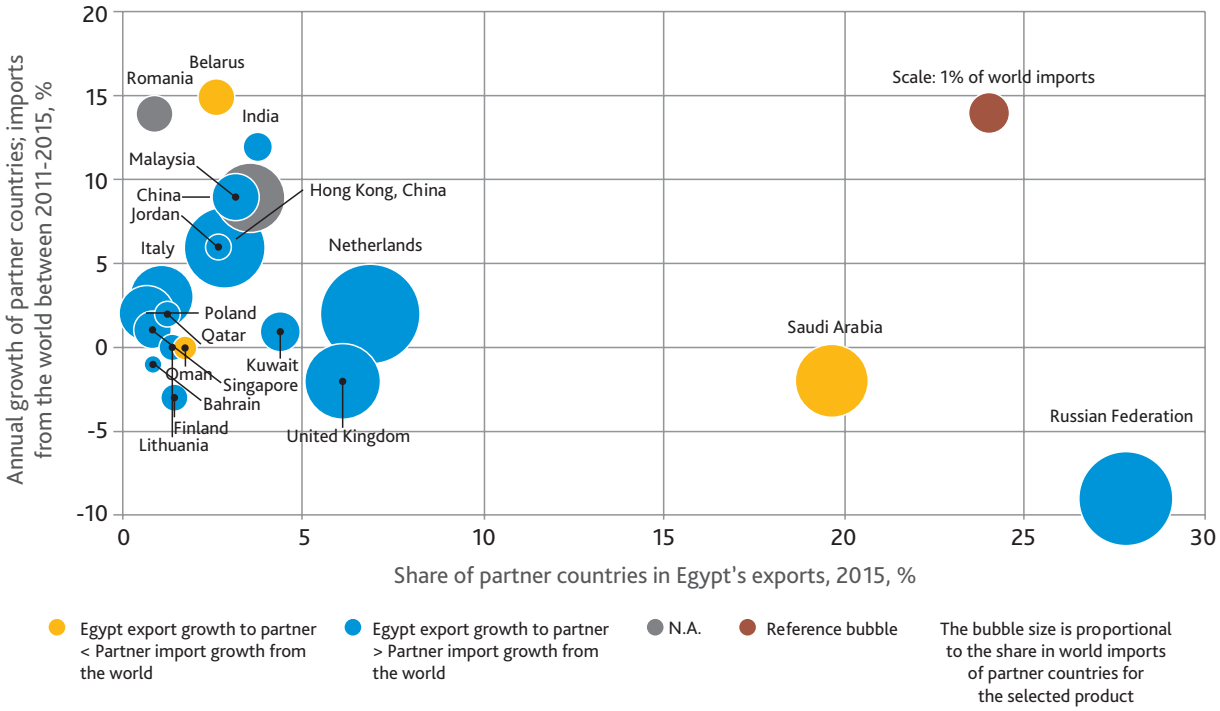
Egypt is the nearest complementary source of oranges to the EU and Russian Federation, if supplies, prices, or product standards change in other markets, or the political situation deteriorates (see Figure 23 above for the distribution of destination markets in 2015). For example, in 2014, due to citrus black spot in oranges coming from the South Africa, Egypt was able to supply more to the EU market to make up a large part of the shortage; similarly, in Russian Federation, Egyptian exports compensated for the loss in supply of Spanish exports, following the introduction of the embargo on European exports to that market.[25]

In 2015, in the most important destination market for Egyptian orange exports—the Russian Federation market—the volume of Egyptian orange exports represented a greater share than orange exports by any other source country, reaching 45 percent of all oranges exported to Russian Federation. However, the total volume of Russian Federation's orange imports decreased on average by 4 percent over the five years from 2011 to 2015, showing the relative significance of the Egyptian orange exports in this market. Market prospects for Egyptian orange exports also exist in the newly emerging markets of Asia, especially in China, Malaysia, and India. Their volume of orange imports from the world grew considerably in

25 Soon after the introduction of the Russian Federation's embargo on European products, it was expected that Egypt could increase the supply of agricultural products to Russian Federation by 30 percent. On the other hand, the recent economic and political situation in Russian Federation (and especially the falling value of the Russian rouble) and in Ukraine (the political instability) made it a worse season for Egypt's orange exporters.

the last five years, but the rate of increase in their volume of imports from Egypt was even larger. Poland, Lithuania, Italy, Singapore are other countries that could be explored further to increase the Egyptian share (see Figure 24). Fully utilising Egyptian market potential in those markets would improve the trade prospects for the orange sector further.

Figure 24: Prospects for market diversification for oranges exported by Egypt, 2015



Source: ITC 2016

In Russian Federation markets, oranges from Egypt, Turkey, and South Africa enjoy a preferential tariff rate of 3.75 percent under the Generalized System of Preferences (GSP). Although the preferential tariff rate advantage is common among main import partners to Russian Federation, Turkey and Egypt have a clear advantage over South Africa as their geographical proximity reduces transportation costs and time. The Russian Federation applies a Most Favoured Nation (MFN) tariff of 5 percent on Spain's orange exports, which puts the country at a disadvantage. The tariff rate applied on orange imports by the Russian Federation cannot go above 5 percent, as the country has 'bound' its tariff line to that maximum level at the WTO. The increase in Egyptian exports to Russian Federation in 2014 and 2015 can be attributed to the higher demand in the Russian market, due to its ban on imports from the European Union (Spain, Greece, and Italy), and later from Turkey.

While the volume of oranges exported to Saudi Arabia by Egypt is more than three times that exported by South Africa, South Africa exports more oranges to the United Arab Emirates than does Egypt. In the European market, Egyptian orange exporters are working towards taking over South Africa's market share after September 2016, when orange exports from South Africa to Europe were significantly reduced as a result of the citrus black spot threat.

It is important to know that, on top of strict quality and safety standards, the EU has a tradition of applying minimum import prices for imported fruit and vegetables to protect its domestic producers. The current system essentially imposes a two-tiered tariff. An entry price is specified for each product covered under the regime. For any import whose cost-insurance-freight (c.i.f) price is above this pre-determined entry price, the

regular ad valorem tariff is applied. However, when the c.i.f price is below this entry price, exporters have to pay an additional specific duty together with the ad valorem tariff. Furthermore, the amount of the specific tariff increases as the gap between the entry and c.i.f price increases. Whenever the c.i.f price is less than 92 percent of the entry price, the exporter must pay what is called the 'maximum tariff equivalent (MTE)'. In that case, the MTEs are almost always prohibitive tariffs. Specific tariffs are charged per individual shipment, that is to say, if the c.i.f price of one shipment is below the entry price, this will not affect other shipments from the same origin. Another important aspect of the entry price system is the determination of c.i.f prices—technically called standard import values (SIV). The European Commission calculates a daily c.i.f value by country of origin, and exporters are given the right to check the compliance of their prices with commission-determined SIVs (daily SIVs are available to the public through the Integrated Tariff of the European Communities, or TARIC, database). Entry prices and tariffs change seasonally to adjust their protective nature according to the perceived needs of domestic EU producers (Table 9).

Table 9. Tariff schedule for Egyptian orange exports under EU entry price regime, 2015-2016

Season	Minimum import price (MIP) EUR/100kg	Maximum Tariff Equivalent (MTE) EUR/100kg	Tariff rate for prices > MIP %
01-12-2015-31-05-2016	35.4	7.1	0
01-06-2016-15-10-2016	season not subject to entry price system		0
16-10-2016-30-11-2016	season not subject to entry price system		0
01-12-2016-31-12-2016	34.7	7.1	0

Source: TARIC Database 2016

Excluding Gulf countries, whose tariff rates on orange imports are set at zero regardless of their origin, China and Malaysia apply their lowest tariff rates at 2.5 percent on Egyptian exports. When considered together with the large increases in demand in these countries, they offer opportunities for market diversification and enlargement (see Tables 10 and 11).

Table 10. Tariffs applied on Egyptian oranges in leading target markets, 2009-2016

Importing country	Year	Total ad valorem equivalent tariff
China	2016	11.00%
India	2009	30.00%
Malaysia	2014	2.50%
Netherlands	2015	0.00%, subject to entry price system
Poland	2015	5.87%
Russian Federation	2016	3.75%
Saudi Arabia	2014	0.00%
United Kingdom	2015	0.00%, subject to entry price system

Source: ITC 2016

Table 11. Tariffs applied on Egyptian oranges and competitors by Russian Federation and Saudi Arabia, 2016

Exporting country	Year	Total ad valorem equivalents tariff in Russian Federation	Total ad valorem equivalents tariff in Saudi Arabia
Egypt	2016	3.75%	0.00%
Morocco	2016	3.75%	0.00%
South Africa	2016	3.75%	0.00%
Spain	2016	5.00%	0.00%
Turkey	2016	3.75%	0.00%

Source: ITC 2016

TABLE GRAPES

Table grapes are considered to be the second most important fruit crop for export markets in Egypt after oranges. Egypt's geographical spread of production enables fresh sweet grapes to be available from May to July. Domestic competition is continually increasing, and the new grape plantations are also of increasing quality. Furthermore, colder winters with rainfall and earlier summer temperatures increase bud break, high fertility, and quality in grapes.

Despite almost constant yields and decreasing production overall since 2008 (though a marginal increase has been observed between 2011 and 2012), Egyptian export values of table grapes have continued to increase (see Figures 25 and 26).

Figure 25: Production quantity and yield for table grapes in Egypt, 2005-2013

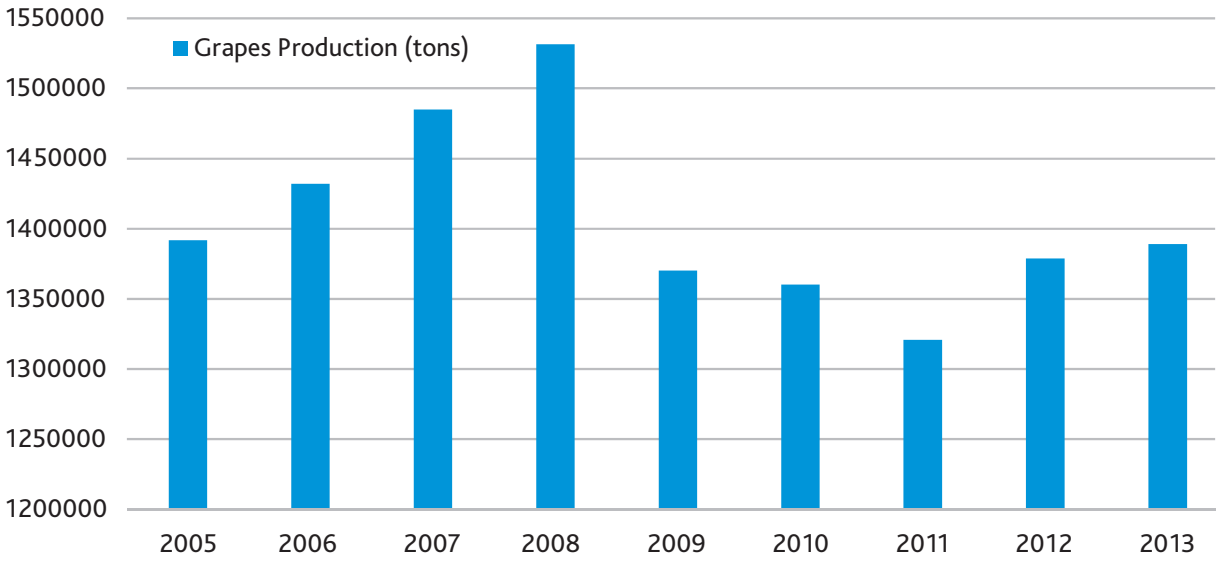
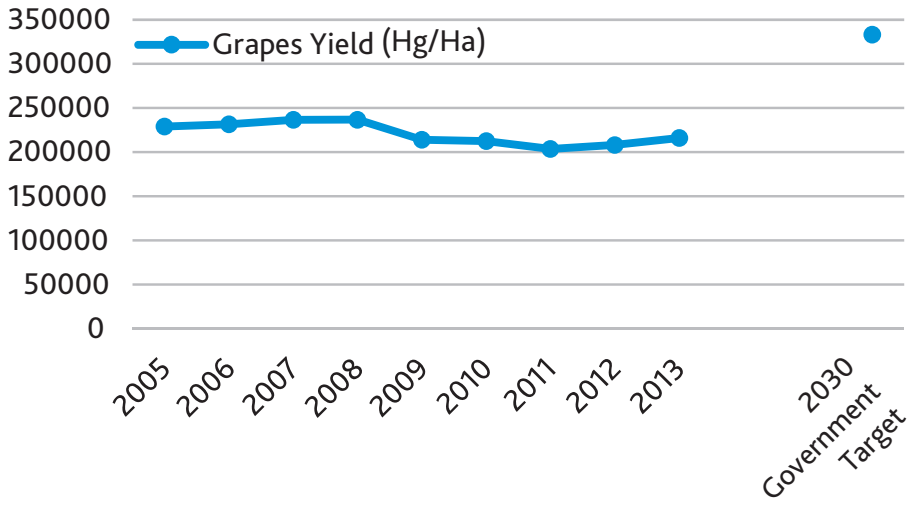
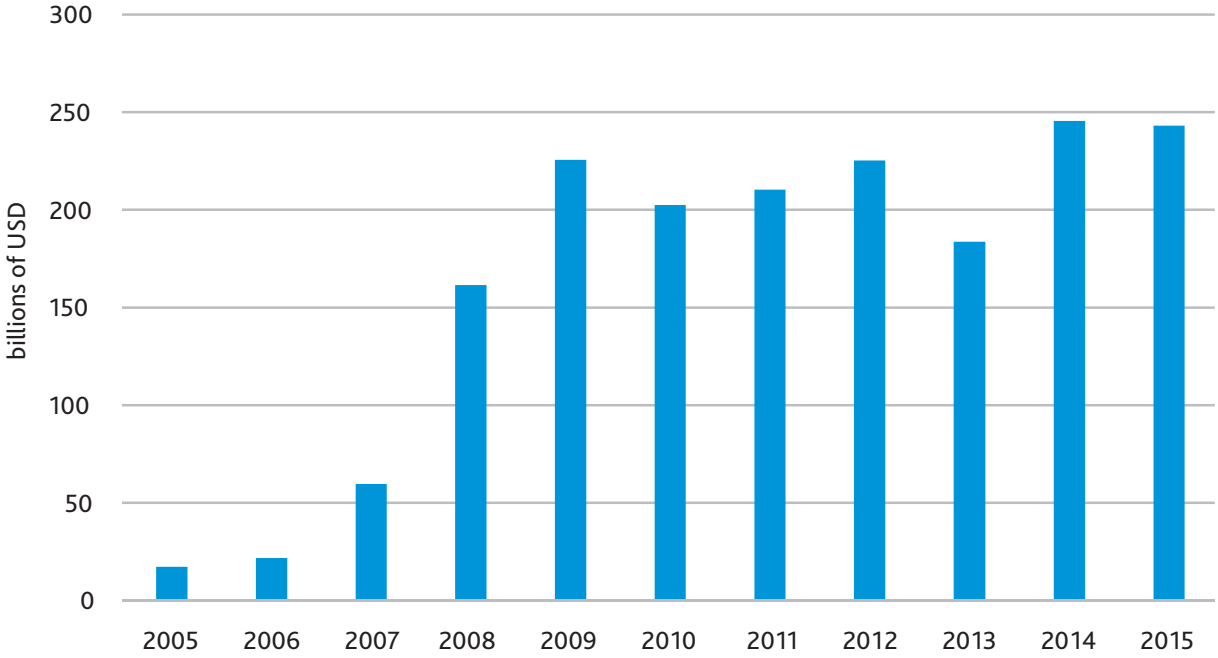


Figure 25: *Continued*



Source: FAOSTAT 2016 and MALR 2014

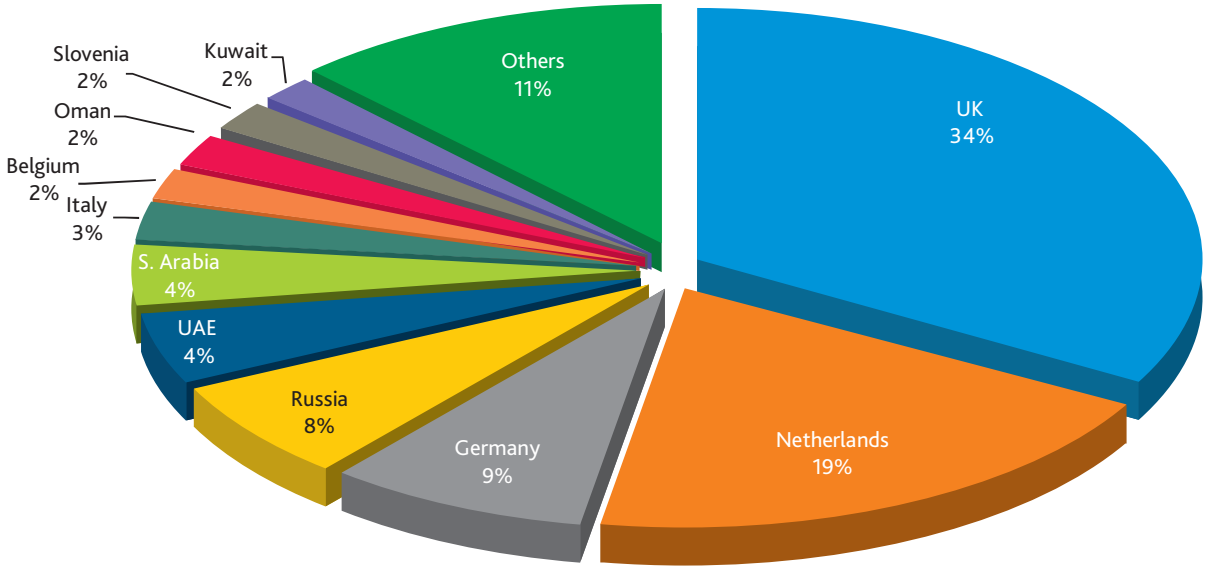
Figure 26: Export value for table grapes in Egypt, 2005-2015



Source: UN Comtrade 2016

The main destinations for Egyptian grapes were the United Kingdom, the Netherlands, Germany, Italy, and the Russian Federation in 2015 (see Figure 27).

Figure 27: Destinations of Egyptian table grapes exports, 2015



Source: UN Comtrade 2016

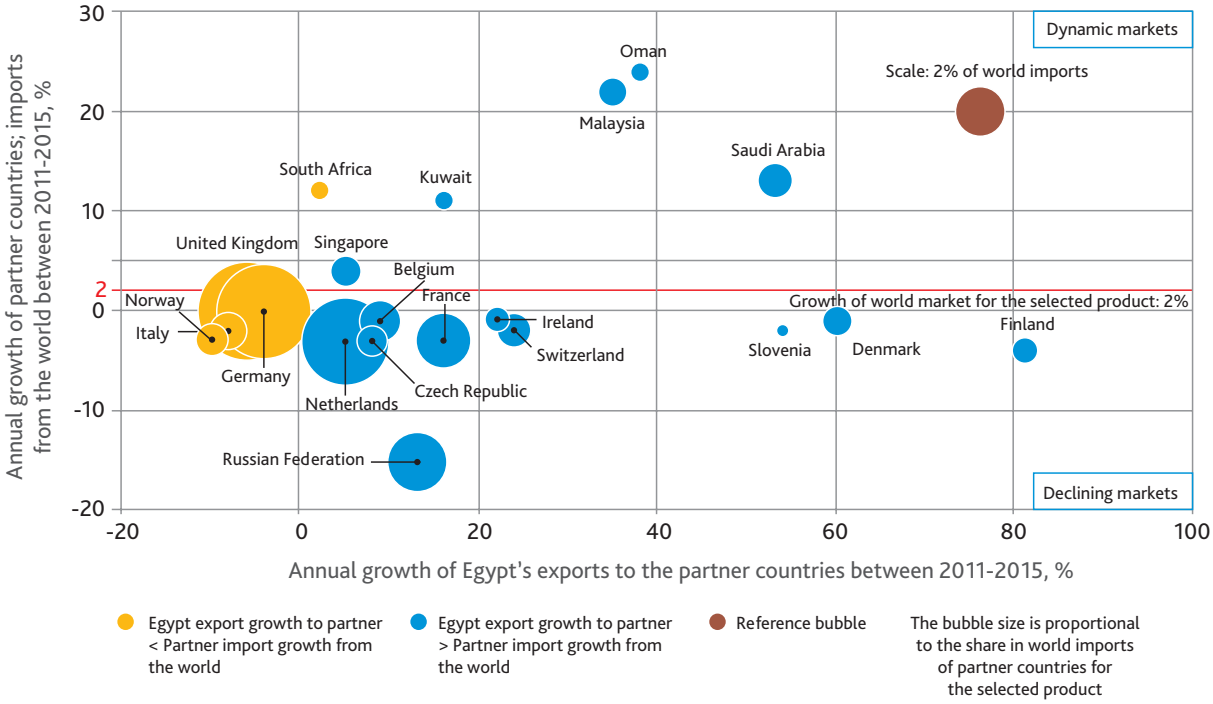
Egypt competes in the EU markets with other net grape exporters from the EU, such as Spain and Italy (which are both exporters and importers of). In all its markets South Africa and Turkey are important competitors, while Peru, Chile, and India have emerged as important in Gulf markets, and in the Russian Federation.

India is a rather new player in the fresh grapes market; Chilean grapes are difficult to compete with in terms of quality, safety, and cost advantage. The Russian market is less organised in terms of inspections on safety and quality standards, and Egyptian and Turkish exports are in proximity. In the Gulf market, the comparative advantage of South African grape exports is greater than that of Egyptian ones.

The average annual growth of the volume of grape exports to Germany, the Netherlands, the United Kingdom, and the Russian Federation was negative during 2011-2015. In Germany, the United Kingdom, and Italy, imports from the world grew at a faster pace than Egyptian grape exports to these destinations.

Target markets for diversification would be Saudi Arabia, Oman, Malaysia, and Kuwait, as their grapes imports are increasing; furthermore, grape imports from Egypt in these countries are increasing at a higher rate (Figure 28).

Figure 28: Prospects for market diversification for grapes exported by Egypt, 2015



Source: ITC 2016

The ad valorem equivalents of the tariffs applied on Egyptian grape exports in importing markets and on its close competitors in these markets do not show a wide differential. Egypt has a tariff rate advantage over Spain and Italy in the Russian Federation, but Turkey also benefits from the same advantage in addition to its proximity. The Russian Federation has bound its tariff rate at 5 percent, meaning that the country would be able to increase its rate to a maximum of 5 percent in countries that currently observe lower rates. Applied rates in the EU and Saudi Arabia are also lower than the maximum rate, and maximum rates in those countries are set at 9.55 percent and 5.00 percent respectively. As is the case for Egyptian orange exports into EU countries, Egyptian grapes exports into the EU have not been subject to the EU's entry price system since 2010 (see Tables 12 and 13). However, exports of grapes of the variety Emperor are subject to additional documentation, "Certificate of authenticity fresh 'Emperor' table grapes" (TARIC Database 2016).

Table 12. Tariffs applied on Egyptian grapes in leading target markets, 2014-2016

Importing country	Year	Total ad valorem equivalent tariff
Belgium	2015	0.00%
Germany	2015	0.00%
Italy	2015	0.00%
Kuwait	2015	0.00%
Netherlands	2015	0.00%
Oman	2015	0.00%
Russian Federation	2016	3.75%
Saudi Arabia	2014	0.00%
United Kingdom	2015	0.00%

Source: ITC 2016

Table 13. Tariffs applied on Egyptian grapes and selected competitors by Russia, Saudi Arabia, EU, 2016

Exporting country	Year	Total ad valorem equivalents tariff in Russian Federation	Total ad valorem equivalents tariff in Saudi Arabia	Total ad valorem equivalents tariff in EU
Chile	2016	3.75%	0.00%	0.00%
Egypt	2016	3.75%	0.00%	0.00%
Italy	2016	5.00%	0.00%	0.00%
Peru	2016	3.75%	0.00%	0.00%
Spain	2016	5.00%	0.00%	0.00%
Turkey	2016	3.75%	0.00%	0.00%

Source: ITC 2016

www.ictsd.org

Other recent selected publications from ICTSD's Programme on Agricultural Trade and Sustainable Development include:

- Public Stockholding for Food Security Purposes: Options for a Permanent Solution. By ICTSD, 2016.
- Comparing Safeguard Measures in Recent Regional and Bilateral Trade Agreements. By Willemien Viljoen, 2016.
- Trade, Food Security, and the 2030 Agenda. By Eugenio Díaz-Bonilla & Jonathan Hepburn, 2016.
- Evaluating Nairobi: What Does the Outcome Mean for Trade in Food and Farm Goods? By ICTSD, 2016.
- Agriculture and Food Security: New Challenges and Options for International Policy. By Stefan Tangermann, 2016.
- From Nairobi to Confidence Building Measures in Geneva. By Crawford Falconer, 2015.
- National Agricultural Policies, Trade and the New Multilateral Agenda. By ICTSD, 2015.
- Japanese Agriculture Trade Policy and Sustainable Development. By Kazuhito Yamashita, 2015.
- The 2014 US Farm Bill and its Effects on the World Market for Cotton. By Christian Lau, Simon Schropp and Daniel Sumner, 2015.
- How could Mega-Regional Trade Negotiations Affect Agricultural and Food Trade? By Remy Jurenas, 2015.
- Argentina's Agricultural Trade Policy and Sustainable Development. By Marcelo Regúnaga, Agustín Tejeda Rodriguez, 2015.

About ICTSD

The International Centre for Trade and Sustainable Development (ICTSD) is an independent think-and-do-tank, engaged in the provision of information, research and analysis, and policy and multistakeholder dialogue, as a not-for-profit organisation based in Geneva, Switzerland. Established in 1996, ICTSD's mission is to ensure that trade and investment policy and frameworks advance sustainable development in the global economy.