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THE ORGANIC AGRICULTURE IN EGYPT

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ABBREVIATIONS

ARC	Agricultural Research Center
EU	European Union
FAO	Food and Agriculture Organization
GDP	Gross Domestic Product
GOE	Government of Egypt
IFOAM	International Federation of Organic Agricultural Movement
OA	Organic Agriculture
OF	Organic Farming
MALR	Ministry of Agriculture and Land Reclamation
R&D	Research & Development
NOP-USDA	US National Organic Program
JAS	Japanese Agricultural Standards
EBDA	The Egyptian Biodynamic Association
UGEoba	The Union of Growers and Exporters of Organic and Biodynamic Agriculture
FOAS	Fayoum Organic Agriculture Society
TYOG	Tomorrow's Youth for Organic Agriculture
EAPA	Ecological Agriculture Protection Association
ECOAS	Egyptian Center of Organic Agriculture Society
WSOAD	Wafaa Society for Organic Agriculture Development
EAGA	Council of organic agriculture within Egyptian Agribusiness Association
NGOs	Non-Governmental Organizations
GOE	Government of Egypt
MoTI	Ministry of Trade and Industry

MEASUREMENTS

LE	Egyptian Pound (= US\$ 0.056)
US\$	United States Dollar (= LE 17.87)
MT	Metric Ton
MMT	Million Metric Tons
M³	Cubic Meter

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I. INTRODUCTION

This report tackles the current situation and potential of organic agriculture (OA) in the context of Egyptian agricultural economy. The report contains five sections as well as the introduction. The introduction presents an overview of Egyptian agricultural sector as well as organic agriculture (OA) in global context. The second presents an overview of organic agriculture in Egypt, while the third section discusses the institutional framework of organic agriculture in Egypt. The fourth section shows the current situation of management and certification of OA in Egypt. The 5th section presents challenges facing expansion of organic agriculture. Finally, in the last section, an assessment of organic sector development in Egypt is discussed.

It should be referred to the fact that the information available in terms of OA in Egypt is very scarce. There are no official data issued by the concerned Ministry; i.e. the Ministry of Agriculture and Land Reclamation (MALR). In this regard, the scarcity of organic sector data applies also to the markets and market channels of organic products, where there are no or little official information available. The data that are already available and presented in this report, are few and scattered, and are collected mainly from two sources: first, private sector sources, particularly NGOs and private sector enterprises working on certification as well as the organic producers and companies, second, the international statistics concerning OA.

1.1 Overview of Egypt's Agricultural Sector

The agricultural sector is an integral component of Egyptian economy. In 2017, it contributed about 12% of the national GDP (US\$ 235 billion), 19% of the national exports (US\$ 25 billion), and 21% of the national imports (US\$ 65 billion). Industries and services related to agriculture account for another 20% of national GDP. Therefore, agriculture and related industries and services together contribute 32% of Egypt's GDP. Approximately 26% of Egyptian workforce (25 million workers) is engaged directly in agricultural activity, and many other Egyptians work in the processing or trading of agricultural products.

For about 53 million Egyptians live in rural areas (56% of total population), agriculture represents the major source of livelihood and food security. **With 70% of poor Egyptians living in rural areas, agriculture has a potential effectiveness in fighting poverty greater than any other sector.**

About 60% of the national food demand is met by domestic production. Major crops produced include wheat, maize, rice, sugar crops, fodder crops, edible oil crops, pulses, and horticultural crops including fruits, vegetables and medicinal and aromatic crops. Livestock and fish also make an important contribution to agricultural production. Major export crops include oranges, potatoes, cotton, and other fruits and vegetables.

Egypt's area of cultivable land is very small but highly fertile. It is located for the most part along the Nile and in the Nile Delta. Overall, Egypt is a net importer of agri-food products and the self-sufficiency ratios for these products have declined considerably since the 1960's. Currently, the overall food gap, met by imports, is about 40% of the national food demand. Egypt suffers from severe food shortage in basic food commodities, in particular, wheat, maize, edible oil and sugar.

As will be discussed below, Egyptian agriculture faces considerable challenges in view of overtime increasing pressure of population on the limited land and water resources and adverse consequences reflected, on one hand, in scarcer land and water resources leading to landholdings fragmentation and reduced per capita water, and on the other hand, in

deterioration in quality of land and water resources represented in land degradation, and water pollution.

1.2 Organic Agriculture in Global Context

Approximately, a quarter of all certified organic land was located in developing countries. Certified land areas in Africa, Asia and Latin America have grown substantially since 1999. Organic producers in developing countries constitute 82% of all organic producers worldwide.

Growth of organic/bio-agriculture has been accelerating worldwide; the organic/bio area increased from 1.15 million ha in the early 1970s to 11 million ha in 1999 and reached 43.7 million ha in 2014 and 57.8 million ha in 2016, nearly 5 times increase in 17 years with an annual growth rate of more than 10%. On the other hand, the share of the organic agricultural land in the total agricultural land is increasing in most of the world's countries, and there is a remarkable increase in the demand for organic products in recent years.

Certified organic agriculture (OA) has grown rapidly in the past decades, emerging from a niche production system to a global-scale food sector. The global development of organic agriculture has been driven by a large demand for organic products in the global markets especially in the USA and Europe.

II. AN OVERVIEW OF ORGANIC AGRICULTURE IN EGYPT

2.1 Position in Africa

The history of organic agriculture in Egypt can be traced to the year 1977, the time when organic agriculture started through the establishment of a biodynamic farm of 20 ha, which expanded rapidly to 70 ha, in the desert of Belbeis (a district of Sharkia governorate, in the north east of the Nile Delta).

According to the most recent data in terms of organic land areas, Egypt is the 7th top African country following Tanzania, Uganda, Ethiopia, Tunisia, Kenya, and Sudan (Table 1).

In 2016, the area under organic management in Egypt reached 105 908 ha accounting for 5.9% of total organic land area in Africa. Looking at the share of organic land area in total agricultural land, Egypt comes on the top with 2.8% followed by both Uganda and Tanzania with 1.8% and the share of Africa is 0.2%.

Table 1: EGYPT'S RANKING AMONG TOP AFRICAN COUNTRIES FOR ORGANIC AGRICULTURE, 2016

Rank	Country	Organic agriculture land area (Ha.)	% to Africa's organic area	Share of organic area in total agric. Land by Country (%)
	Africa	1801699	100	0.2
1	Tanzania	268 729	14.9	0.7
2	Uganda	262 282	14.6	1.8
3	Ethiopia	186 155	10.3	0.5
4	Tunisia	181 076	10.1	1.8
5	Kenya	154 488	8.6	0.6
6	Sudan	130 000	7.2	0.2
7	Egypt	105 908	5.9	2.8
8	Congo, D.R.	94 386	5.2	0.4
9	Sierra Leone	69 686	3.9	1.8
10	Madagascar	60 023	3.3	0.1

Source: The World of Organic Agriculture Statistics and Emerging Trends, 2018, Research Institute of Organic Agriculture (FiBL), IFOAM-Organics International.

2.2 Evolution of Organic Land Area

In Egypt, intensive cultivation on a relatively limited agricultural land area corresponded with a traditionally high rate of pesticide and fertilizer use. Problems with this have been stimulating a rising interest in organic production leading to a rapidly growing organic sector.

The evolution of organic land area in Egypt during the period 2000-2016 is presented in Table 2 and Figure 1.

From 2000 to 2005, the area under organic agriculture increased from 2 667 ha to 24 548 ha, making an increase by a factor of 9 during this five year period.

In 2010, the organic area grew to 82 167 ha which is more than 3 times the area in 2005. The organic area continues increasing during the next years but at slower rate. In 2016, the area reached 105 908 ha which is 28.9% higher than that in 2010. Throughout the period 2005-2016, the organic land area has grown rapidly at 18.2% annually. This growth rate is more than 3 times the growth of world organic area (5.6%) during the same period.

In addition, the share of organic area in the total agricultural land area in Egypt increased from 0.7 % in 2005 to 2.8 % in 2016, indicating the increasing interest in organic agriculture. These shares are even higher if compared to those at the world level, which increased from 0.6% in 2005 to 1.2% in 2016.

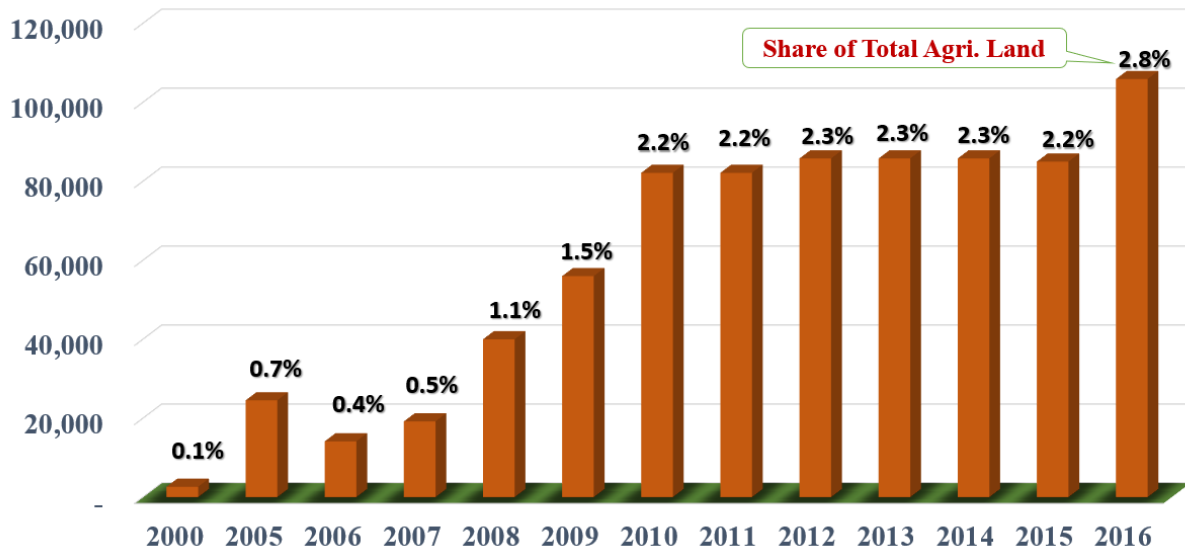
Table 2: ORGANIC AGRICULTURAL LAND AREA AND SHARE OF TOTAL AGRICULTURAL LAND IN EGYPT IN COMPARISON TO WORLD, 2000-2016

Year	Egypt		World	
	Area (Ha.)	% Share of total agri. Land	Area (Ha.)	% Share of total agri. Land
2000	2 667	0.1	15 813 817	0.3
2005	24 548	0.7	28 573 037	0.6
2006	14 165	0.4	30 200 000	0.6
2007	19 206	0.5	32 221 311	0.7
2008	40 000	1.1	35 231 132	0.7
2009	56 000	1.5	37 093 530	0.8
2010	82 167	2.2	37 041 004	0.8
2011	82 167	2.2	37 357 155	0.8
2012	85 801	2.3	37 490 215	0.8
2013	85 801	2.3	43 196 160	0.9
2014	85 801	2.3	44 403 982	0.9
2015	85 000	2.2	50 276 260	1.1
2016	105 908	2.8	57 816 759	1.2
A.G.R¹ 05-16	18.18%		5.62%	

A.G.R¹ = Annual growth rate.

Source: The World of Organic Agriculture Statistics and Emerging Trends, Research Institute of Organic Agriculture (FiBL), IFOAM-Organics International.

Figure 1: EVOLUTION OF ORGANIC LAND AREA IN EGYPT, 2000-2016.



Source: Table 2

2.3 Number of Organic Farms and Size

Parallel to the expansion in the area under organic management, there has been increasing number of farms. At the beginning, as has been mentioned, there was one farm of 20 ha established by SEKEM.

The SEKEM Group, founded in 1977, is a producer, processor and marketer of organic and biodynamic groceries, dried foods, textiles and natural pharmaceuticals in Egypt, the Arab region and the international market. SEKEM consists of multiple individual firms organized as a holding company, together with the group's NGO-branch, including the Society for Cultural Development in Egypt and the Egyptian Biodynamic Association.

In 2005, there were about 500 organic agricultural enterprises (IFOAM & FiBL 2006). Many of these farms are 'desert' farms (it means farms located in the new reclaimed land), using irrigation from the Nile. This number of farms covered the reported area for 2005 (24 548 ha) which means that average farm size is 49ha.

In 2016, the number of organic farms grew to approximately 970 farms covering the reported area of 105 908 ha, and almost half of the farms were located in the Middle Egypt governorates, concentrated in the Governorate of Fayoum, 100 Km south of Cairo.

More than half of the organic farms in Egypt are 4.5 to 20 hectares in size. There are only a few farm enterprises larger than 420 ha, accounting for 20% of total organic farmland, and are located in the new reclaimed desert land in the Delta and in the Upper Egypt (Table 3).

Table 3: EVOLUTION OF ORGANIC AGRICULTURE LAND AREA, CONVENTIONAL AREA, SHARES IN TOTAL AGRICULTURAL LAND, 2004-2016

Year	Total Agri. Land of Egypt	Organic		Conventional		Number of Organic Farms
	000' Ha.	000' Ha.	% to Total	000' Ha.	% to Total	
2005	3 494	25	0.7	3 469	99.3	460
2006	3 505	14	0.4	3 490	99.6	460
2007	3 510	19	0.5	3 490	99.5	460
2008	3 513	40	1.1	3 473	98.9	500
2009	3 660	56	1.5	3 604	98.5	500
2010	3 626	82	2.3	3 543	97.7	790
2011	3 591	82	2.3	3 509	97.7	790
2012	3 666	86	2.3	3 581	97.7	790
2013	3 731	86	2.3	3 645	97.7	900
2014	3 715	86	2.3	3 629	97.7	900
2015	3 790	85	2.2	3 705	97.8	900
2016	3 792	105,9	2.8	3 686	97.2	970

Source: Central Agency for Public Mobilization and Statistics (CAPMAS).

With regard to distribution of total organic among Egypt's governorates, Table 4 and Figure 2 shows that Behera Governorate has the largest share with 28.3% of the total organic that is reported for the agricultural year 2015/2016.

Fayoum Governorate has the second largest share with 25.7% of the total organic area. So, the two governorates together grow about 47 629 ha which is more than half (54%) of Egypt's total organic area.

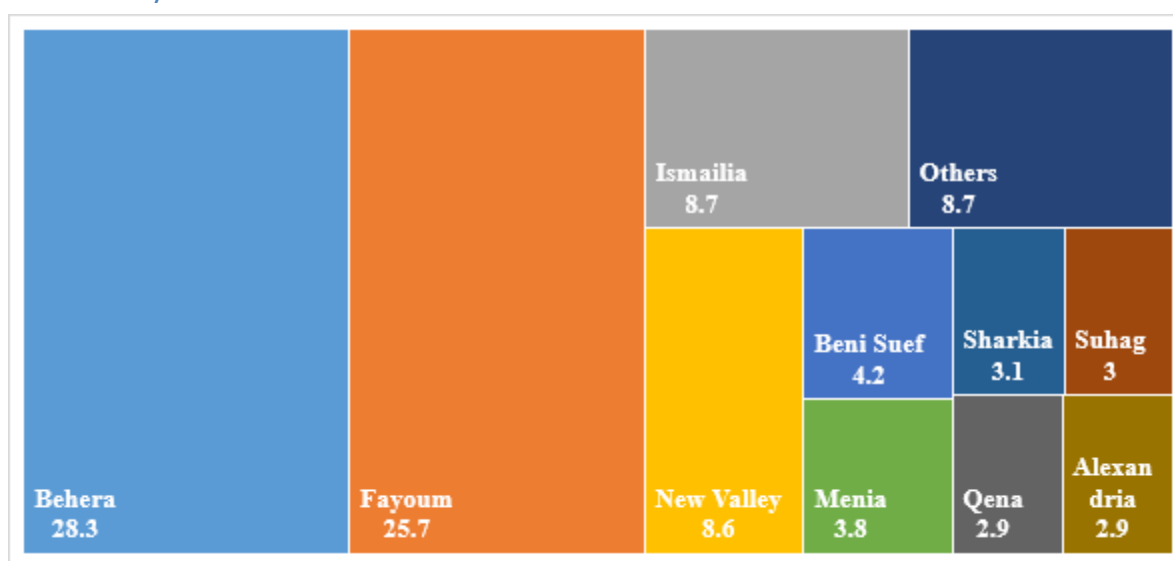
Occupying the third and fourth ranks come the governorates of Ismailia and New Valley with almost equal shares; 8.7% and 8.6% respectively. The governorates of Beni Suif, Menia, Sharkia, and Sohag have a share between 3% to 4.2%.

Table 4: DISTRIBUTION OF NATIONAL ORGANIC AREA BETWEEN GOVERNORATES IN 2015/2016

Rank	Governorate	Organic Agriculture Area	
		Ha.	%
1	Behera	29 972	28.3
2	Fayoum	27 218	25.7
3	Ismailia	9 214	8.7
4	New Valley	9 108	8.6
5	Beni Suef	4 448	4.2
6	Menia	4 024	3.8
7	Sharkia	3 283	3.1
8	Suhag	3 177	3.0
9	Qena	3 071	2.9
10	Alexandria	3 071	2.9
11	Giza	2 753	2.6
12	Menoufia	1 483	1.4
13	Assuit	1 377	1.3
14	Matruh	741	0.7
Others		2 965	2.8
Total		105 908	100

Source: Central Agency for Public Mobilization and Statistics (CAPMAS).

Figure 2: TOP TEN GOVERNORATES OF AGRICULTURE ORGANIC AREA IN 2015/2016.



2.4 Key organic products

A large number of crops are produced organically in Egypt (Tables 5, 6, and Figure 3). According to statistics from the Research Institute of Organic Agriculture (FiBL) and IFOAM-Organics International, the total area grown with organic products and certified in Egypt amounts to 105 908 ha in 2016. The range of certified organic products currently produced include vegetables, medicinal and aromatic plants, field crops, fruits, fodder, oil crops, fiber crops, and sugar.

An area of 32 302 ha is occupied by vegetable crops with the largest share (30.5% of the total organic area). The most important vegetables grown organically include potatoes, onion, garlic, beans, sweet and hot peppers, cucumbers, leek, standard and cherry tomatoes, squash, iceberg, lettuce, carrots and peas.

In the second rank is the group of organic medicinal and ornamental plants which are cultivated in an area of 28 066 ha representing 26.5% of the total organic area. These plants include marjoram, caraway, anise, calendula, spearmint, peppermint, basil, thyme, hibiscus, cumin, celery, parsley, dill, geranium, fennel, lemon-grass and chamomile.

The area of organic field crops, amounts to 18 746 ha or 17.7% of the total organic area occupying the third rank. Cereal crops are the most important organic field crops.

Organic fruits, in the fourth rank, are cultivated in 15 357 ha (14.5% of the total organic area). These include strawberry, melon, grapes, apricots, peach, apples, citrus, lemons, lime, oranges, mandarins, pears, pomegranates, mangos, pineapples, papaya, avocados, and tropical fruits (fresh).

The remaining organic area is cultivated with fodder crops (Egyptian clover), oilseed crops (peanuts and sesame), fiber crops (cotton and flax), and sugar crops (sugar beet), with areas of 4 978 ha, 4 236 ha, 1 589 ha, and 635 ha respectively. As indicated in Table 6, cotton area under organic management amounts to 581 ha which produced 1 023 MT in 2016.

Table 5: AREAS OF PRODUCTS CULTIVATED ORGANICALLY IN EGYPT, 2016

Groups	Organic Agriculture Area	
	(Ha)	%
Vegetables	32 302	30.5
Medical and Aromatic Plants	28 066	26.5
Field crop	18 746	17.7
Fruits	15 357	14.5
Fodder Crops	4 978	4.7
Oil Seed Crops	4 236	4.0
Fiber Crops	1 589	1.5
Sugar Crops	635	0.6
Total	105 908	100.0

Source: Research Institute of Organic Agriculture (FiBL), IFOAM-Organics International, the World of Organic Agriculture Statistics and Emerging Trends.

Figure 3: COMPOSITION OF ORGANIC AREA BY PRODUCT, 2016

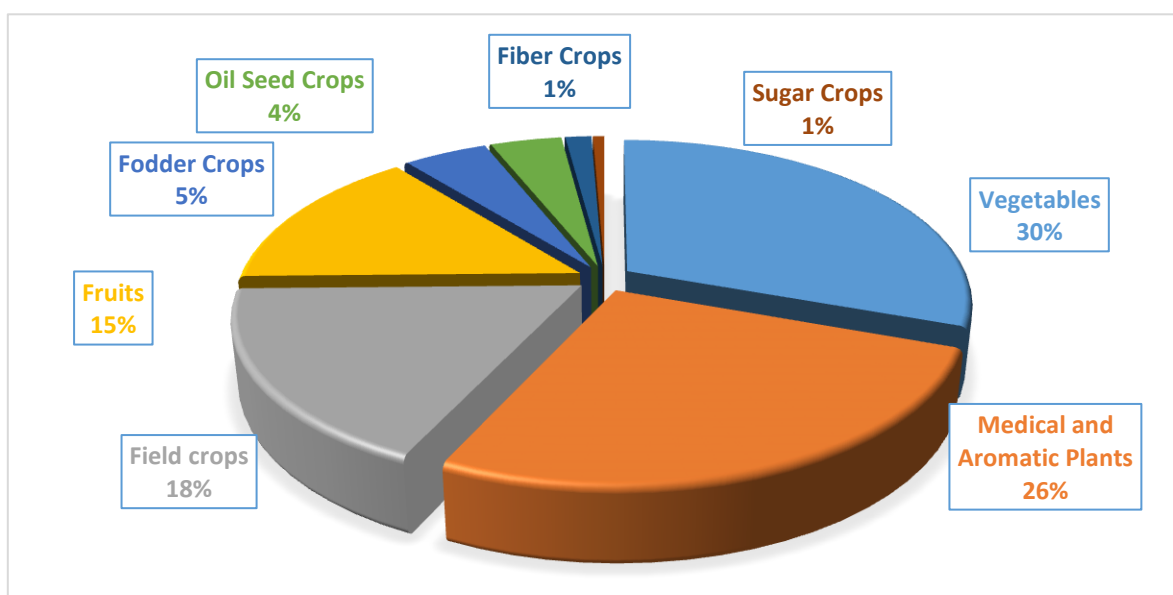


Table 6: ORGANIC COTTON AREA, PRODUCTION, AND NO. OF FARMS IN EGYPT, 2016

ITEMS	Unit	Egypt	% To World
Number of farmers	No.	584	0.27
Certified organic land area	Ha.	581	0.19
Production of organic seed cotton	MT	2 622	0.88
Production of organic cotton fibers	MT	1 023	0.95

Source: Research Institute of Organic Agriculture (FiBL), IFOAM-Organics International, the World of Organic Agriculture Statistics and Emerging Trends.

2.5 Organic Industry

Several industries using organic raw materials are established in Egypt. These include the following:

Organic food processing: There are no data available for any factory specialized in organic processed food in Egypt, however, upon interviews with some experts in the field, there are many food processing factories having an organic unit dedicated to producing organic processed foods such as dehydrated vegetables and fruit; frozen vegetables and fruit; French fries; juices; jams; essential and fixed oils; and cereals.

Pharmaceutical industry: Two pharmaceutical factories produce medicines from organic raw materials.

Textile industry: Six factories produce organic textiles using cotton grown according to Demeter¹ and IFOAM organic textile standards.

2.6 Organic Products' Markets and Export Destinations

Egyptian market for organic produce is very small. This is due to lack of awareness, low-income levels, lack of local organic standards and other infrastructure for local market certification.

Therefore, most certified organic production in Egypt is geared towards export markets, and up to half of Egypt's organic produce (40-50%) is exported. As for the export destinations, the EU is Egypt's largest market for agricultural products (and the world's largest organic market) and the USA is the second major market. Almost all of Egypt's bio/organic production are exported to EU and the USA. Other markets with minor shares include Canada, Australia and Japan. Exports of Egypt's organic products are presented in Table 7.

The major crops exported to the EU are herbs, vegetables and fruits. The most important herbs are chamomile, coriander, dill, lemongrass, hibiscus, marjoram, parsley, peppermint and spearmint. For vegetables, the most important crops are potatoes, onions, garlic, green beans, peppers and peas. The major fruit crops for export are various citrus, mangos, grapes and olives. Egyptian organic exports benefit from the off-season supply to the European market, and especially potatoes and onions have found a niche due to storing and preservation problems of these products in countries with cold and humid climates. The remainder (50-60%) is sold domestically, mainly in local markets but some is also sold at shops and pharmacies.

Table 7: EGYPT'S EXPORTS OF ORGANIC PRODUCTS, 2004/2005

Product	Quantity (MT)
Vegetables	10 182
Fruit	984
Medicinal plants	571
Crops	485
Essential oil	104
Textiles from organic cotton	67
Cotton	13
Total	12 406

¹ Demeter International is the largest certification organization for biodynamic agriculture, and is one of three predominant organic certifiers. Its name is a reference to Demeter, the Greek goddess of grain and fertility. Demeter Biodynamic Certification is used in over 50 countries to verify that biodynamic products meet international standards in production and processing. The Demeter certification program was established in 1928, and as such was the first ecological label for organically produced foods.

Source: Collected from five certification bodies.

Domestic sales of organic products are concentrated around the urban area of Cairo and Alexandria. Shops in high-income areas with a presence of affluent foreigners accounts for much of the market. Shopkeepers estimate that 60 to 70% of the consumers are foreigners. The SEKEM farm used to have fifteen of their own shops in Cairo, but have now reduced the number to three, due to expanding sales of their products through supermarkets like Carrefour, Metro, Alfa, and Spinneys. Most of the shops selling organic products are placed in large shopping malls. Many pharmacies in Cairo sell organic medicinal plants, essential oils and tea, and in all the types of shops mentioned above, SEKEM is the main supplier.

III. THE INSTITUTIONAL FRAMEWORK OF THE ORGANIC AGRICULTURE IN EGYPT

The institutional framework is of critical importance for organic production growth. In the case the organic sector is emerging, as the case of Egypt, the institutional support provided by Governmental Organizations (GO's) plays a crucial role in the organic sector development. **However, due to the absence of Egyptian organic law legislation, so far, the organic network could not be as efficient in coordinating the roles of actors within the whole organic chain as they could be.** The private sector also has dispensable role integrating with the public support in meeting the services required for the sector. Below is identification of both GO's and NGO's (including private sector enterprises) with respect to organic agriculture in Egypt.

3.1 Governmental Organizations

3.1.1 The Agricultural Research Center (ARC)

The ARC is affiliated to the Ministry of Agriculture and Land Reclamation (MALR) and has several departments within various internal research institutes that deal directly or indirectly with one or more aspects of organic agriculture organic agriculture. These departments include:

- i. the Department of Soil Microbiology within the Soil, Water and Environment Research Institute, which carries out research on compost, nitrogen fixing organisms, etc.;
- ii. the Department of Biological Control within the Plant Pathology Research Institute; which carries out research on agents controlling plant diseases;
- iii. the Department of Biological Control within the Plant Protection Research Institute, which identifies biological control agents against insects.

3.1.2 Central Laboratory for Organic Agriculture (CLOA)

The Central Laboratory for Organic Agriculture (CLOA), affiliated to the Ministry of Agriculture and Land Reclamation (MALR) was established in 2002.

The functions of this laboratory are to:

- i. Organize organic agriculture training courses for the private and public sector including agricultural extension specialists, farmers, processors and exporters, and to increase public awareness;
- ii. Establish a database on organic farming and register all accredited organic farms in Egypt;
- iii. Coordinate the work of the certification bodies working within Egypt;
- iv. Make specifications for organic products sold in the local market and export;
- v. Carry out research to solve problems concerning organic agriculture focusing on medicinal plants and aromatic plants (MAPs) as well as fruit and vegetables;
- vi. Provide alternatives to agrochemicals.

3.1.3 Governmental University Departments

There are only two universities in Egypt that have departments that focus on organic agriculture. At Al-Azhar University, the Department of Environment and Organic Agriculture was established in 1997, started formal teaching in 1999-2000 and had its first graduates in June 2001. At Ain Shams University the faculty of agriculture recently approved the

establishment of a Department of Organic Agriculture, and teaching started in the 2005/2006 winter semester.

3.1.4 Agriculture and Biology Research Division, National Research Center

The Agricultural Division is part of the National Research Centre (under the Ministry of High Education and Scientific Research), which is characterized by multi-disciplinary research teams, where problems can be resolved by the combined efforts of specialists from different agricultural fields to find the best solutions. The Agricultural Division has many various groups of experts and specialists in all branches of agricultural sciences. Adoption of organic farming as a vital system for producing healthy food is one of the objectives of the Agricultural Division. It concentrates on compost & waste - cropland yield - fruit & vegetables.

3.2 Private Sector and Non-governmental Organizations (NGOs)

The private sector and NGOs play a significant role in supporting and promoting the organic movement in Egypt. The most important of these organizations are as follows /

3.2.1 The Egyptian Biodynamic Association (EBDA)

The Egyptian Bio-Dynamic Association (EBDA)-established since 1994, is an independent non-governmental organizations that supports farmers in Egypt to shift from conventional agricultural practices to sustainable biodynamic ones. EBDA is guiding neither almost 500 farmers contracted with SEKEM all over Egypt with an aim of maintaining sustainable agriculture that would neither harm the environment nor any living being. The EBDA provides training, research, and advisory services in field of organic farming and is a subsidiary initiative of the SEKEM group, which has been responsible for most of the early development of the organic sector in Egypt.

3.2.2. The Center of Organic Agriculture in Egypt (COAE)

The Center of Organic Agriculture in Egypt (COAE) is a private company founded in 1990 to provide organic and biodynamic agriculture training and consultation. Over the years, activities progressed from training and consultation to inspection and certification based on the international regulations and standards with the vision of becoming the leading certification and technical services provider in the Egyptian food supply chain. Since about 10 years, COAE is accredited according to EN45011 (ISO65) and recognized by the EU, international Demeter Organization and Global Gap as an inspection body operating in a third country.

3.2.3. Other Organizations

There are also several organizations, which work, under the umbrella of the Exporters' Union, on determining the priorities of the organic farming sector, in particular: quality issues such as how to minimize the microbiological content in organic products, and the different specifications required by the EU Regulation, NOP-USDA and JAS.

- The Union of Growers and Exporters of Organic and Biodynamic Agriculture (UGEoba) established in 1998.

- Fayoum Agro-Organic Agriculture Development Association (FAODAS) established in 2003 (FOAS).
- Tomorrow's Youth for Organic Agriculture (TYOG).
- Ecological Agriculture Protection Association (EAPA).
- Egyptian Center of Organic Agriculture Society (ECOAS).
- Wafaa Society for Organic Agriculture Development (WSOAD).
- Council of Organic Agriculture within Egyptian Agribusiness Association (EAGA), founded in 2000.
- Committee on organic agriculture within the Commodity Council (Ministry of Trade and Industry). Although the council is a governmental body, the Committee encompasses representatives of private businesspersons working in the field of organic production as well as the Ministry Senior Officials.

All these organizations provide training and extension to their members in the area of organic agriculture. The largest groups are the Egyptian Biodynamic Association (EBDA) and the Union of Growers and Exporters of Organic and Biodynamic Agriculture (UGEOBA). Some of the other groups, e.g. FAODA, EAPA and TYOG are local associations or umbrella associations concerned with organic agriculture. The activities of these organizations extend to the marketing of organic products and developing organic farming systems.

The following activities are performed by the abovementioned organizations:

- a) Support legislation for national organic laws.
- b) Support the production of Egyptian standard specifications (ESS).
- c) Improve the farmers' awareness of how to minimize the microbial content of different products.
- d) Establish one or two laboratories for pesticide residue analysis.
- e) Encourage the development of the Central Laboratory of Organic Agriculture into a research and extension body, with help from the NGOs, to coordinate the organic movement and disseminate the knowledge and the culture of organic agriculture among farmers and extension staff.
- f) Encourage and support the establishment of organic and consumer protection associations.
- g) Establish a database and information centers for organic farming.
- h) Establish a market information centers for organic produce.
- i) Encourage exports to international markets.
- j) Encourage the establishment of an organic exhibition.
- k) Increase public awareness of organic agriculture and the need for safe food.

3.3 International Programmes

There are number of international programmes that work on promoting organic farming in Egypt. These include:

- 1) Italian technical assistance programmes: there are two projects implemented in Fayoum and Mersa- Matruh dealing with organic development. The two projects assist the farmers with establishing farmer' associations. The project will then provide training on organic agriculture principles and application.
- 2) CARE International provides similar services to farmers in the governorates of Qena, Sohag (in the south of Nile Valley) and Fayoum. There are thirteen associations in the governorates with a total membership of about 750 farmers. All are trained in organic agriculture. About 10-15% of these trained producers have converted to organic production. CARE has also established some associations for marketing organic produce.
- 3) USAID project (AERI) provides training for farmers in organic production. The programme also provides study tours for selected farmers to visit organic farming in developed countries such as the Netherlands, Germany and Spain.
- 4) FAO provides technical assistance to the country to enhance organic development.

3.4 Egyptian Organic Agriculture Legislation

Egypt, so far, has no organic legislation, but has national production standards. A ministerial decision No. 1411 in December 2008 has been issued adopting the standards governing organic agriculture in Egypt and is in the force of law until the law on organic agriculture is issued. Such standards provide a national definition of organic products and reference point for certification activities. They do not necessarily lead to the adoption of a national inspection and certification system which would be supervised by the government.

The Draft Law for Organic agriculture was prepared by the GOE and submitted to Parliament for ratification one year ago. Currently, it is being discussed and may sometime be finally ratified and then become effective. The draft of Egyptian legislation follows largely the EU legislation. It contains 32 articles arranged under 6 Titles as presented in the Table below.

Structure of Organic Agriculture Draft Law in Egypt

TITLE I		AIM, SCOPE AND DEFINITIONS
	Article 1	Aim and Scope
	Article 2	Definitions
TITLE II		OBJECTIVES AND PRINCIPLES FOR ORGANIC PRODUCTION
	Article 3	Objectives
	Article 4	Overall Principles
	Article 5	Principles Applicable to Farming
	Article 6	Principles Applicable to Processing of Organic/bio Food
	Article 7	Principles Applicable to Processing Organic/bio Feed

TIRLE III	PRODUCTION RULES	
CHAPTER 1	General Production Rules	
	Article 8	General Requirements
	Article 9	Prohibition of the Use of GMO
	Article 10	Prohibition of Ionized Radiation
CHAPTER 2	Farm Production	
	Article 11	General Organic/bio Farm Production Rules
	Article 12	Plant Production Rules
	Article 13	Livestock Production Rules
	Article 14	Production Rules for Aquaculture Animals
	Article 15	Products And Substances Used In Farming And Criteria For Their Authorization
	Article 16	Conversion
CHAPTER 3	Production of Processed Feed	
	Article 17	General Rules On The Production Of Processed Feed
CHAPTER 4	Production of Processed Food	
	Article 18	General Rules On The Production of Processed Food
CHAPTER 5	Flexibility	
	Article 19	Exceptional Production Rules
TITLE IV	LABELLING	
	Article 20	Use Of Terms Referring To Organic/bio Production
	Article 21	Compulsory Indicators
	Article 22	Organic Production Logos
	Article 23	Specific Labelling Requirements
TITLE V	CONTROLS	
	Article 24	Control system

	Article 25	Adherence To The Control System
	Article 26	Documentary Evidence
	Article 27	Measures In Case Of Infringements And Irregularities
	Article 28	Exchange of Information
TITLE VI FINAL AND TRANSITIONAL RULES		
	Article 29	Free Movement Of Organic/bio Products
	Article 30	Transmission Of Information To The Commission
	Article 31	Statistical information
	Article 32	Implementation Rules

Source: Extracted from Egypt's Draft Law of Organic Agriculture in the Annex.

This Draft Law provides the basis for the sustainable development of organic production while ensuring the effective functioning of the internal market, guaranteeing fair competition, ensuring consumer confidence and protecting consumer interests. It establishes common objectives and principles to underpin the rules set out under this Law concerning all stages of production, preparation and distribution of organic products and their control; the use of indications referring to organic production in labelling and advertising.

This Law shall apply to the products originating from agriculture including aquaculture. These products include live or unprocessed agricultural products, processed agricultural products for use as food, feed, vegetative propagating material and seeds for cultivation.

The Draft Law emphasizes the biodiversity and ecosystem preservation, soil husbandry, livestock integration, prohibition of genetically engineered organisms and viewing the farm as a living "holistic organism".

In general, the Draft of Egypt's Legislation for Organic Agriculture adopts the generic definition of organic production as an overall system of farm management and food production that combines best environmental practices, a high level of biodiversity, the preservation of natural resources, the application of high animal welfare standards and a production method in line with the preference of certain consumers for products produced using natural substances and processes. The organic production method thus plays a dual societal role, where it on the one hand provides for a specific market responding to a consumer demand for organic products, and on the other hand delivers public goods contributing to the protection of the environment and animal welfare, as well as to rural development.

IV. THE CURRENT SITUATION OF MANAGEMENT AND CERTIFICATION OF ORGANIC AGRICULTURE IN EGYPT

4.1 Regulations

Organic production in the country must follow the rules and standards set by a local organization or supervisory body in accordance with the general standards and rules set by the International Federation of Organic Agriculture Movement (IFOAM). According to IFOAM, the general standards are as follows:

- a) Producing organic food products that are healthy and of high nutritional value;
- b) Maintain soil fertility;
- c) Use of renewable natural resources in agriculture;
- d) Encouraging and stimulating biological activity in agriculture;
- e) Avoiding pollution resulting from farm operations and taking into account the social dimension of the agricultural system.

4.2 Certification System and Certifiers for Organic Agriculture in Egypt

There are two levels of organic farming in Egypt, certified organic production and non-certified or agro-ecological farming. Certified production is mostly geared to products destined for exports.

Organic certification in Egypt is mainly provided by two local organizations: the Egyptian Center for Organic Agriculture (ECO) and the Center of Organic Agriculture in Egypt (COAE). Both companies are members of IFOAM and accredited according to ISO 65 by a European accreditation body to certify for EUREPGAP. Neither is accredited according to NOP-USDA and JAS yet, but they cooperate with the accredited bodies to certify their customers upon request according to NOP and JAS.

In addition to the two local organizations, there is a number of foreign certification bodies (Certifiers) working in Egypt. This number changes overtime due to exit and entry movement with regard to inspection and certification activities. Almost a decade ago, there were seven foreign certifiers; these are the Soil Association (UK), IMO (Switzerland), IMC (Italy), and from Germany, Ecocert, BSC, Lacon and QC & I. Recently, while QC&I has withdrawn, other two new certifiers have entered; CERES from Germany and a-CERT from Greece.

On the other hand, less number of certifiers performs most of the certification work. As shown from Table 8, more than 75% of the area or more than 80% of the farms registered in the year 2004/2005, were certified by the two national certification offices; ECO and COAE. The remaining area (less than 25%) covering less than 20% of farms were certified by three foreign offices; IMC (Italy), QC&I (Germany) and Soil Association (UK). The absence of Organic Agriculture Legislation, thus the lack of convenient legal environment, may explain why most of the foreign certifiers do not work at full capacity.

With respect to the standards applied by the two national offices, COAE has different agreements with different bodies such as the Soil Association, KRAV and BCS to collaborate in the field of product acceptance and inspection work. COAE has its own standards, which covers the main rules of the international norms such as IFOAM Basic Standards and the EU Regulation.

The norms that are currently applicable in Egypt are the following:

1. EU Regulations 2092/91 for organic production.

2. US National Organic Program (NOP)
3. Japanese Agricultural Standards (JAS)
4. International Demeter Guidelines for Growers and Cultivation and Demeter Processing Standards (1999 and revised 2004)
5. Social Association Standards
6. KRAV standards.
7. Bio-Suisse standards.

Table 8: LAND AND AREA UNDER ORGANIC MANAGEMENT AND NUMBER OF CERTIFIED FARMS DISTRIBUTED BY CERTIFIER IN EGYPT, 2004/2005.

Certification Office	Area Under Organic Management	Number of Certified Farms
	Ha.	No.
ECOA (National)	6282	44
COAE (National)	4285	32
Soil Association (UK)	1002	1
IMC (Italy)	977	10
QC&I(Germany)	771	7
Total	13960	94

Source: Hashem, Y.2006. Organic Agriculture in Egypt

In recent years, there is no much information available regarding the distribution of the total area cultivated under organic management between the certifiers. While those certifiers themselves are the main source of data concerning the farms and land areas under their inspection and certification, they are mostly reluctant to release these data due to competition-related reasons. Moreover, such ambiguity is encouraged by, again, the absence of organic agriculture legislation, under which inspectors and certifiers are committed to transmit information to the competent authority (see Articles 30 and 31 in the Draft Legislation discussed below).

V. CHALLENGES FACING ORGANIC AGRICULTURE IN EGYPT

Potential and promotion of organic production in Egypt is restricted by challenges and problems at two levels; first, general challenges at the whole agricultural sector level; second, specific challenges at the level of organic agricultural sector as such. Of course, the challenges at first level to a great extent reflect in some way or another on the organic sector growth.

5.1 Challenges at the Whole Agricultural Sector Level

5.1.1 Increasing Population, Water Shortage, and Widening Food Gap

Over the next three decades, Egypt will face a considerable challenge with a population projected to increase from 98 million currently (beginning of 2019) to 120 million by 2030 and to 160 million people by 2050. In view of the limited, almost fixed, water supply and the growing population leading to increasing water demand for non-agricultural uses, agriculture will inevitably face significant water availability reduction. Currently, the non-agricultural needs consume about 14% of the total water supply (about 80 billion m³ annually). With the population increase, and assuming other things constant, such a share will increase to 18% and 24% in 2030 and 2050 respectively leaving only 82% and 76% of the total water supply for agricultural production. Consequently, there is a risk that the area of agricultural land will be reduced proportionally. Growing water scarcity will increasingly constrain agricultural and food production growth and will likely shrink Egyptian farmers' abilities to produce grains and other food items. **Therefore, the current wide food gap will be even widening overtime in view of the growing population and the increasingly limited land and water resources.** On the long-run, other factors including among others, climate change and Ethiopian Renaissance Dam, as well as the high crop non-ecological intensification practiced in Egypt's agriculture will make the food situation even more critical.

Given the full capacity of the Ethiopian Renaissance Dam Lake at 74 billion M³, Egypt's quota of Nile water (55.5 billion M³ annually) will be reduced by more than 10 billion M³ annually during a filling period of 7 years. After the filling period, the reduction in Egypt's quota is estimated by some studies at 5 billion M³ annually due to both evaporation and leakage from the lake. As for crop intensification, it is expected that the increasing population pressure on smaller land area coupled with scarcer water, will result in higher intensive farming that does not maintain ecosystem services and would lead to a faster rate of soil losses and water quality deterioration on the long run. All these factors together, in the final analysis, will have a serious adverse impact on the natural resource base, particularly soil, water and biodiversity as well as on food situation creating a great challenge for Egypt's agriculture.

5.1.2 Land Fragmentation and Fragmented Production

Extreme land fragmentation is a key feature of Egyptian agriculture and is recognized as an impediment to agricultural development. Yet, no policy has been instituted for protecting agricultural land against fragmentation. Fragmentation is represented in the dominance of small-size farms that is increasing overtime with a considerable portion of these farms composed of two or several plots. Evidence from data based on the agricultural census shows the average farm size is 0.92 ha that is divided into 1.4 plots.

Moreover, old land is more fragmented than new land. In the old lands, farm size is smaller with an average of 0.68 ha and composed of a larger number of plots; 1.43 plots, while in the new land, farm size is larger; 4.1 ha and composed of a smaller number of plots; 1.2 plots. At the farm class level, the smaller the farm size class, the severer the fragmentation problem,

having in mind that the majority of holdings are small. Overtime, the fragmentation problem is projected to worsen taking into consideration the limited land coupled with increasing agricultural population and continuing heritage system as well as limited capacity of non-agricultural sectors to generate labor opportunities sufficient for absorbing the historical labor surpluses in the agricultural sector.

Agricultural production on small plots of land is unsustainable for a variety of reasons. **With such dominance of smallholdings and fragmentation, agricultural production is highly fragmented and the majority of the Egyptian smallholder farmers run subsistence farms rather than commercial farms.** Decreased land sizes cannot promote economies of scale either in conventional or in organic production, reducing 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. **The majority of low-income small farmers are risk-averse, so they, most probably, are reluctant to convert to organic production techniques.**

5.1.3 Weakness of agricultural institutions and organizations

Currently, the institutional setting of Egypt's agriculture is generally weak. The existing agricultural institutional structures, even though under liberalization era, are almost the same as those dominated during the era of government-controlled agricultural economy.

Recently, a number of new agricultural legislations and laws have been issued, particularly with regard to agricultural cooperatives, organic agriculture law (which has been drafted and currently under discussion in the Parliament), contracting agriculture, agricultural insurance, Water Users Associations and desert land. However, most of these legislations and laws are either not sufficient and or have not been rightly implemented. On the other hand, the main organizations of the agricultural sector such as the Agricultural Research Center (ARC), the agricultural extension structures, the cooperatives, and agricultural information, are suffering from lack of finance and human capital to the extent they are unable to efficiently deliver services to the majority of small holder farmers. There are also insufficient clarity in communicating prevailing agricultural policy (incl. price incentives) and lack of information on input and outputs markets.

The lack of strong organizations representing small holders together with their low level of political participation may explain why development strategies and policies tend to be biased in favor of urban sector from one side, and in favor of large farms in the new lands from the other side. Furthermore, with lack of producers' organizations, small farmers lack access to technology and inputs as well as lack of market access thus missing the opportunity to retain a larger share of value added.

5.1.4 Lack of R&D and extension services

In the face of limited arable land coupled with increasing water scarcity, the potential of agricultural production is largely restricted to opportunities for increased productivity and efficiency in the food and agricultural sectors. However, the agricultural sector is plagued by low labour productivity, relative to both international benchmarks as well as other domestic sectors. Egypt's agriculture sector's total factor productivity has undergone limited improvement during the last three decades; driven almost entirely by minimal technological improvements and with no registered change in efficiency (ECNC, 2009). The modest technological progress could be explained to a great extent by the declining government efforts regarding agricultural R&D as well as the coverage and quality of public services

particularly agricultural extension. The public budget allocated to agricultural R&D (or to ARC) has been decreasing along the last two decades from about US\$ 100 million annually in 2000, to reach only US\$ 11 million (L.E 200 million) in 2017. In relative terms, while the agricultural R&D budget represented 0.6% of the agricultural GDP in 2000, this share has dropped to only 0.04% in 2017.

In terms of agricultural extension, the government of Egypt stopped appointing new agricultural extension officers since 1984, thus, the existing staff are rather aged and engaged mostly in office works rather than providing real on-field extension service.

Connecting to this issue, the share of public investment allocated to agriculture has been historically low and rapidly declining. The total public and private sector investment in agriculture, as a share of national investments, decreased sharply from about 10% in 2004 to only 2% in 2017 largely driven by a sharp decline in public spending. The total investment in the agricultural sector declined from about US\$ 1.4 billion (LE7.5 billion) in 2004 to US\$ 0.3 billion (LE 4.8 billion) in 2017.

5.2 Challenges and Obstacles at the Organic Agriculture Sector Level

The organic agriculture in Egypt is still a very small sector that has not yet achieved the economies of scale that will enable it to efficiently compete with conventional agriculture, or on the global organic trade market. **Also, increasing consumer demand for organic products means that the sector has high growth potential but needs some initial support to be able to structure itself to the scale that will allow it to fulfill this demand.** At these early stages of development of the organic sector, there are a number of structural and behavioral obstacles and challenges that hinder the development of organic supply chains. These are particularly the following:

5.2.1 Institutional challenges

(i) Lack of coordination:

There are no well-functioning professional organizations coordinating the needs of the organic sector.

(ii) Lack of certification and inspection capacity:

The absence of sufficient and efficient local certification and inspection capacity is a critical bottleneck that needs to be overcome in order to develop the potential of Egypt's organic exports. The mechanisms for control and certification for organic production are not in place and are not matching demands for certification. **So even if some producers label their products "organic" this is not certified and there are reportedly a great number of producers that take advantage of the lack of controls and falsely sell their products labelled as organic.**

(iii) Lack of research and extension:

The current spending on agriculture research in Egypt, as has been stated above, is too modest and does not adequately reflect the potential innovation either for the conventional sector or for organic sector.

5.2.2 Economic challenges

(i) Costly initial investment:

Conversion to organic farming can be costly in terms of initial investment such as new machinery, adaptation of livestock facilities, integration of on-farm processing facilities, or

organizational investments such as setting-up internal control systems for smallholder group certification. Additionally, there is another form of “investment” required during the transition period in the sense of building soil fertility and recovering from the initial yield drop: those absorb much needed financial resources at a time where the other more physical investments are also needed.

(ii) Higher investment requirements compared to conventional farming:

Acquisition of machinery and other equipment or facilities specifically adapted to organic farming can be more expensive for farmers than conventional equipment, due to the absence of economies of scale. Second, farmers’ capacity to invest in their farm is often too limited, which prevents them from making investments in favor of organic agriculture even if they would economically pay off in the long run. **Smallholder farmers are also the ones whose production systems could be suited to organic agriculture provided that certain arrangements are taken aiming to relaxing institutional, economic, and technical constraints in the smallholder subsector. These arrangements include, among others, collective action mechanisms such as farmers’ organizations, access to finance, provision of support services particularly training, extension and information as well as linkages to markets of organic products.**

(iii) Lack and high cost of organic ingredients:

Organic ingredients such as seeds, seedlings and vegetative materials required for organic production are not adequately available. This applies also to machinery (i.e. composting machinery and steam sterilization equipment used to clean products from bacteria and fungi). **In addition to unavailability problem, these ingredients as well as the machinery are costly and beyond the financial capacity of the majority of small farmers.**

(iii) Lack of Domestic Demand for organic products:

Lack of domestic demand for organic products due to lack of consumer awareness with these products is one of the main bottlenecks to expansion of organic markets and, thus, organic production. Especially in emerging sectors, the organic industry itself does not have sufficient resources to fund mass public education campaigns, which can be very costly. As a result of lack of domestic sales, most organic production are exported due to the favorable market conditions such as secure premiums on certified products and clear trading schemes.

5.2.3 Policy challenge

(i) Organic sector marginalization:

Organic agriculture in Egypt could be viewed as an "infant sector" which is, thus, very much in need for public support. On the other hand, the small scale of the sector is a hindrance for retail uptake and is not motivating research, academia and politicians to pay attention to it. In any case, the agricultural sector as whole, as has been clarified above, is marginalized in terms of public investments and public support services as well as in terms of institutional setting. This marginalization applies automatically to the organic sector leaving it with no clear approaches developed to supporting organic agriculture, through policies, strategies and plans/action plans

(ii) Long-run process for mainstreaming organic products:

It can take many years of temporary public support to invest in research & development, build organic sector organizations and supporting institutions, and structure the organic supply chain to mainstream organic products into normal distribution channels where they become fully accessible to all consumers.

(iii) Unfavorable some agricultural policies:

There are some agricultural and food policies that can have negative impact on organic agriculture development. Examples of these policies are subsidies on chemical fertilizers or synthetic pesticides, approval of pesticides imports and pesticide use, competing environmental schemes, unfavorable regulations on farm-made and organic fertilizers, plant protection products and farmers seeds, food safety and other health requirements, laws related to farm land access in the new desert areas.

(iv) No public subsidy for organic farming

5.2.4 Logistic Challenges

Under the situation of emerging organic sector, as is the case of Egypt's, **logistic problems hinder the growth of organic production. Logistic obstacles are due mainly to lack of market information, lack of adequate distribution channels, lack of input suppliers, and the complicated process of inspection and certification**

The cost of inspection and certification is mostly incurred by organic producers, while conventional producers have no such cost. Apart from the cost of certification services, there are considerable costs involved in the setup of the certification institutions, training inspectors/auditors, cost for accreditation etc.

VI. AN ASSESSMENT OF THE ORGANIC SECTOR DEVELOPMENT POTENTIAL

Despite the above-mentioned constraints Egypt, nevertheless, has a potential. Given the large number of organic crops growing in the Egypt, it has reached; the important stage of putting it all into practice. The potential for innovation in organic farming systems is considerable. So is the potential impact of organic systems innovation on public goods and services, as well as on markets. In the Egyptian context, the best potential is for organic exports undoubtedly lies in low volume – high value crops (such as herbs, spices, medicinal and beauty products), non-perishable items and those which offer opportunities for adding value locally, such as tropical fruits (which can be dried or juiced). Most organic farming in Egypt is non-certified – and will probably remain so for a while to come depending on the organic farming policy to be adopted in the future.

6.1 Organic Farming and Sustainable Agriculture in the Context of SADS

The Sustainable Agricultural Development Strategy (SADS) 2030 has dealt with the Organic Farming (OF) under the title "The Advantages of Conversion to Green Economy and Sustainable Development". The SADS recognizes the considerable advantages Egypt could gain at economic, social, and environment dimensions, as result of converting increasing portions of conventional farming to both sustainable and organic farming. For promoting sustainable and organic farming on the expense of conventional agriculture, the SADS emphasizes the following measures (Table 9):

- (i) The conversion of 20% of the total agricultural land in Egypt from traditional agricultural practices to sustainable agriculture and organic agriculture to the provision of nearly 700 thousand tons of chemical fertilizers, saving a billion pounds a year.
- (ii) Reducing cultivated areas of rice or the use of early ripening varieties and sugarcane can lead to increased water use.
- (iii) The application of sustainable farming systems that introduce solar energy applications for operating water pumping machines and wells.
- (iv) Using rice straw; 500 000 tons annually, in the producing fertilizers which reduces carbon dioxide emissions by approximately 32,500 tons per year (or cubic meters).
- (v) Reducing agricultural inputs by 20% to 35% compared to conventional agriculture through use of residues in the production of organic fertilizers.
- (vi) Utilizing more than 20 million tons of agricultural waste in manufacturing organic fertilizers to replace chemical fertilizers
- (vii) Promote the use of modern irrigation methods and reduce the cultivation of water-intensive crops. It is estimated that the use of drip irrigation provides about 40% more water use compared to flood irrigation by, equivalent to 23 billion cubic meters
- (viii) Recycling and use of agricultural waste as organic fertilizer, which reduces the use of chemical fertilizers and reduces emissions and negative impacts on biodiversity; as well as reducing the climate change effect, soil and groundwater pollution and public health.

Table 9: PLANNED INDICATORS FOR ORGANIC AND SUSTAINABLE AGRICULTURE AND BY 2030

ITEMS	Unit	Current	Planned for		
		2017	19/2020	24/2025	29/2030
Cultivated Land Area	000' Ha.	4 001	4 417	4 834	5 438
Cropped Area	000' Ha.	6 945	7 669	8 392	9 441
Increase in Agri. Area	000' Ha.	208	417	417	604
	%	100	110	121	136
Organic Land Area	Ha.	105 613	149 742	226 707	351 295
Share of OA to Total Agri. Area	%	2.64	3.39	4.69	6.46
Ag. waste converted to org. fertilizer and other uses	000' MT	3 800	5 700	8 360	11 400
	% To Total Agri. Waste	10	15	22	30

Source: Collected and calculated from the Sustainable Agricultural Development Strategy, 2030.

6.2 Assessment of Market Potential

6.2.1 Assessment of domestic market potential

Domestic markets for organic produce are developing in Egypt. SEKEM, the pioneer of the organic movement in Egypt, has developed a substantial domestic market for a range of products, including herb teas, fruit, vegetables, and organic cotton. Domestic sales now account for more than half of its certified production. **For a fast growing organic production, there is a need to develop domestic markets as well as new or alternative forms of standardization and verification that suit the Egyptian context.** The individual market actors face high transaction costs in searching, coordinating and establishing trustworthy partnerships, as well as in achieving the critical supply demanded by modern supermarket chains, whether domestically or for export. In this regard, small farmers often complain that they can only sell one or two of their products with premium prices. The rest, which are necessary parts of the crop rotation system, are often sold through conventional channels. Similarly, the lack of a regulation for organic agriculture in Egypt automatically creates higher costs and necessitates additional control measures for producers and exporters.

6.2.2 Assessment of organic export potential

Egypt, although benefits from its proximity to European markets, the potential of an export led organic strategy is constrained by high transport costs and poor infrastructure. If these constraints are relaxed and the other problems and challenges discussed above are dealt with properly, Egypt's exports could grow at faster rates.

Growth in the Egyptian organic sector aimed primarily for export could be expected to take place in the eastern part of the Nile Delta (Qalyoubia, Sharkia and Ismaelia Governorates), northern part of the Sinai desert, as well as in the Upper Egypt. These areas are connected to governmental land reclamation projects, and are supported by a good infrastructure linked to both harbor and airport facilities. **Likewise, the tourism industry could be an area of future domestic growth.** Organic farms in the Upper Egypt are expanding through sales to hotels and restaurants in tourist places like Luxor, Hurghada and Sharm el Sheikh on the Sinai Peninsula (cf. map in annex 1).

6.3 Assessment of Organic Production Potential

Egypt' old land: the Nile valley and delta, is the area where intensive use of agriculture land has taken place for many years, traditional farming system is adopted, and soils are degraded. While crop yields under these circumstances can be increased, under resource-conserving, low external input techniques, up to 200%, there are other factors that may hinder conversion to organic farming. On the top of these factors is the land fragmentation problem as discussed above, combined with the dominance of small-size farmers; about 95% are less than 2.1 ha. The vast majority smallholders are financially weak, therefore, cannot afford the high investment required for converting from conventional to organic farming and other costs related to organic agriculture such as inspection and certification costs.

These farmers are risk-averse which limit transition to organic systems (even if they are performing economically better). **There is also the fear of peer pressure and social exclusion of farmers if they convert to organic while their neighbors and other members of professional associations are all conventional.**

Second factor hindering organic production in the "old land" is the spread of pollution, the most serious aspect of which is the water pollution. With the sharp and increasing water shortage problem facing Egypt, the problem will be partially resolved by increasing reliance on recycled water of different sources; drainage, municipal, and industrial. Moreover, larger amounts of ground water, mostly polluted by nitrate and other pollutants, in the Nile Delta are also used for irrigation.

Egypt's New Land: In the New Lands (reclaimed lands in desert area), the opportunity for growing organic production is very much better than in the old land in the Nile Valley and Delta. This could be explained by a variety of factors that are related to soil and water pollution, types of farmers, and size of farms.

Soil in the new reclaimed land is less polluted except in the cases where polluted manure fertilizer transmitted from the old land to farms in the new land. Most of the irrigation water used in the new land is either fresh water sourced from the Nile River or non-polluted groundwater in the desert.

In the new land areas, the majority of farms are medium and large size. The land owners are in general well-suited financially, so they can afford the high investment expenditure required for organic farming. Further, they are less risk-averse than small farmers.

In 2050, Egypt will have to produce enough food for 160 million people. The availability of sufficient food is a dimension of food security that has to be taken into consideration when choosing the farming system. **For a decision maker to go with organic agriculture, it should be proven that resource-conserving, low external input techniques have the potential to significantly improve yields contradicting the long-established belief that external inputs such as chemical fertilizers are necessary in order to substantially increase food production.**

REFERENCE

ANNEX 1

Map of organic agriculture area by governorate



Map of main domestic markets of organic products



ANNEX 2

Addresses of Certification Offices for Agricultural Products

First : National Offices:

COAE-Center for Organic Agriculture in Egypt: Mohamed Yousri Hashem, 14 Ibrahim Elswarby St. El-nozha Elgdeda, Cairo – P.O. Box 1535 ,Alf Maskam 11777-Tel & Fax 00202-6248819-Email Coae@gega.Net.

ECO A – Egyptian center of Organic Agriculture: Y.A. Hamdi – 18 Mena St. Dokki ,Giza – Tel & Fax 00202-7618717

Second: Foreign Offices:

BCSOKO Garantie Middle East Ltd. Co: Abdu Ata ,6-Hilal Ebn Omayya st. Helliopolis , 11351 ,Cairo Egypt Tel & Fax 00202 – 6234237 – E-mail bcecoeg @ menanet. Net.

IMC Medtranean Center for Agriculture Inspection and Certification: Asmaa Sobhy Mohammed-19 El-Nakhil StMohandseen ,Cairo Tel & Fax 0020-3359650-E-mail Imc.Egypt@mail.com.

QC&I Quality Assurance System: Mr. Ahmed El-Hossiny -2 Soliman El-Halaby St. Cairo – Tel & Fax 00202-2030345.

Salo Saloti Arabian Co.: Mr. Mohamed Abas – 6 Kobry Alkoba St. Cairo – Tel & Fax 0020-26834408, 00202-24870888 – Email info@sesarabian.com.

Ceres Egypt: 6 October City – Mr. Ihab Yasen - Tel & Fax 01147346092 – Email bayovmi@ceres_cert.com.

TUV nord Egypt Co.: 34 Alryad St. Giza – Mr. Ahmed Mary - Tel & Fax 0020-233051948, 0020-233456671 – Email tuvegypt@tuv-nord.com.

CONTROL UNio Co.: 2b Almaadi Star Tower, Cairo - Tel & Fax 00202-25276757 – Email egypt@controlunion.com.

Acerta Middle East Co.: Mr. Ahmed Fakar – El-Maadi - Tel & Fax 00202-23106707 – 01020050188 – Email info@acerta-me.com.

ANNEX 3 : insert Draft Law for Organic agriculture