STUDY REPORT

Scoping study for the implementation of MOBILISE project in Egypt

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The MOBILISE project aims at launching a scalable and institutionally entrenched circular talent development programme between the Netherlands and Tunisia, Egypt and Ethiopia for the strengthening of climate-smart agriculture. The project, which specifically targets the agricultural sector, seeks to meet the demands of the labour market in the participating countries by involving partners from the public and private sector while developing cooperation with local higher educational institutions.

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EXECUTIVE SUMMARY

Backed by its natural resource, Egypt's agriculture sector could be regarded as a key driver for its economic growth. The growing interest in the agriculture sector is associated with its vital role in maintaining the country's food security, feeding manufacturing facilities, and export potential. The horticultural sector is one of the promising sectors especially due to the rising demand for fresh products worldwide, thereby qualifying it as a good potential for exports and an effective contributor to Egypt's GDP. Accordingly, this assessment aims at investigating this critical sector with special emphasis on pomology, olericulture, and ornamental sub-sectors within Lower (Delta) Egypt region and Nubaria.

In pursuit of such assessment, the current study relied on secondary and primary data to fully understand the dynamics of the horticultural sector in Egypt. In this respect, an examination of the various stakeholders' role and development potential. In this respect, various players were examined including governmental bodies, professional organizations, research organizations, private sector companies, NGOs, educational system, and international organizations. In addition, this report investigates the role of circular migration as a means of enhancing the skills of agriculture labour market besides reducing the negative effects of illegal migration.

When looking at the horticultural sector in Egypt, one may conclude that it is undergoing substantial market trends and dynamics. Drawing on several international organizations projects, interviews conducted with private sector companies and extant literature review, one of the main challenges pertained to the agriculture university education. Currently, it suffers from its inability to meet labour market demand and international standards. Such mismatch is due to the current outdated curricula that is being taught and lack of inclusion of new contemporary technical topics such as modern farming techniques, climate-smart agriculture, modern mechanization, and water management. Another important and critical aspect is the lack of practical application and experience as most curricula are theory driven. Linked to this issue is the dire need to include topics related to cognitive, behavioral and management skills, an issue that was expressed as a need by almost all interviewed private sector companies. In addition, most public universities need to initiate or activate their career counseling services to help their students in their career path through better understanding of the labour market requirements.

Along with agriculture university education, capacity building is highly needed for different players along the agriculture value-added chain. Here, several international organizations initiatives have implemented and recommended further need for topics that aim toward enhancing the hard (technical) skills of employees such as sustainable agriculture practices, climate-smart agriculture, and desert farming. More importantly, there is still a gap in the soft and managerial skills pertaining to marketing, finance, productivity, communication skills, information gathering and analysis.

Linked to the fact that most of the agricultural land is owned by small-scale farmers, the challenge of information and knowledge sharing is witnessed within the sector. There is still a gap in the ability of those farmers to access market information, export potential and financial services. In addition, there is a critical need to promote the role of agriculture cooperatives and extension services.

On the opportunities' side, there is a great potential to expand the Egypt's horticultural export market to the European Union Countries. According to Egypt Export Development Authority 2021 figures, total exports to EU were US Dollars 453,183,706 and there is still room for expansion. In 2021, The Netherlands, Germany, and Italy were the highest exporters of olericulture, pomology, and floricultural products. Here, citrus, grapes, onion, potatoes, and perfume plants ranked highest among other exported products.

To seize the potential opportunities available in the agriculture sector, the Government of Egypt has given great attention to this sector in several ways. First, Egypt Sustainable Development Strategy 2030 has called for the development of agriculture technology and information systems, water usage optimization, land protection, enhancement of the role of agriculture extension systems and farmers voluntary institutions, and the creation of an effective agriculture investment climate. Second, several mega projects were reclaimed that aimed at expanding the cultivated land and the use greenhouses technology.

To overcome the several challenges faced in the horticultural sector in Egypt as well as take advantage of available opportunities, this report has set forward several recommendations. First, several steps can be taken to upgrade the agriculture education system while taking three angles namely, the development of academic staff, university curricula, and career counseling and mentoring services. Second, more attention should be directed towards small-scale farmers through, for example, facilitating their exposure to market information, and training them on the use of modern technologies. Third, since the agriculture sector heavily relies on informal and seasonal workers and the current labour law does not address this issue, it is highly recommended that some modification should be introduced to address it in this vital sector. Third, circular migration could be one vital path for upskilling and enhancing the skills of those working in the agriculture sector.

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ACRONYMS AND ABBREVIATIONS

AEDRI	Agricultural Extension & Rural Development Research Institute
AEC	Agriculture Export Council
AERI	Agricultural Economics Research Institute
AICS	Italian Agency for development and cooperation
AUC	American University in Cairo
CAAEE	Central Administration for Agricultural Extension and Environment
DTDA	Danish Trade Union Development Agency
EBRD	European Bank for Reconstruction and Development
EICA	The Egyptian International Center of the Agriculture
EOS	Egyptian Organization for Standardization and Quality
EU	European Union
FAO	Food and Agriculture Organization
FAO	Food and Agriculture Organization
FAOD	Fayoum Agro Organic Development Association
FAOD	Food and Agriculture Organization Development
GARPAD	The General Authority for Reclamation Projects and Agricultural Development
HEIA	Horticulture Export Improvement Association
HRI	Horticultural Institute
ICRA	International Centre for development-Oriented Research in Agriculture
IFAD	International Fund for Agricultural Development
IFC	International Finance Corporation
ILO	International Labour Organization
ITUC	International Tade Union Confederation
MALR	Ministry of Agriculture and Land Reclamation, Egypt
MoETE	Ministry of Education and Technical Education
MOHESR	Ministry of Higher Education and Scientific Research
MOIC	Ministry of International Cooperation
MoTI	Ministry of Trade and Industry
MPED	Ministry of Planning and Economic Development
NEET	Youth Not in Employment, Education, or Training
NSPO	National Service Projects Organization
NUFFIC	The Dutch Organization for Internationalization of Education
RVO	Netherlands Enterprise Agency
STEM	Science, Technology, Engineering, Mathematics
TVET	Technical and Vocational Education and Training
UN	United Nations
UNDP	United Nations Development Program
UPA-DI	Union des Producteurs Agricoles - Développement International
UPEHC	Union of Producers and Exporters of Horticultural Crops

USAID	United States Agency for International Development
WFP	World Food Program

1. INTRODUCTION

1.1 Introduction

Agriculture has always been a critical cornerstone of the Egyptian economy. This sector has been backed by rich natural resources around the Nile, thereby, qualifying it for the production of a wide collection of vegetables, fruits, cereals, cotton, sugar and livestock (Oxford Business Group, 2020). Despite its importance in maintaining food security and enhancing exports, the agricultural sector is currently facing a number of challenges such as climate change, water resource scarcity, urbanization and a fast-growing population (Osama et al., 2017; Oxford Business Group, 2020). For example, according to the World Bank, the agriculture sector consumed around 85% of Egypt's total fresh water (MPED, 2021; OECD, 2023). Furthermore, urbanization has resulted in a drop of employment in this sector from 25% in 2015 to 19.8% in 2021 and annual growth rate of the population estimated at 1.6% in 2022 (World-Bank).

In light of these challenges, the Egyptian Government gives great attention to food security which implies that agricultural productivity would be among the stressing issues that grabs its attention (MPED, 2021). In this respect, a glance at Egypt's economy provides insight into the importance of the agricultural sector as it is considered the second most important sector contributing to its GDP (Hashem et al., 2018). This is reflected in the contribution to Egypt's GDP by 14.5%, 28% of jobs, 55% of employment in Upper Egypt, and 20% revenue increase in 2019 (MOIC).

When it comes to the labour force at large, factors such as social, economic, political, and environmental drivers influence the decision to migrate. In Egypt, political conflicts, high unemployment rates, and food insecurity contribute to migration discussions. Most international migration in Africa occurs within the continent rather than towards Europe. Studying migration intentions can provide insight into migration flows. Many young Egyptians intend to migrate to European countries despite the challenges of illegal migration, with plans to return to Egypt after achieving financial goals (OECD, 2018).

Circular migration is seen as a means to maximize remittances and home-country commitment while preventing long-term settlement and integration problems. Migration decisions consider economic, environmental, and political conditions, with push and pull factors influencing the decision to migrate. Circular migration involves recurrent and voluntary or coerced movement between a sending and receiving country, with migrants moving back and forth multiple times. Migrants may engage in complex trajectories that include a combination of these types of migrations. Understanding the factors influencing circular migration is important for

policymakers to develop effective strategies to manage it and address migrants' needs (Abdelwahed et al., 2020).

1.2 Objective and rational of the assessment

This assessment aims at providing an overall examination of the horticulture sector including the following:

- Egypt's horticulture sector including its subsectors as manifested in pomology, olericulture and ornamental horticulture with special emphasis on Lower Egypt (Delta) region and Nubaria.
- Highlighting the major companies, professional and governmental organizations involved in the horticulture sectors.
- Understanding the sector labour market requirements, available career development programs with the aim of undertaking skills' gaps and needs.
- Determining the available agribusiness higher education (university level) highlighting available programs and gender distribution.
- Providing an overview of existing agri-business startups.

In relation to circular migration, this assessment aims at providing the following:

- An overview of the legal framework pertaining to migration and international mobility.
- Listing of the various education cooperation, accreditation and international cooperation pertaining to migration and international mobility.

1.3 Structure of the report

This report would be structured as follows:
Part I: Introduction
ParII: Literature review
Part III: Research methodology
Part IV: Mapping the horticulture sector in Areas of Interest
Part V: Labour market requirements
Part VI: Higher education in agri-domains
Part VII: Legal and policy framework
Part VIII: Conclusion and recommendations

2. LITERATURE REVIEW

This part explores the literature on the agriculture sector and circular migration in Egypt.

2.1 Agriculture sector in Egypt

In the light of its sustainable development strategy, the Egyptian government has exerted efforts towards self-sufficiency through increasing agricultural production. These efforts have incorporated horizontal expansion of agricultural land through investment promotion in land reclamation and creation of new agricultural communities. In 2020, the total agricultural land was 9.812 million feddans (4.121 million hectares) totaling 3.9% of Egypt's total land. Such areas yielded a total crop area of 9.3 million feddans (3.906 million hectares). As such, the per capita share of cultivated land was 0.091%. Furthermore, there is a potential increase in 7.465 million feddans (3.135 million hectares) in 2025 (Elsayed et al., 2023). Table (1) provides the percentage distribution of agricultural group of products (2015 -2020).

Table 1: Percentage of cultivated land by product groups

Product group	2015	2020
Cereals	49.06	44.99
Legumes	0.61	0.51
Fibers	1.59	1.63
Oil	1.71	1.63
Sugar	1.71	1.63
Vegetables	12.61	11.57
Fodder	16.8	17.00
Fruits	10.56	9.99

Source: (Elsayed et al., 2023)

The above table shows that there was a general decrease in the different product groups except for fiber and oil. In addition, a glance at the distribution of cultivated and crop area scored highest in Delta region followed by middle Egypt region, desert region, and Upper Egypt respectively. Such distribution of product groups reflected the priorities set by the Government of Egypt to concentrate on cereals due to its strategic importance (Elsayed et al., 2023).

A closer look at the horticulture sector in Egypt, shows that it is experiencing significant market trends and dynamics, thereby presenting both challenges and opportunities. Egypt's main challenge is to secure the need for wheat as it is a strategic commodity. Currently, almost 50% of its needs are produced locally. Undoubtedly, such concern is driven from wheat role in achieving food security

especially under the current Ukrainian-Russian War (Abdalla et al., 2022). Another area that needs attention is the growing demand for fresh produce in export markets like the EU, Gulf countries, and Far East markets is a key trend. In this respect, the value chain analysis provides an opportunity to map out the entire chain and understand the challenges faced in moving products from producers to consumers while taking into consideration the country's agri-climatic diversity. Due to its importance, several interventions, like AMAL project (refer to table 2 for details), were introduced to convert Egypt's agriculture sector from traditional farming and marketing practices to modern export-oriented production. Such transition may require attention to changing farming practices, facilitating climate-smart agriculture practices, increasing access to market intelligence, fostering value chain linkages, promoting market-oriented practices, and strengthening the role of different stakeholders (Ahmed and Sallam, 2020). There is no doubt that such transition aligns with Egypt's Vision 2030 which aims at reducing poverty, and driving economic and environmental sustainability (MPED, 2021). Consequently, the implementation of interventions would allow Egypt to compete more effectively in foreign markets, thereby bringing positive benefits and opportunities to all actors within the value chains (Ahmed and Sallam, 2020). This is especially true because horticultural products are considered high-yield agricultural products (OECD, 2023).

2.2 Circular migration in Egypt

When discussing circular migration within the European Member States (EU), there is lack of differentiation between temporary and circular migration. Moreover, circular migration is defined differently by different countries. For instance, The Netherlands looks at circular migration as a phenomenon that involves a migrant who resides in more than one country including his/her country of origin. For Germany, circular migration involves more than one movement of a migrant from country of origin to a country of destination or a third country and then moves back to country of destination. However, Germany does not define a timeframe of the stay in the destination country. Both Poland and Sweden, define circular migration as a form of temporary migration between two countries. However, Poland stresses the repetitive or cyclical nature while Sweden looks at the period of stay be it short or long (UNICEF, 2016).

In an attempt to unify the definition of circular migration, the European Migration Network (EMN) has provided a simple but inclusive conceptual definition: "repetition of legal migration by the same person between two or more countries" (UNICEF, 2016, p.16). For this definition to qualify as a statistical definition, the suggested time period is ten years with each stay of a maximum of 12 months in the destination country. In this sense, seasonal migration would be a form of circular migration that incorporates a stay in the destination country between 3 – 12 months. Accordingly,

the statistical definition could be described as "a circular migrant is a person who has crossed the national borders of the reporting country at least 3 times over the past 10 years, each time with duration of stay (abroad or in the country) of at least 12 months" (UNICEF, 2016, p. 17).

There are challenges regarding the ability to generate statistics on circular migration leading to very few EU countries able to do so (Austria, Germany, The Netherlands, and Sweden). However, many studies highlighted that most countries do not differentiate between temporary and circular migration which places a further challenge on the ability to generate statistics on the latter. From a sectorial perspective, many official statistics fail to trace seasonal migrants in the agricultural sector especially that those workers are considered irregular migrants (Kalantaryan et al., 2020).

A very interesting definition is provided by the Global Forum on Migration and Development where circular migration is defined as a form of a voluntary temporary or more permanent movement of labour between country of origin and destination that can be beneficial to both countries. In this respect, circular migration can help in filling the gap between international labour supply and demand, thereby, contributing to economic growth and efficient resource allocation (UNICEF, 2016). In this sense, circular migration can benefit both the country of origin, host country and the individual.

As for individuals, it may relief them from unemployment, increase income as well as developing and expanding their know-how (Europe, 2017). For the countries involved, on the one hand, from the country-of-origin standpoint, circular migration enables "the acquisition of new ideas, technologies or land-use practices that can then be replicated in the community of origin through the transfer of ideas, training and capacity building activities". On the other hand, from the perspective of the destination country, it can partially overcome labour shortages thereby enhancing economic production (UNICEF, 2016; Kalantaryan et al., 2020). For example, the agricultural sector in EU suffers from a continuous decrease in the availability of agriculture workers between 2009 and 2018 from 10.8 million to 8.9 million. Such decrease is accompanied by a relative increase in migrants from 3.5% to 6.4% between 2009 and 2019. Such a situation is the result of the unattractiveness of the sector for locals, thereby making migrants an essential ingredient for filling the gap in the sector's labour force. Consequently, migration management cooperation with third countries should be a priority for policy makers to ensure sustainability of the agricultural sector (Kalantaryan et al., 2020). Consequently, it could be argued that circular migration benefits all players in the process.

2.3 Inventory of projects in Egypt

Egypt has received significant donor support, and many upcoming initiatives for development will continue to center on agriculture and agri-business. Some of the programs functioned primarily through intermediaries while others provided firm-level support. The assistance provided ranged from financial support to non-financial business development services. Some of the initiatives had a regional focus while others were at the national or governorate-levels. However, most of them had the goals of creating jobs, reducing poverty, generating revenue, and/or addressing gender issues (ILO, 2020). Table (2) provides an overview of some of those initiatives.

2.4 Lessons learned and best practices

Several lessons can be learned from the projects mentioned in Table (2). The discussion on these lessons would be divided into two parts, those pertaining to agriculture and those regarding circular migration.

2.4.1 Lessons learned from the agriculture sector initiatives

Several international cooperations and grants were directed towards agriculture as a vital sector in Egypt. A review and analysis of the above-mentioned projects (Table 2) revealed the following:

- Stakeholders involved: By talking to the private sector companies, their feedback was to avoid the inclusion of or at least reliance on government entities in initiatives. For example, Tamkeen mentioned that the success of the "farmers' toolkit" project was mainly due to the shift away from getting the government's schools and universities to promote individuals for training. Instead, it was recommended (and eventually followed) to rely on the network of NGOs and private sector companies to select the individuals to be trained. Similar feedback was shared by BioEgypt who mentioned that government officials in one of the programs were just there for "the trip" which frustrated other attendees. On the other hand, however, Mr. Ahmed El Arini who was involved in the TMT+ project funded by NUFFIC thought that the involvement of government officials with private sector individuals was beneficial in bridging the gap between both and linking them together.
- Prior study of requirements: Interviewed companies highlighted the importance of studying the exact requirements and expectations of participants of any program beforehand to ensure relevance.
- Agility and continuous learning: It was mentioned also that a successful program needs to follow an agile approach to ensure pivoting towards other directions or to meet the level of participants.
- Selection process: Investing time and effort in ensuring the right people are selected for a project was also highlighted by multiple individuals. Relying on

face-to-face interviews and selection criteria based on the individual's personality and commitment were seen as a key ingredient for success.

- Practical training aspects: Including practical trainings (whether in Egypt or abroad) is very important especially to overcome the lack thereof in university education (as will be discussed in Part V).
- Capacity building of different players in the agriculture value-added chain: The following were among the listed capacity building topics:
  - Sustainable agriculture practices,
  - Sustainable climate-smart agriculture,
  - Agriculture desert challenges,
  - Enhancing on and off-farm productivity,
  - Pesticides management and microbiological contamination,
  - How to increase competitiveness of horticulture products,
  - How to improve the performance of institutional and service providers,
  - How to enhance the role of agricultural cooperatives,
  - How to extend the services of extension services.

  Aligned with this is the important role of upgrading the academic curricula of agriculture education at the university level to match the labour market needs. For example, the 'Center of Excellence in Egypt Project' assisted in upgrading the curricula of higher agriculture education and viewed joint applied research as an essential tool for promoting entrepreneurial thinking and exposure to international research as a means towards matching education with labour market requirements.
- Knowledge and information creation and sharing: Several projects emphasized the importance of higher information access regarding marketing opportunities, export potential, extension services, and financial services. In addition, it was recommended that information and knowledge need to be domestically produced to increase their relevance to the geographical context.

  In conjunction with information creation is information sharing which would be reliant on the development of networking activities that include different actors along the value-added chain (farmers, institutions, research organizations, universities, public and private companies, etc.).

  In line with this, all training material needs to be shared promptly with trainees to give them continued access to such information. Building a network for trainees to share knowledge also adds a lot of value so they learn from each other and can continue to do so after the training ends.
- The use of digital technology: It is expected to facilitate work of different actors along the agriculture value-added chain. However, the use of the technology would require the development of an information and communication policy that boosts productivity and reforms the communication infrastructure. In all

cases, the digital technology may incorporate information and consulting services in the following areas:

- Marketing and export information,
- Extension services,
- Financial services,
- The development of mobile applications.

- The role of cooperatives: More attention must be directed towards the important role cooperatives play in the agriculture sector. For example, the FAO recommended an amendment of Law 204/2014 (FAO). On the other hand, companies do not trust that these cooperatives can be improved due to the high level of corruption involved. Thus, businesses recommend steering away from these cooperatives and building parallel activities that are sure to benefit the target audience.
- The role of women: Women play an influential role in the agriculture sector and, thus, their inclusion in almost all initiatives was at least considered.

2.4.2 Lessons learned from migration initiatives

A review of several reports and international cooperations in the area of migration revealed the importance of the following:

- The need to train government officials to understand the relationship between migration and development.
- Comprehending the root causes that lead individuals to migrate as well as challenges and benefits of migration at host and home country.
- Developing the means to ensure the absence of gender discrimination.
- Building networks of key players in the migration process (IOM, 2022).

2.5 Conclusion

In Egypt, agriculture and human development is among the areas that attracted the attention of international organizations. Circular migration is one of the areas that could be a solution towards upgrading the skills of people. To achieve this end, several projects were reviewed to learn from them how to develop people and agriculture sector. The key takeaways are to involve the right people, ensure solid ground of analysis prior to project initiation while still keeping an agile approach during implementation.

Table 2: Inventory of international cooperation projects

Project / Program Name	Implementing organization	Donor	Domain	Location	Target beneficiaries	Services provided	Source
Agriculture: Capacity building - totally or partially (in alphabetical order)							
Farmers' Toolkit	Training providers consortium of: FutureWater, IrriWatch, Delphy, Cairo University and HiView	Netherlands Enterprise Agency	Agriculture Training for geodata usage in climate smart agriculture	Egypt	Extension officers: Tamkeen for Advanced Agriculture, FAODA, IDAM, Bio-Oasis, and LEPECHA.	The 'Farmers Toolkit' as presented in this project contains various geodata tools applicable for farmers to assist their decision-making and adopt climate smart agricultural practices. This project included a training program on these tools, which are: Flying Sensors, irrigation advisory services (IrriWatch portal), WaPOR and Google Earthengine Apps, and Climate Risk Assessments. The training providers tailored the activities towards the requirements of the selected beneficiaries which are private companies, consultants, and NGOs active as extension officers in the agricultural sector of Egypt. The training program was combination of face-to-face training, online teaching, and field schools conducted throughout the growing season of 2021.	https://www.futurewater.eu/projects/a-practical-farmers-toolkit-geodata-for-climate-smart-agriculture-in-egypt/
Sustainable Agriculture Service provision Enterprise Network in Egypt (SASPEN)	Care Egypt Foundation	Dutch Embassy in Egypt	Agriculture Capacity building	Egypt	Egyptian agribusiness professionals from small and medium enterprises	The aim of the SAPSEN project is to connect Egyptian agribusiness professionals from small and medium enterprises to Dutch projects, companies, and other partners in the agricultural sector to strengthen collabouration and stimulate the exchange of knowledge. addressing technical needs for small and medium agribusiness in Egypt and solving their challenges through the support of Dutch expertise. We are targeting young agribusiness professionals working in the Agri sector.	https://www.futurewater.eu/2022/09/futurewater-provided-training-course-on-climate-smart-agriculture-as-part-of-the-saspen-project/

Table (2): Inventory of international cooperation projects (continued)							
Project / Program Name	Implementing organization	Donor	Domain	Location	Target beneficiaries	Services provided	Source
Tailor Made Training (TMT+)	Aeres University & PMU	NUFFIC	Agriculture Capacity building	Cairo & Kafr El Sheikh	Public sector (mainly from AENRI, SWERI & KFS professors) and private sector companies	The aim was to give a training on climate smart agriculture. It was a high-level training but combined online and offline sessions, field visits and 12 of the 40 trainees were chosen to go on a study tour in the Netherlands.	Interviews
Agriculture: Academic Scholarships (in alphabetical order)							
Farmers' Field Schools	Egyptian Agriculture Bank	King Salman International University	Academic scholarship	Egypt	University students	Through the provision of full academic scholarship by Agriculture Bank of Egypt for 30 students, the cooperation aimed at providing new opportunities for university students to qualify them for handling the challenges of present agricultural desert areas. Beside academic study, students also received training.	https://ksiu.edu.eg/ksiu-signs-cooperation-agreement-with-egyptian-agricultural-bank/

Table (2): Inventory of international cooperation projects (continued)

Project / Program Name	Implementing organization	Donor	Domain	Location	Target beneficiaries	Services provided	Source
Agriculture: Higher education							
Center of Excellence in Egypt	MOHESR, Cornell University, Cairo, Ain Shams, Assiut, Benha, and Suez Canal Universities in Egypt, Michigan State University, Purdue University, University of California-Davis	USAID	Higher education	Egypt	Universities	Upgrading the Egyptian universities curricula in the agriculture sector. It also aims at fostering joint research between Egypt and the US at the undergraduate and graduate levels. In addition, the project links Egyptian and American universities and developing joint programs and scholarships (special emphasis is given to women in disadvantaged areas).	(USAID, 2020)
Migration (in alphabetical order)							
Multi-Educational Program for Employment Promotion in Migration-affected area (MEPEP)	AICS, MoTI & MoETE	European Fund & Emergency Trust Fund for stability	Vocational education and training	Sharkeya Governorate	Youth	The program concentrates on the development of Technical and Vocational Training (TVET) with the aim of promoting more inclusive social and economic environment. This implies it would be directed towards enhancing the teaching methods for teachers, trainers, and students' skill acquisition, thereby improving job placement. This would be realized through improving the physical and technical structure, physical and technical equipment of 10th of Ramadan training center.	https://ilcairo.aics.gov.it/home/country/environment/ https://eu-mepep.org/

Table (2): Inventory of international cooperation projects (continued)

Project / Program Name	Implementing organization	Donor	Domain	Location	Target beneficiaries	Services provided	Source
Towards a Holistic Approach to Labour Migration Governance and Labour Mobility in North Africa (THAMM)	Ministry of State for Emigration and Egyptian Expatriates' Affairs (MoSEEEA)	EU (Partners: GIZ, ILO, IOM, Belgian development agency ENABEL, French Office for Immigration and Integration - OFII)	Migration Vocational training	North Africa	Government institutions responsible for labour migration, Migrant workers, Job seekers interested in employment abroad, Vocational training institutions	The project takes a comprehensive approach incorporating both training and employment for migrants. In this respect, THAMM pilots migration of young people to Germany for the purpose of vocational training and employment based on the needs of both Egypt and Germany. Furthermore, the project open discussions between labour migration institutions with the intent of promoting and sharing experiences beside fostering networking on labour migration. This would involve the development of tools that analyze the different means for safe migration in the long run. Finally, field trips would be undertaken with the aim of developing the competencies of individuals in vocational training and development.	https://www.giz.de/en/worldwide/92649.html
Development of a Comprehensive Migration and Development Trainer's Manual		IOM	Migration Capacity building	North and West Africa	Policy makers & practitioners	The objective of the project was to design a training course on migration and development. To achieve this objective the project underwent four phases. The first phase was related to the development of the course curriculum with special emphasis on North and West Africa. The second phase was associated with field testing where the course was implemented in English. During the third phase, the training manual was translated into French and Arabic. Finally, two training of trainers' courses were implemented which were later available for the use by trainers, IOM staff, and requesting partner countries.	https://www.iom.int/

3. Research Methodology

This research aimed at gaining insights into the horticulture sector with special emphasis on pomology, olericulture, floriculture sub-sectors beside circular migration in Egypt. To achieve the research objective, the research team relied on both primary and secondary data collection.

Secondary data and extant literature review was relied upon to get insightful understanding on the current research topic. In this respect, books, journal articles, statistical reports, international and national reports, and internet websites were reviewed.

The research team also relied on primary data to get a more realistic view about the current status of the agriculture sector. Interviews were conducted with multiple stakeholders to get better understanding of the topics at hand. The following organizations and companies were interviewed (details about them can be found in the respective stakeholder tables):

Organizations:

- The Dutch Embassy
- The International Organization for Migration (IOM)
- Care Egypt

Companies:

- HydroFarms
- Bio Egypt
- Tamkeen
- Mozare3
- Delphy (Dutch)
- Rijk Zwaan (Dutch)

Others:

- Ahmed El Arini – An agri-business consultant

4. Mapping the horticulture sector in Areas of Interest

This part of the report is intended to provide an overview of the agriculture sector in Egypt highlighting arable land, seasons, Egypt Vision 2030 pertaining to the agricultural sector, and guiding policies and regulations related to the agriculture sector. In addition, the report zoomed into the agriculture sector production in Delta, key players in the sector, and trade between Egypt and EU countries.

4.1 Overview of the national sector

Agriculture is one of the vital sectors for Egypt's development and economic growth. Its importance is driven from its role in food security, feeding manufacturing facilities, and its contribution to exports (MPED, 2021; Nour, 2023). Consequently, several efforts resulted in increasing productivity per hectare between 2016 and 2018 (15.8 – 16.3 tons/hectare). In addition, more emphasis should be directed towards high-yield crops (wheat and maize, for example) especially under the current situation of water scarcity in Egypt (OECD, 2023). Another challenge is related to land degradation resulting from natural factors (such as climate change) and human-caused factors (ineffective soil and water resources management, and increased urbanization, for example). To overcome such challenges, more attention was directed towards employing treated wastewater in agriculture, upgrading irrigation systems, desalinating seawater, and redesigning the national water canal system (MPED, 2021). Consequently, it is important to consider the agricultural policies (Nour, 2023).

4.1.1 Agricultural land and seasons in Egypt

Currently, Egypt has 27 governorates divided into Lower Egypt, Middle Egypt, Upper Egypt, Western and Eastern Deserts and Sinai regions. Within these regions, old lands are agricultural lands around the Nile Delta and Valley constituting 85% of the cultivated area in Egypt. Such lands are mostly dominated by small-scale farmers (Mahmoud et al., 2018). who own plots ranging from 1-5 feddans (0.42 – 2.1 hectares) (FAO, 2021). The other 15% of cropped area is concentrated in new lands that include both small farmers who informally extended their cultivated lands into the desert as well as commercial farms (Egypt, 2020-21, 2020-21). Unfortunately, the old lands farmers employ traditional practices that do not acknowledge technological advancements and international standards. This resulted in increased production cost, reduced yield and soil fertility and limited marketing opportunities, and challenges pertaining to storage, transportation and market information (Khorshid and Shaker, 2022). On the other hand, the new lands have high production cost of these lands meant that they ought to be directed towards the production of high-value crops (Mahmoud et al., 2018).

With respect to greenhouses, Egypt uses low to medium technology in greenhouses. Low technology is commonly used by small-scale farmers who seek

local markets within the proximity of their cultivated lands. On the other hand, medium technology is utilized by large-scale farmers (mostly concentrated along the River Nile region like Cairo-Alexandria Desert Highway) that aim at the urban market and export market. Consequently, greenhouses are normally used in high-value crops such as tomatoes, cucumber and peas. Furthermore, recently more use of greenhouses has been directed towards higher-value crops including broccoli and lettuce beside the potential for increasing the acreage of the supply of flowers, green herbs, eggplant, and courgetti (Elings, 2017).

With respect to agricultural seasons, Egypt has three seasons namely; winter, summer and Nili seasons. The first season starts from September to November, the summer season from February to May and finally the Nili season starts in July and ends in August (Osama et al., 2017). These seasons incorporate the cultivation of various product groups (cereals, legumes, fibers, oil, sugar, fodder, vegetable, fruits, medicinal, aromatic and cutting flowers) within old lands, new lands and greenhouses (Ministry of Agriculture and Land Reclamation Egypt, 2020-21, 2020-21).

4.1.2 Egypt Vision 2030 and agriculture sector

Egypt's Vision 2030 (Sustainable Development Strategy) was built around three main pillars namely, economic, social, and environmental. Although Egypt Vision 2030 did not focus on the agricultural sector, it discussed development policies for it in numerous ways. Among the issues incorporated are the need for:

- Horizontal expansion of fish farming.
- Development of agricultural technology and information systems.
- Working towards water usage optimization and land protection.
- Enhancement of the role of agriculture extension systems, farmers' voluntary institutions, and agricultural media.
- Creation of a climate that supports agricultural investment, contract farming, and regional agricultural cooperation.
- Fostering food quality and consumer protection.
- Enhancement of the bread and food subsidy.

Despite the fact that the Sustainable Development Strategy incorporated several projects for implementation in the agricultural sector, some of them were well-defined while others were vaguely defined. An example of well-defined initiatives included the establishment of "the Global Logistics Center for Grains, Cereal and Food Commodities, for the trade and manufacturing of cereals, grains and food commodities in Damietta". On the other hand, vaguely defined projects included the increase of agricultural lands and fostering agricultural industrialization. In conclusion, an analysis of Egypt Vision 2030 lacked enough attention to the agricultural sector where no set mechanisms, methods or even implementation schedules for the pre-set projects were set forth (Nour, 2023). In addition, it was noticed that strategy looked at the whole food chain from production to

consumption (MPED, 2021; Nour, 2023). Moreover, the Sustainable Development Strategy concentrated on the role the private sector and large agricultural projects and failed to consider the role of the small-scale farmers (Nour, 2023).

An investigation of Egypt's agricultural sector is challenging due to lack of quality and contradiction of data which was manifested in discrepancy of the indicators and figures declared by different sources. For example, in spite of the talks about agricultural boom as shown in CAPMAS report on land reclamation that indicated a twofold increase in reclaimed land between 2015 – 2019 (Nour, 2023), the World Bank figures on the agricultural sector contribution to GDP for the same period showed a slight decrease of 0.3% for the same period and a slight increase of 0.4% when compared to 2021 (World-Bank). Another example is set forward in the percentage increase of water consumption where MPED report (2021) indicated that 85% of Egypt's water resources are directed towards agriculture whereas the World Bank figures indicate that it is 79.1% (World-Bank). Thus, the exact figures are not to be followed rigidly but rather as a general guideline for the trends in the sector.

4.1.3 Some guiding policies, regulations, and decrees

At this point, it was essential to look at the policies and laws that regulate the agricultural sector. Among those are the following:

- "State Ownership Policy Document" which is primarily concerned with how the public and private sectors interact. With respect to the agricultural sector, the state proposes maintaining its investment at the level of 17%. Furthermore, the document encouraged state partnership with the private sector in areas pertaining to smart agriculture and irrigation. However, to pave the way for effective private sector investment in the agriculture sector, the State would maintain or even increase its investment in areas like land reclamation and irrigation projects. The rationale behind this includes facing increase in population (estimated at 150 million by 2050 by UN), increasing agriculture exports to 25% by 2024, job creation (530 thousand new jobs), fostering reducing poverty through the inclusion of small-scale farmers, and increasing the cultivated areas by 1.5 million feddans by 2030 (Cabinet, 2022).
- Resulting from the pressures of the major horticulture crops' exporters and Parliamentary Agriculture Commission, the parliament approved the accession to International Union for the Protection of New Varieties of Plants in 2017 (Nour, 2023). There has been a debate on this agreement where some believe it would negatively impact food security where others view it as a crucial gateway to the EU markets as well as opening up opportunities to increasing Egypt's agricultural products competitiveness in international markets (Salam, 2017).
- Several decisions were issued by the Council of Ministers and Presidency pertaining to the transfer of State-owned lands to foreign investors or military

companies. An example of such decisions is the Presidential Decree No. 621/2020 which allocated 930 thousand acres in Toshka Depression region of Aswan and New Valley governorate to the National Service Projects Organization (a military affiliated organization) (Nour, 2023).

- Organic law which was approved by the Egyptian Parliament in 2020 and finally started being activated this year (2023) is essential in supporting and fostering organic plantation and production. This governs various activities related to organic foods such as compost, biological fertilizers and pesticides … etc. which also supports imports of some products that were previously difficult or even impossible to import such as some bio-pesticides (Organic Egypt, 2020).

4.1.4 Highlight of mega projects

Several mega projects are expected to nourish the agricultural sector. Some of those projects were directed towards land reclamation like the 'New Delta Project' which incorporates two projects that aimed at reclaiming around one million feddans (1,0396,000 acres). Studies indicated that 90% of those lands would be directed toward strategic products (wheat, corn, maize) besides vegetables and fruits (Presidency). With respect to greenhouses, the 'Future of Egypt Agriculture project at Al Lahoun, Fayoum sets an example for the implementation of greenhouses over 16 thousand feddans (16.605 thousand acres) including 18,000 Spanish and Egyptian greenhouses. The project is directed towards the cultivation of vegetables, fruits, medicinal and aromatic plants, and cut flowers for exports. Further to this, the project involves land reclamation of 80 thousand feddans in Minya and Beni Suef for the cultivation of sugar cane, wheat, corn, fava beans, and alfalfa (Presidency).

4.2 Focus on relevant subsectors (pomology, olericulture, floriculture)

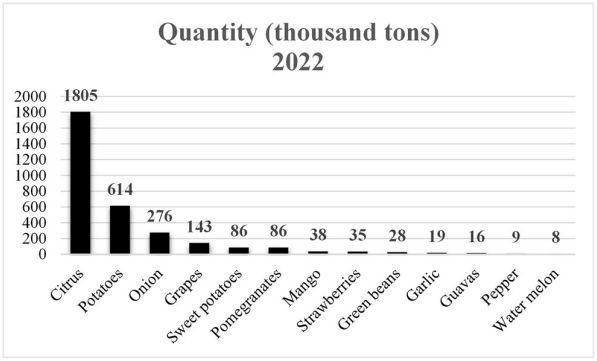
This part concentrates on agricultural trade in the relevant sub-sectors between Egypt and the Netherlands as well as the agricultural production within Delta region in Egypt.

4.2.1 Production in Lower (Delta) Egypt Region

Lower (Delta) Egypt region has a triangular shape with a total area of around 22 thousand Km. This region consists of almost 63% of Egypt's productive land including agricultural land, urban habitats, desert, fish farms and surface water. Moreover, the climate of this region has made it a good candidate for the cultivation of different types of crops (Arief and Ahmed, 2023). Based on the Agriculture Statistics Bulletin issued by MALR (2020-21, 2020-21) cultivation within this area takes the traditional form as well as the use of greenhouses and is spread over the three seasons namely, summer, winter and Nili.

Horticulture products are sometimes referred to as garden products. This sector is usually divided into olericulture or vegetable crops, pomology or fruit crops, ornamental or floriculture and landscape, and spices and medicinal plants. In Egypt, it was noticed that most of the production of the horticultural sector is undergone in the lower (Delta) region. When focusing on the horticulture sector in Egypt, official reports indicate an enhancement in the production and exports of potatoes and fresh fruits especially citrus. Such improvements are positive in light of the population increase and its subsequent increase of consumption. Furthermore, as indicated by the info graph produced by Central Administration of Plant Quarantine in 2022, the top 13 agricultural exports from Egypt where horticulture products (fruits and vegetables) as indicated in figure (1).

Figure 1: Top agriculture exports in 2022



Source: Central Administration of Plant Quarantine, 2022

The three tables presented in Appendix (2) provide the production of pomology (fruits), olericulture (vegetables), and floriculture (ornamental) production in the Delta region respectively. In addition, a comparison of the regional production to the country's production is highlighted.

4.2.2 Sectorial cooperation between Egypt and the European Union Countries

The European Union is one the most important export markets for Egypt's horticultural products. According to the Egypt Export Development Authority 2021 figures, horticultural products exports to EU totaled US Dollars 453,183,706 where The Netherlands, Germany, and Italy were Egypt's highest exporters. The following provides an overview of the most important olericulture, pomology, and floricultural products exported to the European Union Countries

- Pomology: In 2021, the total exports of fruits to the European Union Countries were US Dollars 275,865,404 (61% of total agriculture exports to EU) where citrus and grapes were the highest export in this domain accounting for 67%, 26% of total fruits exports and 41% and 16% of total agriculture exports to EU countries respectively.
- Olericulture: In 2021, the total exports of vegetables to the European Union Countries were US Dollars 183,566,577 (31% of total horticultural exports to EU) where onion and potatoes were the highest exports of vegetables accounting 53%, 34% of total vegetables exports and 61%, 10% of total agricultural exports to EU countries respectively.
- Floriculture: In 2021, Egypt exported to EU countries were US Dollars 5,159,544 (1.14% of total agricultural exports to EU) where perfume plants accounted for 94.3% of this subsector and 1.07% of total agricultural exports to EU countries.

More details on country specifics are presented in appendix (3).

4.3 Mapping of sectorial stakeholders

This section highlights the different stakeholders who are involved in the agriculture sector in general and the horticulture sector in particular highlighting their degree of interest in the current project as well as the status of involvement.

4.3.1 Professional organizations and Public Authorities

Table (3) provides an overview of the services provided by various professional organizations and public authorities as one of the important stakeholders for the project on hand.

4.3.2 Private companies

Table (4) provides a listing of some of the private sector companies according to their role in the agriculture value chain.

4.3.3 Research organizations

Table (5) provides an overview of the research centers.

4.3.4 Others (like NGOs, international organizations and donors)

According to the report published by the ILO (2020), it was generally acknowledged that NGOs played minimal influential role in the agriculture sector. Table (6) provides an overview of other stakeholders including NGO.

Table 3: Professional organizations and governmental bodies					
Organization name	Organization type	Source	Area of influence / Services description	Interest for the project	Recommended engagement*
Ministry of Agriculture and Land Reclamation (MALR)	Governmental	https://moa.gov.eg/en/	MALR is responsible for overseeing and developing the agriculture sector, thereby realizing food security for citizens and securing income and employment for the rural population. As such, MALR is responsible for developing the different policies pertaining to agriculture and agrarian reform as well as aligning its policies and plans with Egypt's national development plan. Furthermore, it is responsible for developing a robust agriculture sector including land reclamation and promotion of rural economies. Consequently, MALR seeks to enhance the efficient use of resources and effective investment in accordance to the geographical distinction of each region within Egypt.	Very high interest	Engage in project activities & Engage for National platform
Ministry of Higher Education and Scientific Research (MOHESR)	Governmental	https://mohesr.gov.eg/en-us/Pages/home.aspx	The main aim of the MOHESR is to enhance research and development, fund scientific research and upgrade innovative capacities of university students.	Very high interest	Engage in project
Ministry of Emigration and Egyptian Expatriates Affairs	Governmental	https://www.emigration.gov.eg/DefaultAr/Pages/default.aspx	The role the ministry is related to the regulation, management and improvement of the wellbeing of Egyptians abroad. In addition, the ministry is responsible for the regulation of Egyptians departure from Egypt. Furthermore, it is responsible for promoting cultural exchange with other countries	Very high interest	Engage in project

Table (3): Professional organizations and governmental bodies (continued)

Organization name	Organization type	Source	Area of influence / Services description	Interest for the project	Recommended engagement*
Ministry of International Cooperation	Governmental	https://moic.gov.eg/	The Ministry is responsible for fostering economic cooperation and multilateral engagement between Egypt and other countries, international, regional and specialized institutions. In addition, the ministry monitors and follow up on strengthening the economic cooperation and multilateral engagement between Egypt and other countries, international and regional finance institutions as well as specialized agencies of the United Nations. The ministry also follows up and monitors different agencies in their path towards the achievement of sustainable development goals.	Very high interest	Engage in project
The Egyptian International Center of Agriculture (EICA)	Governmental	https://www.linkedin.com/company/the-egyptian-international-center-for-agriculture-eica	EICA was established in 1965 as part of the Agriculture Foreign Relations Department at the MALR with the intention of expertise and technology transfer. EICA provides training programs in cooperation with international bodies such as the FAO and was successful in developing professional individuals throughout Africa, Latin America and Eastern Europe.	Very high interest	Engage in project activities
Horticulture Export Improvement Association (HEIA)	Professional organization	https://heiaegypt.org	A professional organization that is directed towards horticulture sector. In this respect, HEIA assists in the improvement, development, and penetration of new export markets through an integrated system including production, quality control, marketing, exporting, and processing of horticultural crops. Accordingly, the organization provides required technical, marketing, production, and exporting information that enables compliance with international standards while keeping an eye on sustainable development, and environmental protection in the horticulture sector. This implies cooperations with local, international and governmental bodies.	Very high interest	Engage in project activities

Table (3): Professional organizations and governmental bodies (continued)					
Organization name	Organization type	Source	Area of influence / Services description	Interest for the project	Recommended engagement*
Central Administration for Agricultural Extension and Environment (CAAEE)	Governmental	https://kenanaonline.com/users/Caaes/topics/142529	CAAEE works towards achieving self-sufficiency for strategic crops thereby reducing imports. In this respect, it critically links research and extension activities within the MALR through the provision of technological packages that are related to rural life and how to effectively produce, care and market the various agricultural crops (field and horticultural). In addition, CAAEE works on developing new extension methodologies such as the participatory extension methodology through Farmer Field Schools or Farmer to Farmer Extension. Furthermore, it plans, follows-up and supervises the implementation of extension and training programs for old and new lands for various agricultural crops. Linked to this CAAEE prepares and produces agricultural programs through films, tapes and posters, and participating in local and international exhibitions. It also provides internal and external training opportunities that are directed towards developing professional extension cadres.	Very high interest	Engage in project activities

Table (3): Professional organizations and governmental bodies (continued)

Organization name	Organization type	Source	Area of influence / Services description	Interest for the project	Recommended engagement*
Union of Producers and Exporters of Horticultural Crops (UPEHC)	Professional Organization	http://www.upehc.org/	A membership organization that incorporates producers and exporters of horticultural products (vegetables, fruits, ornamental, and medicinal products). As such, its main purpose is the provision of distinguished services to its members, especially small farmers, through the scientific development of horticultural products thereby increasing production and exports. In this sense, the union performs annual studies pertaining to the needs and pricing in external markets for horticultural products. In addition, this organization establishes research centers that produce technical research. Furthermore, the UPEHC conducts export contracts while simultaneously coordinating production with producers to meet these contracts. Also, UPEHC provides producers with production needs (equipment, training, storage facilities … etc.). Additionally, the union provides producers with technical support whether during production and packaging for the purpose of exporting.	Very high interest	Engage in project activities
Egyptian Agriculture Bank	Governmental	(Mahmoud et al., 2018)	Egyptian Agriculture Bank (formally the Principal Bank for Development & Agricultural Credit) is the most significant financial institution in rural areas. Recently, the bank has turned into a commercially run agriculture-focused bank that serves the agricultural sector. The bank was originally supervised by MALR but, today, it is under the supervision of the Central Bank of Egypt. It was mentioned by a private sector company that the bank is currently advanced in its thinking and has a lot of useful information about the sector.	High interest	Consult

Table (3): Professional organizations and governmental bodies (continued)

Organization name	Organization type	Source	Area of influence / Services description	Interest for the project	Recommended engagement*
Ministry of Education & Technical Education (MoETE)	Governmental	https://unevoc.unesco.org/home/Explore+the+UNEVOC+Network/centre=432	Part of the ministry's role is vocational or technical education. The ministry appreciates the critical role of technical and vocational training in qualifying young individuals for the labour market. In doing so, it relies on 'Technical Education 2.0' and the implementation of applied technology schools which is implemented through the collabouration of MoETE, private sector and international accreditation bodies.	High interest	Engage in project
Ministry of International Cooperation (MOIC)	Governmental	https://moic.gov.eg/	MOIC is responsible for enhancing the economic cooperation, bilateral, and multilateral engagement between Egypt and other nations, international and national financing institutions and specialized UN Agencies. Furthermore, the ministry aims at fostering sustainable growth through alignment with sustainable development goals. With respect to agriculture, small-scale farmers are at the heart of the ministry's strategy through participating in building their capacities as well as enhancing their access to inputs, knowledge, finance and markets. In addition, digitization is one of the critical priorities to foster farmers empowerment and increase their fresh products export potential.	High interest	Consult
Agriculture Cooperatives	Governmental	(Mahmoud et al., 2019)	Agriculture cooperatives are under the supervision of MALR. Today, the role of agriculture cooperatives shifted from information dissemination to the provision of market information, technical assistance, and supply chain for exports to farmers in rural areas. Currently, there are around 6,000 agricultural cooperatives that serve four million members.	Average interest	Consult

Table (3): Professional organizations and governmental bodies (continued)

Organization name	Organization type	Source	Area of influence / Services description	Interest for the project	Recommended engagement*
National Food Safety Authority (NFSA)	Governmental	(Mahmoud et al., 2018)	The main objective of NFSA is ensuring the adoption of highest food safety and hygiene standards for produced and processed food and to meet local and export market requirements.	Average interest	Engage for national platform
National Service Projects Organization (NSPO)	Governmental	http://www.nspo.com.eg/nspo/index.html	An organization affiliated to the Egyptian Armed forces that aim at reducing unemployment, providing essential and strategic products. In line with the agriculture sector. The organization owns nine companies that cover subsectors such as land reclamation, provision of food products, storage and agricultural input supplies.	Average interest	Consult
Agriculture Export Council (AEC)	Governmental	https://www.aecegypt.com/WebPages/Common/Home.aspx	AEC is the top advisory entity to the Minister of Trade and Industries for the Agriculture sector. Consequently, AEC presents to the Minister recommendations and regulatory policies that enable the development of the agriculture sector exports. In this manner, AEC performs several activities that eliminate internal or external difficulties that may negatively impact agricultural exports, organizes international conferences and fairs to promote agricultural products and develops and implements training courses for council members.	Average interest	Consult
General Authority for Reclamation Projects & Agricultural Development (GARPAD)	Governmental	(Mahmoud et al., 2018)	GARPAD is affiliated to MALR. It identifies the land reclamation process including identification of reclaimed lands, planning, division, equipping areas with infrastructure, pricing, allocation and post-award monitoring, and regulating auction procedures for land selling.	Low interest	Inform

Table (3): Professional organizations and governmental bodies (continued)

Organization name	Organization type	Source	Area of influence / Services description	Interest for the project	Recommended engagement*
Egyptian Organization for Standardization (EOS)	Governmental	(International Labour Organization, 2020)	An organization affiliated to Ministry of Industry and Trade with the responsibility of setting food safety standards for the local market and compliance to international standards. Accordingly, it concentrates on tackling issues related to standards thereby affecting policy decisions. In this respect it provides certain types of certification and provides awareness training on introduced standards.	Low interest	Inform
Ministry of Irrigation and Water Resources	Governmental	https://www.mwri.gov.eg/	There are several activities related to agriculture such as developing and implementing policies pertaining to agricultural lands drainage networks as well as the means of preserving soil fertility. In addition, the ministry undertakes necessary studies and research to assess and estimate the capabilities of underground water reservoirs in Delta, Nile Valley and Egyptian deserts. Furthermore, it uses the latest technology in the development of pumping stations for effective agricultural production besides achieving water abundance for land expansion and vertical expansion. The ministry is also responsible for developing geographical maps and expropriation of real estate and lands for the public benefit and agricultural reform.	Low interest	Inform
Ministry of Local Development (MLD)	Governmental	https://www.mld.gov.eg/en	Among the related activities is monitoring of agricultural land violation	Low interest	Inform

*None; Inform; Consult; Engage in project activities; Engage for national platform.
Complied and prepared by the research team from various sources as indicated in table source column

Table 4: Private companies – agriculture

Company name	Sector	Location of operations	Size (staff; turnover)	Main products	Details	Dutch/ European partners (if applicable)	Interview (Y/N)	Website
Dutch companies operating in Egypt								
Delphy	Agriculture Consulting	Across Egypt	5	Agriculture consulting across the board	Using a network of 250 Dutch and international consultants. They also have research centers in the Netherlands and Jordan and are planning to open one in Egypt. They also are involved in many training, capacity building and other funded projects.	Yes (primarily Dutch)	Y	https://delphy.nl/en/business-advice-per-sector/
Rijk Zwaan	Vegetable seeds	Across Egypt	40	Vegetable seeds	A Dutch company with a branch in Egypt covering Middle East and North Africa.	Yes (primarily Dutch)	Y	https://www.rijkzwaan.com/
Training, consulting and implementation for others								
Hydrofarms	Hydroponics	Different areas in Egypt and now expanding to MENA (particularly KSA & Lybia)	15-16 (9 in production and rest in different management positions); high turnover as they are considered a "school" for hydroponic farming so people come to them to get expertise and leave/get headhunted	Hydroponic turnkey solutions	They attempt to build everything locally from agri-ERP systems to designing a training program, etc... Thus, hydroponic farming for them is an R&D arm rather than a service. They started working in leafy greens and now expanding to all hydroponically grown crops.	Dutch because they have the expertise and are active	Y	https://eg.linkedin.com/company/hydrofarms-for-agri-solutions

Table (4): Private companies – agriculture (continued)

Company name	Sector	Location of operations	Size (staff; turnover)	Main products	Details	Dutch/ European partners (if applicable)	Interview (Y/N)	Website
Mozare3	Digitizing the Agri value chain	60% Upper Egypt (mainly Beni Suef, Fayoum and Menya) and 40% Lower Egypt (especially Beheira)	180-190 employees with the following classifications: - 30% are women - 60% in agri business and 40% in technology and services - divided equally among blue and white collar	Mainly contract farming	Activities include: - crop marketing - managing the contractual process with farmers - classification/ assessment of farmers - digitizing the whole process - offering fintech solutions for the agri sector	Yes (actually the company is incorporated in the Netherlands)	Y	https://www.mozare3.net/
Tamkeen	Farm management & trade	Across Egypt and are looking to enter KSA and Lybia	120 employees of which 6 are in management, 15 agri-engineers and the rest are blue collar. Of all the employees only 4 are women. Casual workers are used when needed.	Farming and imports/exports	6 co-founders all coming from the agriculture field. Their activities and services include: 1) Farm management for others 2) Farming their own land 3) Agro trading (import & export) 4) Agent for Irri Watch (Dutch)	Yes	Y	https://www.agro-tamkeen.com
Farming & production								
Agreen	Agriculture	Wadi El Malook, El Sadaat, Menoufia	7,000 workers	Fruits	Orange, lemon		N	http://www.agreen-co.com/
Agro Alex Group	Agriculture: Cultivation, packaging, export	Salheya Nubaria Wadi El Natron		Fruits, vegetables & medical herbs and spices	Potato, onion, artichoke, Egyptian garlic, orange, pomegranate, mandarin, and herbs.	Yes	N	https://www.agroalexgroup.com/

Table (4): Private companies – agriculture (continued)

Company name	Sector	Location of operations	Size (staff; turnover)	Main products	Details	Dutch/ European partners (if applicable)	Interview (Y/N)	Website
AlArd Altayeba	Agriculture: export	Cairo-Alexandria Road		Vegetables	onion, cauliflower, garlic	No	N	https://www.alard-altayeba.com
Al Ghanem Agricultural Group	Agriculture	Ahmed Orabi Agricultural Cooperative		Vegetables & herbs	Uses hi-tech, automated hydroponic greenhouses and produces lettuce, basil, purple basil, cinnamon basil, cilantro, dill, baby kale, mustard leaves (red and green),		N	https://www.alghanimagri.com
All Green	Agriculture			Fruits & vegetables	Strawberries, Grapes, Guava, Capsicum, Cucumber, Lime, Chili Pepper, Spring Onion, Dry Onion, Sugar Snap, Green Beans, Coriander, Garlic and other seasonally harvested items, and fresh specialty produce		N	
Al Teriak	Agriculture: Cultivation	Nubaria Watdi El Natroun El Wahat		Fruits Vegetables	Mandarin, orange, pomegranate, lemon, mango, custard apple, dates, onion, potato, sweet potato,		N	https://elteriakfarms.com

Table (4): Private companies – agriculture (continued)

Company name	Sector	Location of operations	Size (staff; turnover)	Main products	Details	Dutch/ European partners (if applicable)	Interview (Y/N)	Website
Amal for Import and Export	Agriculture: Export	Alexandria		Fruits Vegetables	Green beans, cucumber, eggplant, dry onion, spring onion, colored pepper, dill, parsley, Egyptian leek, rosemary, grape leaves, grapes, water melon, pomegranate, orange, clementine, lemon, grapefruit, dates, strawberry, melon, peach		N	https://www.namaleg.com
Belco	Agriculture	Fayoum, Alexandria & Al Mahla Al Kobra	2,000	Fruits & vegetables	Strawberries, grapes, stone fruit, Green beans, onion, snow peas, capsicum, chilies, Chinese cabbage, iceberg lettuce, mango, raspberries.		N	https://www.belco.com
Cairo 3A For Agricultural and Animal Production	Agriculture	Wadi Al Natron Alexandria Desert Road		Fruits & vegetables	Pomegranate, grapes, peach, nectarine, mango, strawberries, citrus, iceberg lettuce, Broccoli, cucumber.		N	https://www.cairo3a-agriculture.com
Calendula Herbs	Agriculture: Cultivation, processing, export	Fayoum		Herbs Spices Seeds	Calendula, chamomile, spearmint, marjoram, peppermint, basil, parsley, thyme, hibiscus, dill, moringa, molokhya, lemon grass, dried lemon, black pepper, cumin, sage, anise, sesame, fennel, black seeds, caraway		N	https://www.calendula-herbs.com

Table (4): Private companies – agriculture (continued)

Company name	Sector	Location of operations	Size (staff; turnover)	Main products	Details	Dutch/ European partners (if applicable)	Interview (Y/N)	Website
Dakahlia Agricultural development	Agriculture			Fruits Vegetables	Citrus, grapes, pomegranate, strawberries, dates, sweet potato, potato, onion, garlic		N	https://dakahliaproduce.com
Daltex	Agriculture	Wadi El Molak Salhiya Nubaria East Owainat Reclaimed land in Southern Egypt New Valley, Farafra	2,500	Vegetables, fruits & grains	Potatoes, citrus, grapes, pomegranates, onions, spring onions, carrots, sweet potatoes, pumpkin,	Yes	N	https://www.daltexcorp.com
Dina Farms	Agriculture	Cairo-Alexandria Road		Fruits & vegetables	Grapes, mango, peach, oranges, bananas, olives, apricots, potatoes, clover, wheat, corn silage, alfalfa, and sugar beet,		N	http://www.dinafarms.com
Dinaflor	Cur flower production	Qalyoubia	Around 200, mostly women	Cut flower		Yes	N	
Domiatec Agri Group	Import, cultivation, storage, packing, export	Nile Delta (various locations): owned and contracted		Fruits Vegetables	Mandarin, orange, lemon, grape fruit, dates, potato		N	https://www.domiatec.com

Table (4): Private companies – agriculture (continued)								
Company name	Sector	Location of operations	Size (staff; turnover)	Main products	Details	Dutch/ European partners (if applicable)	Interview (Y/N)	Website
Egyptian Agriculture and Trade services (Egast)	Cultivation, warehouses, packing house, cold stores	East and west Nile Delta		Fruits & vegetables	Potato, onion, orange, pomegranate	EU market existence	N	https://www.egast-eg.com
El Roda	Agriculture	Nubaria		Fruits	Grapes, citrus, raspberries	Dutch market existence	N	https://www.elroda.com/
El Waha Export	Export			Fruits Vegetables	Orange, lemon, grapes, mango, strawberry, onion, garlic, iceberg lettuce, green beans & capsicum.	Exports to Europe	N	https://elwahaexport.com
Frutella for Food Industry	Cultivation, pack house, cold store	Qaluybia		Fruits & vegetables	Onion, grapes, citrus, pomegranate	Exports to Netherlands	N	https://www.fruttella.com
Future Farm	Cultivation & export	Alexandria		Vegetables	Onion, spring opnion, potato, sweet potato	Yes	N	http://futurefarmeg.com/
Giza Seeds and Herbs	Cultivation, processing, sterilization	Upper Egypt 6th of October		Culinary and medicinal	Herbs	Exports to Europe	N	https://www.gizaseeds.com/

Table (4): Private companies – agriculture (continued)

Company name	Sector	Location of operations	Size (staff; turnover)	Main products	Details	Dutch/ European partners (if applicable)	Interview (Y/N)	Website
Grand Egypt	Agriculture: Export	Alexandria		Fruits Vegetables Herbs	Grapes, orange, lemon, mandarin, mango, strawberry, melon (cantaloupe), water melon, pomegranate, Onion, garlic, spring onion, green beans, iceberg lettuce, artichoke, potato, tomato, eggplants, zucchini, sweet potato, basil, dill, coriander, mint,		N	https://grandegypt.info/
Green Valley	Agriculture: Cultivation, packing, export			Fruits Vegetables	Grapes, citrus, dates, guava, pomegranate, mango, peach, strawberry, water melon, potato, squash, okra, molokhya, eggplant, cucumber, dry garlic, capsicum, cauliflower, broccoli, green beans, sweet potato, hot pepper, lettuce, artichoke		N	https://www.green-valley-eg.com
HG Group	Agriculture			Fruits Vegetables Ornamental	Citrus, gapes, avocado, mango, grapes banana, olive. Uses open frames and hi-tech greenhouses as well as tissue culture banana, blueberries, potato and ornamental cultivation.		N	https://www.hg-egypt.com
Jozzby	Agriculture: cultivation	Behaira Governorate		Fruits Vegetables	Citrus, grapes, pomegranate, onion, sweet potato	Exports to Europe	N	https://jozzbyfarms.com

Table (4): Private companies – agriculture (continued)

Company name	Sector	Location of operations	Size (staff; turnover)	Main products	Details	Dutch/ European partners (if applicable)	Interview (Y/N)	Website
Korra Agri	Horticulture export, pesticides and fertilizers				Exporting horticulture produce (mainly strawberries). Korra Agri is the first and only company in Egypt, which has the right to directly package products to Tesco, Sainsbury's, Coop, and Iceland. Additionally, Korra's portfolio of products includes pesticides, fungicides, Acaricides, and nematode; partnering with around 14 different producers from three main countries; Spain, Turkey and China. Korra Agri is certified/tested by GLOBALG.A.P., The British Retail Consortium (BRC), Tesco Nurture, Leaf Marque Global Standard, Ethical Trading Initiative (ETI), Sedex Members Ethical Trade Audits (SMETA), Field to Fork (F2F) & TPPS.	Imports & exports with EU	N	http://korra-holding.com/korra-agri-home
LINAH Farms	Propagation, cultivation, packing	Bahareya Oasis		Fruits	Dates		N	https://linahfarms.com

Table (4): Private companies – agriculture (continued)

Company name	Sector	Location of operations	Size (staff; turnover)	Main products	Details	Dutch/ European partners (if applicable)	Interview (Y/N)	Website
Maba	Cultivation and import/ export		51 -200	Potato & other crops	Import and export of different agricultural products, land reclamation and large scale production, as well as a variety of other activities.		N	https://eg.linkedin.com/company/maba-
Maghrabi Agriculture (MAFA)	Cultivation, pack house	Noubaria Tanboul Aswan Minya		Fruits Vegetables	Orange, lemon, lime, grapefruit, dates, mango, strawberry, capsicum, lettuce	Yes	N	https://www.magrabi-agriculture.com
Middle East for Agriculture Development (MEAD)	Cultivation, pack house, freezing			Fruits & vegetables	Green peas, sweet potato, carrots, artichoke, pepper (green and colored), onion, potato, peach, pomegranate, strawberries, mango, citrus, grapes,		N	https://www.elaguizyfarms.com/
Nivex Farms	Cultivation, pack house, export	Wadi El Natroun		Fruits Vegetables	Green beans, onion (yellow and red), capsicum, Strawberry		N	https://www.nivexfarms.com

Table (4): Private companies – agriculture (continued)								
Company name	Sector	Location of operations	Size (staff; turnover)	Main products	Details	Dutch/ European partners (if applicable)	Interview (Y/N)	Website
Norica		Beni Suef		Fruits Vegetables Herbs and spices	Grapes, mandarin, guava, dates, orange, lemon, strawberries, pomegranate, mango, green onion, spinach, green beans, green peas, potato, tomato, onion, okra, molokhya, garlic, carrots, broccoli, artichoke, parsley, and herbs		N	http://www.noricafood.com/
Organic Land	Cultivation, packaging, export	Fayoum		Medicinal plants & herbs	Different herbs and spices		N	https://www.organiclandco.com

Table (4): Private companies – agriculture (continued)

Company name	Sector	Location of operations	Size (staff; turnover)	Main products	Details	Dutch/ European partners (if applicable)	Interview (Y/N)	Website
PICO Modern Agriculture Company	Agriculture	Desert land	No reported number but it is one of the biggest in agriculture in Egypt (c.a. 2000 – 5000)	Vegetables, fruits, herbs and honey (main export products are strawberries, peaches, nectarines, loquats, table grapes, leafy salads, sweet pepper)	PICO Agriculture is among the top Egyptian growers and exporters of fresh produce. PICO owns and farms a total of 7,000 acres of land. PICO is a market leader and trend setter amongst leading agricultural companies in the region, introducing new farming techniques, crops, varieties and management systems. PICO's international standards meet the highest requirements of top European and UK supermarkets. PICO farms and packing houses are certified BRC, TNC, ETI, Field to Fork, GlobalGap. HACCP is implemented.	Yes	N	https://picoagriculture.com
Queen Fresh Produce	Agriculture: Cultivation, packing, export			Fruits Vegetables	Grapes, pomegranate, green beans, sweet peppers, chili, garlic, onion (golden, red)	No	N	ttps://www.queenfreshproduce.com

Table (4): Private companies – agriculture (continued)

Company name	Sector	Location of operations	Size (staff; turnover)	Main products	Details	Dutch/ European partners (if applicable)	Interview (Y/N)	Website
Ragab Farms	Agriculture, Cultivation, packing, cold storage	Noubaria Managed farms in Behira, Alexandria, Kafr El Sheikh	300	Fruits Vegetables Ornamental	Grapes, citrus, pomegranate, strawberry, pear, nectarine, fig, capsicum, hibiscus and other crops.	Exports to Europe	N	http://www.ragabfarms.com
	Distribution and export			Distribution and export	Distributes and exports crops and beans, peas, lentils and seeds as well as all types of dried herbs. The company undergoes training for students and newly hired (in-class) and then they go to field work. In addition, the company takes inters during the summer with the aim to relating academic studies with real life market experience.	Yes	N	https://www.sanabelelkheir.com

Table (4): Private companies – agriculture (continued)

Company name	Sector	Location of operations	Size (staff; turnover)	Main products	Details	Dutch/ European partners (if applicable)	Interview (Y/N)	Website
Sekem	Cultivation and distribution			Cultivation and distribution of a wide range of products (especially known for organic produce)	SEKEM was founded with the idea of sustainable development and giving back to the community. The reliability of SEKEMs production depends, next to its own cultivation (SEKEM for Land Reclamation), on the supply of high quality, biodynamically grown crops. Additionally, SEKEM works on many international projects.	Yes	N	https://sekem.com/en/index/
Wadi Group	Agriculture		2,800	Poultry and vegetables	Olives, tomato paste and olive oil and poultry		N	https://www.wadigroup.com
Fertilizers and pesticides								
Agrismart	Pesticides and fertilizers import			Pesticides and fertilizers import	Importing high quality products		N	https://agrismartco.com

Table (4): Private companies – agriculture (continued)

Company name	Sector	Location of operations	Size (staff; turnover)	Main products	Details	Dutch/ European partners (if applicable)	Interview (Y/N)	Website
BioEgypt	Biological solutions	Mainly Qalyoubia	50 employees, of which around 10 are in administrative/ managerial positions, 5 in sales and the rest are in production	Biological fertilizers and pesticides	Working in different areas such as: 1) macro (insects), 2) micro (microbial) and 3) pollination (especially bumble bees). This is done either through local production (mainly macro where they produce 30 Mn predators per week) or import (mainly through Koppert, their Dutch partner)	Yes	Y	https://eg.linkedin.com/company/bioegypt
Biogreen	Production supplies importers, consulting	Sadat city, Menoufia		Production supplies Agricultural consulting	Fertilizers, pesticides		N	https://biogreen-eg.com/
Chema	Production of pesticides, fertilizers, spraying machine			Fertilizers Pesticides Machine sprayer	Fertilizers: Specific Fertilizers, Compound Fertilizers, Natural Fertilizers, Adjuvant and PGRs. Pesticides: Insecticides, Agricultural oil, Acaricides, Rodenticides, Fungicides and Herbicides. Machine Sprayers: Manufactured under License from Germany.		N	https://chema.com.eg

Table (4): Private companies – agriculture (continued)

Company name	Sector	Location of operations	Size (staff; turnover)	Main products	Details	Dutch/ European partners (if applicable)	Interview (Y/N)	Website
Wavy Fresh	Agriculture			Fruits Vegetables	Grape, Orange, lemon, tomatoes, potatoes, artichoke, cucumber, cabbage, Strawberry, peach, fig peach, apricot, plum, melon, watermelon, pomegranates ,grapes, Pepper, green peas, green beans, dates. Wavy fresh works in Shipping and logistics, custom clearance and documentation, warehousing, packaging		N	wavyfresh.com
Evergrow	Fertilizers	Abou Rawash, Cairo		Fertilizers Chemicals	Fertilizers: Potassium Sulfate, Potassium Nitrate, Balanced NPK, Phosphate fertilizers, Calcium Nitrate, magnesium Nitrate Chemicals: Calcium Chloride 94 - 96%, Sulfuric Acid 98%, Hydrochloric acid 30 - 33%, Copper Sulphate		N	https://evergrowfert.com
Ferchem Masr for Fertilizers and Chemicals	Fertilizers and chemicals production	Sadat City, Menoufia		Fertilizers Chemicals	Bulk blended-NPK, soluble fertilizers, liquid fertilizers, Nitrogen fertilizers, Phosphate fertilizers	Exports to Europe	N	https://www.ferchem.com.eg/

Table (4): Private companies – agriculture (continued)

Company name	Sector	Location of operations	Size (staff; turnover)	Main products	Details	Dutch/ European partners (if applicable)	Interview (Y/N)	Website
Fine Seeds	Vegetables seeds breeding, fertilizers, pesticides				Vegetable seeds: cucumber, tomato, broccoli, squash, hot pepper, carrots, parsley, sweet pepper, cauliflower, onion		N	https://fineseeds.com
Harraz Agri Trade	Suppliers of agricultural tools and machinery			Tools and machinery	Agricultural rockwool, coco disk, coco fiber pots, seeds for home growers, seeds bags, husk chips, hydroponic nutrients solutions, vermicompost, seeds for farms, agricultural pertiles, sprayers and water cans, seed trays, home growing systems and agri solutions		N	http://www.harraz.trade
Misr Fertilizers Production Company (MOPOCO)	Agriculture: Fertilizers production, shipping	Damietta Public Free Zone		Fertilizers	Urea & Ammonia	Exports to Europe	N	
Shoura Chemicals	Agricultural chemicals	Across Egypt & exporting		Fertilizers & pesticides	Around 400 products		N	http://www.shourachemicals.com/ar/home

Table 5: Research organizations					
Organization name	Organization type	Information Source	Services description	Interest for the project	Recommended engagement*
Agricultural Engineering Research Institute (AEnRI)	Governmental	http://www.arc.sci.eg/InstsLabs/Default.aspx?OrgID=12&TabId=0&lang=en	AEnRI works under the auspices of the Agricultural research Center. AEnRI has been organized into several research departments and also has two centers for tractor and machinery testing services and rice mechanization center.	Very high interest	Engage in project activities
Agriculture Research center (ARC)	Governmental	http://www.arc.sci.eg	ARC is the research arm at MALR with 16 affiliated research institutes, 8 central labouratories incorporated in 56 experimental research stations located all over Egypt. The main objective of ARC is directing agricultural activities based on research, economic studies, and alignment with the country's general objectives. The center recommends new policies necessary for the implementation of the agricultural policy. ARC uses modern technologies in the field of biotechnology and its implementation in various agricultural activities. ARC uses national networks to highlight climate change and its impact on the agriculture sector.	Very high interest	Engage in project activities
Horticultural Institute (HRI)	Governmental	http://www.arc.sci.eg/InstsLabs/Default.aspx?OrgID=4&TabId=0&NavId=1&lang=en	The main goal of HRI is to enhance the productivity of horticultural crops in quantity and quality to meet local and export demands with special attention to horticulture crops that are best suited to Egyptian climate. In this manner, HRI conducts research at experimental stations and growers' land including propagation (modernization and improvement), breeding (current and newly imported breeds), selection of new strains, agronomy practices, post-harvest treatments for local and foreign markets, means of improving horticultural crops as well as overcoming problems. The second aim of HRI is extension and training services as manifested in publications and fact sheets, regular visits to farms, and development of researchers.	Very high interest	Engage in project activities

Table (5): Research organizations (continued)

Organization name	Organization type	Information Source	Services description	Interest for the project	Recommended engagement*
Soils, Water & Environmental Research Institute (SWERI)	Governmental	http://www.sweri-eg.com/en_detailsoabout_ins.php?id=1	Works under the ARC with special emphasis on soil, water and environmental research.	Very high interest	Engage in project activities
Desert Research Center	Governmental	https://drc.gov.eg/en/about-us/	The center is directed towards the development of plans that realize sustainable development of natural resources in the Egyptian desert. To achieve this aim, the Desert Research Center performs scientific research pertaining to water, soil, plants, and climate change for example. In addition, the center develops plans and implements training activities for land reclamation and cultivation in the desert	High interest	Engage in project activities

*None; Inform; Consult; Engage in project activities; Engage for national platform.
Complied and prepared by the research team from various sources as indicated in table source column

Table 6: Other relevant stakeholders					
Organization name	Organization type	Information source	Area of influence / Services description	Interest for the project	Recommended engagement*
Non-governmental organizations - NGOs					
Care Egypt Foundation	NGO	https://care.org.eg/	CARE Egypt Foundation (CEF) is an Egyptian, non-governmental organization harnessing the legacy of CARE International in Egypt since 1954 to fight poverty and improve livelihoods, achieve social justice and fight for women and girls.	Very high interest	Engage in project activities
The Egyptian Horticulture Society	NGO	https://www.facebook.com/EHSeg/	Works on the development of horticultural products, helps its members in introducing new species, provides extension services and develops and implements conferences and training programs.	Very high interest	Engage in project activities
Coca-Cola Foundation	Non-profit	https://www.coca-colacompany.com/social/coca-cola-foundation	A non-profit organization that promotes the development and education around the globe. Since its inception, it provided over one billion US dollars to different organizations and projects.	Average interest	Consult
Orange Corner (Upper Egypt)	Startup incubator	https://www.orangecorners.com/country/upper-egypt/	The main objective of the incubator is to provide assistance in young entrepreneurs in Upper Egypt with special focus on agriculture and creative works. In this respect, the incubator provides several services to Egyptian young entrepreneurs among which is training, coaching, and mentorship programs	Average interest	Consult
Sawiris Foundation for Social Development	NGO	https://www.sawirisfoundation.org/	Works in Upper Egypt and helps farmers in enhancing their productivity.	Average interest	Consult

Table (6): Other relevant stakeholders (continued)

Organization name	Organization type	Information source	Area of influence / Services description	Interest for the project	Recommended engagement*
International organizations					
European Union Commission	International	https://www.eeas.europa.eu	Covers all bilateral activities with Egypt and interacts with governmental and non governmental bodies as well as civil society.	Very high interest	Engage in project activities
Food and Agriculture Organization (FAO)	International	https://www.fao.org	An organization affiliated to the UN and specializing in fighting hunger and achieving food security for everyone. This involves ensuring better food production, nutrition, and environmental sustainability.	Very high interest	Engage in project activities
German Agency for International Cooperation (GIZ)	German	https://www.giz.de/en/html/about_giz.html	Responsible for international cooperation to support the German government in achieving its development goals. GIZ also supports partner countries and organizations in areas related to poverty, climate change, economic development, and cooperation around the world.	Very high interest	Engage in project activities
Italian Agency for Development Cooperation (AICS)	Italian	https://www.aics.gov.it/language/en/	Governmental agency responsible for the management and implementation of developmental cooperation between Italy and developing countries. AICS works towards reducing poverty and inequality, fostering sustainable development, and promoting the implementation of sustainable development goals	Very high interest	Engage in project activities
Netherlands Enterprise Agency (RVO)	Dutch	https://english.rvo.nl/	Assisting Dutch businesses and entrepreneurs through provision of networking activities, financial assistance and advice. RVO offers guidance to foreign companies wishing to grow in the Netherlands and subsidizes businesses in various industries especially those directed towards sustainable development goals.	Very high interest	Engage in project activities

Table (6): Other relevant stakeholders (continued)

Organization name	Organization type	Information source	Area of influence / Services description	Interest for the project	Recommended engagement*
The Dutch Organization for Internationalization of Education (NUFFIC)	Dutch	https://www.nuffic.nl/en	A Dutch organization that helps in offering information, advice and support for international education and mobility including scholarships and training	Very high interest	Engage in project activities
International Fund for Agricultural Development (IFAD)	International	https://www.ifad.org	Helping poor women and men in rural areas in enhancing their technical skills with the aim of betterment of the economic opportunities they can take advantage of. IFAD facilitates the sustainable use of natural resources with special emphasis on land and water. It also develops knowledge-sharing networks and facilitates microfinance for poor individuals in rural areas. Finally, it facilitates access to better quality services for the poor farmers in rural areas like access to technology, finance and markets.	High interest	Consult
United Nations Development Program (UNDP)	International	https://www.undp.org/about-us	Works in 170 countries with the aim of eliminating poverty and reducing inequality. UNDP aids in development of policies, leadership skills, partnering capabilities, enhancing institutional capacities and facilitating sustainable development goals. Lastly, climate and disaster resilience is among its focus areas.	Average interest	Consult
International Center for Agricultural Research in the Dry Areas (ICARDA)	International	https://www.icarda.org/	A research-for-development organization that aims at enhancing livelihoods of rural people in drylands through the provision of agricultural solutions. Areas of research cover climate-smart water management, preservation of agriculture and enhancing the capacities of different players in agriculture (farmers, extension services employees, researchers ..etc.)	Average interest	Consult
World Food Program (WFP)	International	https://www.wfp.org	A humanitarian organization - affiliated to the United Nations – which aims at helping people cope with disasters and climate change, increasing nutrition, and aiding small-scale farmers in elevating their productivity and decreasing losses.	Average interest	Consult

Table (6): Other relevant stakeholders (continued)

Organization name	Organization type	Information source	Area of influence / Services description	Interest for the project	Recommended engagement*
World Bank	International	https://worldbank.org	Provides financial and technical assistance to developing countries with the aim of helping them in reducing poverty and achieving sustainable development goals.	Average interest	Consult
United States Agency for International Development (USAID)	American	https://www.usaid.gov/	The purpose of USAID (United States Agency for International Development) is to provide foreign assistance to promote sustainable development and humanitarian aid worldwide. USAID partners with governments, civil society organizations, private sector companies, and other stakeholders to achieve its mission. It works to support economic growth, improve health and education, promote democracy and human rights, and respond to humanitarian crises and natural disasters.	Average interest	Consult

*None; Inform; Consult; Engage in project activities; Engage for national platform.
Complied and prepared by the research team from various sources as indicated in table source column

4.4 Conclusion

Agriculture is a vital sector for the development and growth of the Egyptian economy. Its importance is driven from its critical role in achieving food security, participating to the growth of domestic manufacturing, and contribution to GDP through exports. Despite its importance, contradictions in available data, climate change, and urbanization are among the challenges that face this vital sector.

Most of the agriculture is concentrated around the Nile Valley where land is owned by small-scale farmers who usually apply traditional agricultural methods. Due to its importance, the Government of Egypt has directed its efforts towards developing mega projects to align with its Sustainable Development strategy. Within this framework, land reclamation and the application of advanced technology in agriculture were among the top priorities of this sector.

It is claimed that the horticulture sector, a high-yield sector, could play an important role in growing the exports of agricultural projects in Egypt. Accordingly, various actors within the agriculture value chain need to coordinate to promote this sector. Those actors include the farmers, governmental bodies, research institutions, private sector and NGOs.

5. Labour market assessment

Egypt, like most of the MENA countries, is undergoing favorable demographic changes that are expected to have profound influence on its economy and society. This change is reflected in decreased mortality and fertility rates (Danish Trade Union Development Agency, 2021; OECD, 2023). Data produced by the United Nations Population Division revealed that the median population age between 2017 and 2022 increased from 23.4 to 24.1 and is expected to rise to 25.4 by 2030 (UN). Those trends are expected to continue, thereby leading to a 'demographic dividend' that is likely to enhance the economy's per-capita productive capacity and economic growth (Danish Trade Union Development Agency, 2021; OECD, 2023). However, this can only happen if suitable policies are put forward to take advantage of such 'demographic window'. Such policies may incorporate provision of right nutrition, education, and employment. In other words, economic growth can be realized if attention is directed towards skills development and integration of the youth into the labour market (OECD, 2023).

A quick glance at Egypt's figures revealed that it suffers from gender inequality. In 2021, employment-population rate was predicted at 39.8% in Egypt with an indication of gender gap in favor of males who accounted for 65.2%. Furthermore, the percentage of youth not in work, education or training (NEET) is 28.7% where again gender inequality is witnessed such that females accounted for 42.2% against 16.1% for males. Again, gender inequality could be witnessed in unemployment rates where youth unemployment rate was 28.7% with women accounting for 42.5% against a rate of 12.6% for men (ILO). It is important to note, however, that figures on unemployment rates may be misleading because it is estimated that the informal economy constitutes around 40% of Egypt's GDP (Ebner et al., 2020).

In general, although the data on university graduates' employability is scarce, high unemployment rates may indicate that there is a discrepancy between learning outcomes and labour market needs (Ebner et al., 2020). This issue is relevant to almost all sectors of work in Egypt, industry-specific findings are highlighted in the below sections. The ILO's School-to-Work Transition Surveys indicated the highest percentage of young people that experienced the longest time to transition from school to work came from the MENA region besides gender inequality. For example, Statistics from 2017 on Egypt revealed that 15% of young individuals never worked and a striking difference exists between males and females (4% and 29%, respectively). Gender inequality is also witnessed in the estimated time to transition to work where young males median time to first employment was 14 months whereas females are expected to wait 82.8 months to find their first employment (OECD, 2023).

5.1 Labour market requirements

As indicated in Egypt Vision 2030, Egypt's Sustainable Development Strategy stressed the importance of enhancing the quality of curricula and teaching to align with international standards. In addition, the strategy stressed the importance of guaranteeing accessibility and quality of classrooms in rural and urban areas for females as well as males. More importantly, the strategy urged for the need to develop educational curricula that enables students to meet the labour market needs (Ebner et al., 2020).

5.1.1 Agriculture sector employment profile

Although agriculture is a significant contributor to the Egyptian economy especially in employing youth in rural areas, the number of youth working in this vital sector decreased over the previous ten years (OECD, 2023). A comparison between 2010 and 2020 revealed that the total employment rate in agriculture decreased from 28% to 20% of Egypt's total employment. Female employment rate in the agriculture sector declined from 43% to 26% to total employment. The agriculture sector also heavily relies on informality, self-employment, temporary and part-time work (OECD and ILO, 2019). Consequently, such situation puts youth working in agriculture at potentially high risk of absence of job quality, poor working conditions, and more importantly less chances for possible career advancements and/or development (OECD, 2023).

From a sectorial standpoint, a recent report by DTDA (2021) analyzed labour productivity and found that the agriculture sector was among the sectors with low productivity. In this respect, a study concluded that those who moved from agriculture went to the construction sector which also suffers from low labour productivity (Morsy and Levy, 2020). Generally speaking, one of the main reasons that resulted in low labour productivity was the mismatch between labour market needs and labour qualifications (Ebner et al., 2020; Danish Trade Union Development Agency, 2021; OECD, 2023). Another reason that may lead to low productivity is the heavy reliance on small-scale farmers (land fragmentation) which significantly inhibits the abilities to follow international standards, modernization of farming practices, reaping the benefits of economies of scale and the associated efficiencies (Morsy and Levy, 2020).

5.1.2 Agriculture sector labour market needs

The current agricultural labour market requires a vast array of skills that could be grouped into foundational, technical, digital, managerial, behavioral skills, and cognitive skills. The following highlights these labour market needs:

- Foundational skills include the basic abilities acquired during childhood and adolescence at the primary and secondary level of school education. Typically, those skills include reading, writing and numeracy, thereby enabling further education. (OECD, 2023).
- Technical skills pertain to the technical knowledge related to the area of specialization and are usually extensively incorporated at the university level education (Ebner et al., 2020; ILO, 2021).
- Digital skills are considered a crucial necessity for seizing better job opportunities, implementing modern, innovative technologies and adopting new work systems, thereby boosting business results and labour productivity (OECD, 2023). According to the ILO standard basic skills for 21st century (2021), digital skills are those competencies needed to handle basic tasks related to hardware, software, and online operations. In other words, they pertain to digital literacy.
- Management and behavioral skills are those skills related to aspects such as general management, finance, marketing, environmental regulations, and behavioral skills (working in teams, communication, negotiation, conflict management … etc.). Some of the skills in this category have been emphasized by the ILO standards for work and life in the 21st century. For example, for sustainability and environmental regulations, those skills were categorized as green jobs whereas behavioral skills are referred to as social and emotional skills (ILO, 2021).
- Cognitive skills refer to the brain capability to organize new information, comprehend it, retain it, and utilize it. An individual can handle the process of analyzing new information and applying it to various situations more effectively and quickly by improving cognitive skills (ILO, 2021). Some of the literature has incorporated those skills within the managerial and behavioral skills (Ebner et al., 2020).

From the above labour market requirements for the agriculture sector, it could be concluded that there is a need for flexible workers with varying degrees of the above-mentioned skills categories. For example, workers on modern farms would need to be able to adapt to the needs of the farm, thereby requiring cognitive skills, foundational skills and basic to medium technical skills. However, farm owners or those hired to improve cultivation process, need higher technical skills beside the above-mentioned skills. If those farmer owners or hired workers will be involved in the advanced technologies, then more sophisticated technical skills will be required like calibration precision applications, soil and water management. Furthermore, if economies of scale need to be realized, then management and behavioral skills will be deemed essential (OECD, 2023).

5.2 Skills gap

The development of youth skills is critical to achieve Egypt's 2030 vision and overcome the mismatch between current labour market requirements and labour qualifications. Undoubtedly, the educational system in Egypt has not been able to fulfill the demands of the agriculture labour market. The following will highlight areas of development or deficiencies regarding the above-mentioned labour skill requirements:

- Foundational skills: Egypt still suffers from substantial figures of student dropping out of school especially in rural areas and low-income households. Consequently, those dropouts usually have very limited employment opportunities outside their family businesses, a situation that is frequently encountered in the agriculture sector (OECD, 2023). Foundation skills enhancement, however, are beyond the scope of Mobilise project and are therefore disregarded at this point.
- Technical skills: In Egypt, there are numerous universities that offer undergraduate and graduate studies in the area of agriculture (Table 10) beside the agriculture technical secondary schools (Ebner et al., 2020). In terms of technical skills, it was stressed by most interviewed individuals, that a) the universities' curricula are outdated and b) minimal to no practical training or teaching takes place. This means that graduates enter the job market to feel that all their education was irrelevant to the real world. For example, in 2015, the Government of Egypt launched the Future of Egypt project (two phases) which is directed towards sustainable agriculture through the use of greenhouses technology (Presidency). Those mega projects would call for a development of the university curricula to accommodate for enhancing students' technical skills in greenhouses' management (Ebner et al., 2020). Furthermore, there would be a need for medium-high skilled jobholders who are well acquainted with agriculture science, modern mechanization techniques besides contemporary farm technologies (Ebner et al., 2020; OECD, 2023). It is also important to note that there will be high labour demand in specialized areas such as pest and water management (Ebner et al., 2020).
- Cognitive skills: In Egypt, the current schooling and education system heavily relies on memorization which hinders the development of cognitive skills such as analytical thinking, problem solving, and innovation. This is especially important for those occupations that demand STEM (OECD, 2023). The study of Ebner et al. (2020) revealed that there was great skill gap among university students (potential future employees) pertaining to the ability to analyze information and critically read technical and management reports. Those finding were also emphasized during the conducted interviews.
- Digital skills: Linked to the cognitive skills, it is crucial to upgrade the digital skills of potential future employees in digital literacy. For example, university

students need to be well acquainted with different methods of internet search for information, Microsoft office packages, etc… (Ebner et al., 2020). Those findings were further confirmed during the interviews with the private sector companies where they need an employee who has the basics of digital and soft skills that could be built upon to further train them on their companies' technologies

- Management and behavioral skills: A study conducted among agriculture university students, professors, employees and employers concluded that students employability is likely to increase if they are well acquainted with these types of skills (Ebner et al., 2020). Unfortunately, many of these skills are not incorporated in the educational curricula (Ebner et al., 2020; Ghimire et al., 2022; OECD, 2023). Interestingly, behavioral skills are sometimes even more important for employers than technical skills. Such companies believe that if the right attitude of commitment and passion to learn exist, the rest can be easily taught. Additionally, and especially for medium-high positions, agriculture economics and finance, management and other business aspects are crucial for the success of an employee.

In conclusion, the use of new technologies, contemporary and up-to-date mechanization techniques are needed to promote higher levels of productivity. In addition, more emphasis should be provided to higher-order capabilities especially those pertaining to managerial skills (management, finance, marketing, environmental regulations … etc.) beside technical know-how (mechanics, farm technology, agriculture science) (OECD, 2023). Additionally, many companies mentioned the importance of English language to be able to handle activities with external bodies such as funding agencies, importers and exporters. To sum up, currently the main skills deficiencies pertain to managerial, behavioral, cognitive, and digital skills. The following section would highlight the future developments.

5.3 Expected developments

Currently, Egypt faces a number of constraints that hinder the educational sectors' effectiveness in delivering the appropriate labour market requirements and fulling the skills gaps. Those challenges can be summed up in the following points:

- Resource limitations pertaining to availability of funding, facilities, and skilled instructors.
- Outdated curriculum that needs to be modernized to meet the demands of the labour market through provision of relevant skills.
- Limited access to technology which hinders student ability to develop their digital skills.
- Limited private sector engagement (OECD, 2015).

Today's employers are seeking candidates who have both technical (hard skills) as well as managerial and behavioral skills (soft skills). This implies that they seek individuals who are able to critically analyze problems and information, integrate different ideas, concepts and theories. What is even more important is how to apply them in real-life situations (Ghimire et al., 2021). At this point it is viewed essential to look at the expected development in the educational system from three angles as follows:

- Academic staff development: University academic staff can play an influential role in building their students' future careers. Currently, the agriculture education is theory-driven with little or no emphasis on practical learning. As such, it is essential to train instructors and professors on how to add more emphasis on the practical application of theories and knowledge introduced in the classroom. In other words, students should be given more opportunities to practice acquired knowledge and learn how to apply it to real-life situations (Ghimire et al., 2021; Hatab and Krautscheid, 2022). Thus, it is necessary to build links between university professors and private sector companies to enable students to see the practical side and the applicability of the knowledge being taught.

  In relation to being up-to-date in their areas of specialization, academicians need to get more exposure to international sources, networks, and think tanks. This would enable them to better adapt the curricula to include modern and critical knowledge that aligns with international standards and national policies like, for example, resource management, climate change, agriculture resilience, modern farming techniques and strategies, and sustainable farming. It is worth mentioning that academics should also be trained on how to use interactive teaching techniques and not one way lecturing. This will help in shaping more critical and analytical minds that are able to work in diverse teams (Hatab and Krautscheid, 2022).
- Updating academic curricula: There is a need for further development of the curricula in areas such as modern mechanization techniques and contemporary farm technologies, advanced fertilizers, chemical and pest management as well as water management (Ebner et al., 2020; OECD, 2023). Moreover, courses and specializations on advanced topics such as climate change, irrigation and drainage, plantology, nutrition and fertilizers, bio pesticides, value added products, etc… need to be integrated into the curriculum as these topics have become basics themselves in today's agricultural world. It is also important to integrate practical application of theories being taught in the classroom.

  Finally, one of the important developments that were stressed by employers in some studies was related to incorporating managerial, behavioral, and cognitive skills in the agriculture education curricula. In this respect, it was

recommended that components on communication skills, negotiation skills, working in teams, management skills, and time management were among the listed skills that employers expect to have in their future employees (Ebner et al., 2020; Ghimire et al., 2022; OECD, 2023).

- Career counseling and mentoring: Another area of potential development pertains to advising and mentoring students on their future careers and how to seize career opportunities. Unfortunately, at the present time, when it comes to advising, university professors tend to guide their students only on aspects related to academic success (Ghimire et al., 2022). It is integral that academicians build networks with public and private sector companies as a step forward towards facilitating internships in such companies as well as recommending graduating students to potential job opportunities (Ghimire et al., 2021).

  Linked to the university level, career advising and counseling activities should be initiated or activated. In all cases, there would be a great need to train employees of those centers on how to stay up-to-date on labour market needs and trends, how to guide and prepare students for their future careers, and more importantly how to attract students to use their services. In addition, career counseling centers should maintain contact with their alumni to get feedback from them on the challenges they face, how they overcome them, and potential opportunities available in the market. This kind of information can be useful when counseling current and future students (Ghimire et al., 2021).

The theme of human capital development is an integral component of Egypt's Vision 2030. Undoubtedly, pursuing the country's agricultural-related mega projects call for the availability of well-equipped and skilled agriculturists. However, agriculture university graduates find a lot of challenges which prevent them from being employed upon graduation (Thompson et al., 2021). Consequently, there is a critical need to incorporate elements that maximize human capacity beyond the use of machines. In addition, future workers should learn at the very early stages of their education the different behavioral skills pertaining to, for example, working within teams, communication skills, negotiation skills, conflict management, and time management. Furthermore, higher-order skills could be fostered during the university level and may include managerial skills (management, finance, marketing ... etc.). An interesting finding of a study revealed that surveyed employers, university students, and professors gave more weight to cognitive, managerial and behavioral skills over technical skills

5.4 Conclusion

This part attempted to examine the extent to which the higher agriculture education system matches the labour market demands. In this respect, it was noticed that the system heavily relied on the introduction of theoretical concepts with minimal interaction between the instructors and students and the lack of practical application of acquired knowledge within the classroom or even within the whole education journey. Furthermore, almost all curricula relied on the technical skills and did not give any attention to medium to high level skills including behavioral skills, cognitive skills, digital skills, and managerial skills. It is worth mentioning that employers have emphasized their demand of those skills.

6. Higher Education in Agri-Domains

In the era of globalization, countries strive to build a knowledge nation. Undoubtedly, quality education is one of the goals of many governments. In this part, an introduction of the higher education system in Egypt is introduced, the relevant institutions, career development initiatives, incubators, and the accreditation process of universities.

For many years, Egypt has been the central hub for education in the region. In addition, free education is a constitutional right of all Egyptian citizens according to the 1971 Constitution (Amira, 2017).

6.1 The Higher Education System

The Ministry of Higher Education and Scientific Research is responsible for overseeing the tertiary education through three Supreme Councils (Supreme Council for Public Universities, Supreme Council for Private Universities, and the Supreme Council for Higher Institutes). These Councils are responsible for ensuring that the applied policies, rules and regulations are appropriately implemented. In Egypt, higher education is provided through public, private, and Al-Azhar Universities (where students study both the domain of specialization as well as Islamic studies) beside higher technical institutes. In all cases, the following steps are undertaken to join a higher education institution:

1. Upon successful completion of 12 years of school education (National General Examination, Thanawyia Amma or its equivalent), students may join a university or a higher institute dependent on their scores.
2. The release of students' scores will determine which institution they can join. This is done through the Coordination Office (Tansiq) where the students submit their official documents (transcript of their scores) along with their preferences regarding the public universities/higher institutes they wish to join. It is important to note that the student's score would determine which institution they may eventually join. However, private universities have higher flexibility where students may join a specialization that was not acceptable through the Coordination Office.
3. Once the student joins a higher education institution, they have to follow its rules and regulations (Amira, 2017; Mohamed et al., 2019).

In addition to curriculum issues highlighted in previous sections, career development centers – though existing – do not seem to be successful in upgrading the knowledge of students and better linking them to the job market.

6.2 Inventory of most relevant institutions

All universities that offer higher agriculture education are public universities except for one university that is privately owned (Heliopolis University). There are also higher institutes that offer agriculture education. Table (10) provides a listing of the universities and higher institutes that offer agricultural studies along with the areas of specialization within each organization. It is also worth mentioning that some universities offer Arabic and English tracks in various specializations.

6.3 Business Start-up Programs and Incubators

Currently, there are very few organizations that provide incubation for agricultural projects. Table (11) provides a description of a number of incubators along with the services they provide.

6.4 Legal framework for educational cooperation

The accreditation process is undertaken by three bodies, Supreme Council of Public Universities, Supreme Council of Higher Institutes, and the Supreme Council of Private Universities. Each one of those councils is responsible for coordinating policies between different institutions, monitors institutions quality, and approves new higher education institutions and curricula, and determines the admission quota.

To ensure the quality of higher education, the National Authority for Quality Assurance and Accreditation of Education (NAQAAE) accredits universities and faculties within universities. In all cases, public or private universities will only be accredited if 60% or more of their faculty members are accredited. The higher educational institutions accreditation passes through two steps namely:

- The first phase is optional and involves a pre-accreditation period where the NAQAAE is responsible for assessing the institution and then present it with an improvement plan. Upon approval of the plan, the university undertakes self-assessment for a six months period. Meanwhile, the NAQAAE auditors monitor the institution's progress towards the required improvements.
- Once the improvement plan is finalized and the university meets all requirements, NAQAAE would provide the university with a five year accreditation subject to annual assessment. In case the university receives more comments than NAQAAE sees fit, its operation may be halted until overcoming the comments. However, the accreditation may be altogether revoked if there are major comments (Maghraby, 2012; Mohamed et al., 2019).

6.5 Conclusion

This part shed the light on the higher education system which is essentially overseen by the Ministry of Higer Education and Scientific Research. Though education is a constitutional right, yet joining tertiary education is highly dependent on the scores students achieve upon completion of their last year of the 12 years of schooling. Currently, public universities in Egypt provide Bachelor Degrees, Master Degrees and Doctoral degrees in various areas of specialization. In Egypt, higher agricultural education is provided by public universities and only one private university. In an attempt to enhance the quality of higher education institutes NAQAAE was established to provide accreditation to universities and monitor the latter performance in terms of quality.

Table 7: Educational institutions					
Organization Name	Organization type	Level of Diploma	Location	Specializations and programs provided	Reference
Public universities: Faculty of Agriculture (in alphabetical order)					
Ain Shams University	Bachelor's Masters Doctoral	Bachelor's Masters Doctoral	Cairo	Arabic programs • Animal production • Agriculture economics • Agricultural engineering • Food sciences • Crops protection • Rural society and agriculture extension • Poultry production • Land sciences • Crops • Horticulture: Vegetables, fruits, ornamental, medicinal • Agricultural plant • Agricultural Microbiology • Agricultural Biochemistry • Inheritance • Plant diseases English programs • Agricultural biotechnology • Quality management and organic agriculture	https://asu2learn.asu.edu.eg/

Table (7): Educational institutions (continued)

Organization Name	Organization type	Level of Diploma	Location	Specializations and programs provided	Reference
Alexandria University	University	Bachelor's Masters Doctoral	Alexandria	• Agricultural Extension Education • Wood technology • Economics and Agribusiness • Agricultural and Biosystems Engineering • Dairy Science and Technology • Plant Pathology • Animal and Fish Production • Poultry Production • Applied Entomology • Vegetable Crops • Floriculture, Ornamental Horticulture, and Landscape Gardening • Soil and Water Sciences • Food Science and Technology • Pomology • Pesticide Chemistry and Technology • Rural Development • Crop Science • Genetics	https://agr.alexu.edu.eg/index.php/en/departments

Table (7): Educational institutions (continued)					
Organization Name	Organization type	Level of Diploma	Location	Specializations and programs provided	Reference
Assiut University	University	Bachelor's Masters Doctoral	Assiut	• Soil and water • Agricultral economics • Dairy science • Plant pathology • Animal production • Vegetables • Food science and technology • Rural sociology and agricultural extension • Agronomy • Genetics • Pant protection • Poultry production • Pomology • Floriculture	https://www.aun.edu.eg/agriculture/
Aswan University	University	Bachelor's Masters Doctoral	Aswan	• Plant production • Animal production • Agricultural biotechnology • Food and dairy science • Plant protection • Land and agricultural natural resources • Agricultural engineering	https://agr.aswu.edu.eg/

Table (7): Educational institutions (continued)					
Organization Name	Organization type	Level of Diploma	Location	Specializations and programs provided	Reference
Azhar University (Male section)	University	Bachelor's Masters Doctoral	Cairo	• Horticulture • Land and water • Biochemistry • Plant protection: Pesticides, insects • Food science and technology • Dairy • Agriculture extension and rural communities • Agricultural economics and cooperatives • Agricultural plants • Animal production • Biotechnology	http://www.azhar.edu.eg/agri-cairo/
Benha University	University	Bachelor's Masters Doctoral	Benha	• Crops • Plant protection • Animal production • Horticulture • Genetics • Land • Agricultural chemistry • Dairy • Agricultural economics • Agricultural plants • Agricultural engineering • Food industries	https://fagr.bu.edu.eg/

Table (7): Educational institutions (continued)

Organization Name	Organization type	Level of Diploma	Location	Specializations and programs provided	Reference
Beni Suef University	University	Bachelor's Masters Doctoral	Beni Suef	• Horticulture • Agricultural chemistry • Agricultural economy	https://agri.bsu.edu.eg/index.aspx?lang=en&cat_id=23
Cairo University	University	Bachelor's Masters Doctoral	Giza	Arabic programs • Animal production: Animal Production, Poultry Production, Fish Production • Plant production: Crops, Orchards • Agricultural Economics and Social Sciences: Agricultural Economics & Extension • Land and Water • Food Sciences: Food industries, Dairy • Plant Protection: Economic Insects, Pesticides, Plant Diseases • Agricultural Engineering: Machinery and Power Engineering, Irrigation and Field Drainage Engineering, Bio-systems Engineering • Biotechnology: Agricultural Biochemistry English programs • Biotechnology • International Agriculture in: Organic Farming, Rural Community Development, Agricultural Business Management, Food Processing Technology	http://www.agr.cu.edu.eg/langs/

Table (7): Educational institutions (continued)					
Organization Name	Organization type	Level of Diploma	Location	Specializations and programs provided	Reference
Damanhour University	University	Bachelor's Masters Doctoral	Damanhour	• Plant diseases • Animal and poultry production • Plant protection • Food and Dairy science and technology • Natural resources and agricultural engineering • Agricultural economics and rural development • Crops • Horticulture	https://damanhour.edu.eg/agrfac/Pages/Home.aspx
Damietta University	University	Bachelor's Masters Doctoral	Damietta	• Poultry production • Vegetables and floriculture • Genetics • Agricultural microbiology • Agricultural botany • Food industries • Soil science • Pomology • Dairy • Economic insects • Agricultural economics • Agricultural engineering • Animal production • Crops • Agricultural chemistry	https://du.edu.eg/faculty/agr/en/

Table (7): Educational institutions (continued)					
Organization Name	Organization type	Level of Diploma	Location	Specializations and programs provided	Reference
Fayoum University	University	Bachelor's Masters Doctoral	Fayoum	• Land and soil • Agricultural economics • Dairy • Animal production • Poultry production • Horticulture • Food science and technology • Biochemistry • Agronomy • Microbiology • Botany • Genetics • Plant protection	https://www.fayoum.edu.eg/agri/
Kafr El Sheikh University	University	Bachelor's Masters Doctoral	Kafr El Sheikh	• Food technology • Pesticides • Soil and water • Agriculture botany • Dairy sciences • Animal production • Agronomy • Agricultural economics • Genetics • Poultry production • Agricultural engineering • Horticulture • Economic entomology	https://kfs.edu.eg/engagre/

Table (7): Educational institutions (continued)					
Organization Name	Organization type	Level of Diploma	Location	Specializations and programs provided	Reference
Mansoura University	University	Bachelor's Masters Doctoral	Mansoura	• Agriculture engineering and bio systems • Economic and agricultural sciences • Animal and poultry and fishery production • Soil and water • Plant protection • Botany production • Agricultural biotechnology • Food science and technology	http://agrfac.mans.edu.eg/
Minya University	University	Bachelor's Masters Doctoral	Minya	• Dairy • Food industries • Agricultural economics • Plant protection • Plant pathology • Horticulture • Genetics • Crops • Agricultural chemistry • Animal production • Agricultural microbiology • Soil	https://www.minia.edu.eg/agr/Ehome.aspx

Table (7): Educational institutions (continued)					
Organization Name	Organization type	Level of Diploma	Location	Specializations and programs provided	Reference
New valley University	Governmental	Bachelor's Masters Doctoral	New Valley-Kharga	• Land and Water • Agricultural economics • Dairy • Plant diseases • Horticulture • Food science and technology • Rural community and agriculture extension • Crops • Genetics • Plant protection • Poultry	http://nvu.edu.eg/agriculture/
Sohag University	University	Bachelor's Masters Doctoral	Sohag	• Land and water • Agricultural economics • Agricultural extension and rural community • Horticulture • Crops • Genetics • Plant diseases • Agricultural microbiology • Plant protection • Food and nutrition science • Dairy science • Animal production • Poultry production	https://agri.sohag-univ.edu.eg/main/

Table (7): Educational institutions (continued)					
Organization Name	Organization type	Level of Diploma	Location	Specializations and programs provided	Reference
South Valley University	University	Bachelor's Masters Doctoral	Qena	• Crops • Horticulture • Agricultural botany • Soil and water • Animal production and poultry • Food Sciences and dairy • Economics and agricultural extension • Plant protection	https://www.svu.edu.eg/faculties/agr/en/home-page-en/
Suez Canal University	University	Bachelor's Masters Doctoral	Ismailia	Joint programs • Plant protection • Home economics Non-joint programs • Animal production and fishery • Land and water • Horticulture • Crops • General Agriculture production Credit hours programs • Food safety • Business management and agricultural projects • Agricultural engineering • Agricultural sustainability and seed production	https://agri.suez.edu.eg

Table (7): Educational institutions (continued)					
Organization Name	Organization type	Level of Diploma	Location	Specializations and programs provided	Reference
Tanta University	University	Bachelor's Masters Doctoral	Tanta	• Food sciences and technology • Land and water • Agricultural economics • Horticulture • Animal production • Genetics • Crops • Agricultural botany • Agricultural Engineering • Plant protection	https://tu.tanta.edu.eg/
Zagazig University	University	Bachelor's Masters Doctoral	Zagazig	• Agricultural economics • Animal production • Horticulture • Agricultural chemistry • Crops • Agricultural microbiology • Agricultural plants • Agricultural engineering • Genetics • Poultry • Land and water • Food science • Plant protection • Plant diseases	http://www.agri.zu.edu.eg/

Table (7): Educational institutions (continued)					
Organization Name	Organization type	Level of Diploma	Location	Specializations and programs provided	Reference
Private universities: Faculty of Agriculture (in alphabetical order)					
Heliopolis University for Sustainable Development: Faculty of Organic Agriculture	University	Bachelor's degree	Cairo	• Organic crop production • Food processing technology	https://www.hu.edu.eg/faculties/organic-agriculture/
Higher Institutes					
Higher Institute for Agricultural Cooperation and Extension Shoubra El Kheima	Higher Institute, Private	Bachelor's Degree	Al Qalyubia Governorate, Greater Cairo	• Agri-food sector	http://www2.econ.iastate.edu/outreach/international/egypt/TheHigherInstituteofAgriculturalCooperation.htm

Table 8: Start-ups and incubators		
Program Name	Providing organization	Services Provided
Gesr	Misr Al Kheir	• Financial support • Mentorship and training • Technical and business support • Legal support
Estedama	Heliopolis University	• Equipped co-working space • Labs • Access to investment and financing organizations • Networking • Business and technical facilitation
Cairo University Agriculture Innovation Center	Cairo	• Training • Consultation • Research services to farmers
Egyptian Agricultural Innovation Center	Cairo	• Training • Mentorship • Access to funding
Alexandria University Agriculture Innovation Center	Alexandria	• Research • Extension services to farmers • Agriculture entrepreneurship

7. Legal and Policy Framework

The human capital is one the main resources that drive an economy towards development and growth. This part of the report will discuss important issues that impact the labour market dynamics and skills development. As such, this part will dedicate a section to legal framework, policies and strategies pertaining to labour laws and another part pertaining to migration.

7.1 Legal framework, policies, and strategies pertaining to labour laws

Law 12/2003 and its amendments in 2015 (referred to as the Labour Law) is the guiding legal framework for labour employment whether for Egyptians or foreigners. The labour law covers a wide variety of employment-related issues including working conditions, health and safety, job termination, discrimination and harassment, as well as workers with disabilities. Although the law has a number of advantages, yet it was criticized by the International Trade Union Confederation (ITUC). On the one hand, the labour law includes regulations and procedures that ensure occupational health and safety, regulated working hours (eight hours/day, 48 hours/week), and prohibits discrimination of wages based on sex, age, religion or disability. On the other hand, one of the main concerns of the labour law is that it does not include the determination of wages, working hours and conditions for agricultural and domestic household workers. Due to the complexity and unclarity of some parts of the law, the ITUC has cited a number of concerns including union organization, restrictions on collective bargaining, and strike actions (Danish Trade Union Development Agency, 2021).

7.2 Legal framework, policies, and strategies pertaining to migration laws

Labour market conditions is one of the main drivers for Egyptian youth to emigrate, especially male youth. In this manner, unemployment and being employed in the informal sector encourages youth to emigrate. In other words, absence of quality jobs in the Egyptian labour market especially for educated youth leads to emigration (David and Jarreau, 2016). When looking at migration, one can dissect it into three main components. The first element, 'exit', refers to leaving the country of origin and travelling abroad whereas the second component, 'oversees', refers to residing in another country, and finally, 'return', is coming back to the home country. It is argued that all components have a developmental component. On the one hand, 'exit' results in reducing unemployment and over population in the home country. On the other hand, 'overseas' benefits the home country's economy through remittances of emigrants. Finally, the 'return' component results in brain gain from infusion of the new talents and skills into the home country (Tsourapas, 2022).

A review of the Egyptian Migration law revealed that there was a major liberalization of emigration in 1971 during Sadat's regime. This was witnessed in Article 52 of the Egyptian Constitution which gave Egyptians the right to move freely whether on permanent or temporary basis (Tsourapas, 2022). It was argued that this law was suitable for overcoming problems associated with over population. However, the key issue was how to make sure that Egyptians abroad would return to Egypt, thereby taking advantage of their acquired and improved skillsets.

When examining the Egyptian migration policies, one finds that it places more emphasis on permanent migrants over temporary migrants. This is based on the assumption that temporary migrants do not represent a brain drain for Egypt because they disburse part of their incomes to Egypt and would eventually return back. On the other hand, permanent migrants usually migrate to western countries resulting in brain drain for Egypt (Tsourapas, 2022).

To encourage Egyptians abroad to return to their home country, the dual citizenship approach was adopted. One way to do that was Egypt signing an agreement with the United Nations Development program which invited Egyptian scientists to share their experiences and network with local citizens through inviting them to stay in Egypt for around a month (Müller-Funk, 2017; AFFORD, 2022; Tsourapas, 2022). To further ties with permanent Egyptian emigrants, in 2012, they were given the right to vote and were granted representation in the parliament.

Major legal framework and policies pertaining to Egyptians living abroad are as follows:

- Sponsoring Egyptians Abroad and Emigration Law 111/1983 described the efforts of the Egyptian government in drafting laws pertaining to Egyptians living abroad. Although many of those Egyptians are unaware of this law, yet it encouraged their participation in economic development (Müller-Funk, 2017; AFFORD, 2022)
- In 2014, the Egyptian Constitution was revised to incorporate protecting Egyptians living abroad, allowing them to exercise their rights and freedoms, and enabling them to contribute to the country's development (AFFORD, 2022).
- In 2015, Egypt Vision 2030 promoted diaspora engagement as a socio-economic development roadmap through remittances, investment and transfer of skills (AFFORD, 2022).

From the above, it can be inferred that most of the effort is directed towards permanent emigrants while little attention is given to temporary emigrants. For example, the Ministry of Emigration and Affairs of Egyptians Abroad has developed an e-portal to help Egyptians abroad to learn more about issues such as investment

opportunities, civil rights and obligations, registration of remittances with the Central Bank of Egypt.

On the other hand, the Egyptian government has concluded a number of agreements to promote circular migration such as the following:

- An agreement between Egypt and Italy where an online platform was created to register workers interested in travelling to Italy. The intention of this initiative is to match workers with available job opportunities, upgrading the skills of workers, and improving working conditions. This initiative acts as a cornerstone for creating a circular migration framework ("Memorandum of understanding between the Italian Ministry of Labour and Social Policies and the Miistry of Manpower and Migration,").
- Germany signed an agreement with Egypt that facilitates work and training, thereby reducing irregular migration and promoting development cooperations (GIZ).

Agreements such as those mentioned above could set a good example for developing circular migration frameworks between Egypt and other countries. Furthermore, such agreements are likely to limit the negative consequences of illegal migration.

7.3 Conclusion

This part discussed the legal framework related to labour and immigration. First, the labour law is the guiding law for employment where it regulates the relationship between the employer and employees. It was noted that the labour law has failed to include the agricultural workers in its regulations. Second, an examination of the immigration laws revealed that it is more directed towards permanent emigrants over temporary emigrants though it seems that circular migration is starting to become a topic on the agenda of policy makers and government entities.

8. Conclusions and recommendations

8.1 Conclusions

Agriculture is among the key and vital pillars for Egypt's path towards development and economic growth. It is through agriculture that Egypt can achieve food security, develop manufacturing that relies on agriculture products and increase its export potential. Because of the potential of the agriculture sector, the Government of Egypt has exerted efforts and cooperated with international organizations as well as received grants to upgrade its effectiveness and efficiency. In addition, in its 2030 Vision, Egypt has stressed the importance of horizontal expansion of agricultural land, investment in land reclamation, and the creation of new agriculture communities.

In Egypt, several international agreements, cooperations and grants were directed towards this critical sector and in an attempt to overcome or reduce some of the challenges the agriculture sector faces. For example, some initiatives were directed towards finding means to enhance water efficiency, dealing with climate change, the application of advanced technology, and more importantly building the capacity of different stakeholders within the agri-food value-added chain. Furthermore, special attention was given to the role of women and youth in upgrading and promoting the effectiveness of the agriculture sector, thereby reducing rural areas' poverty and increasing household income.

Undoubtedly, higher agriculture education is one of the important areas that need further development in order to be able to meet the market labour demands. Currently, this sector faces a number of challenges pertaining to the method of instruction that heavily relies on the introduction of theory with little emphasis on practical application and interaction between instructors and students. In addition, in almost all institutions, the educational curricula lack components that are related to medium-high skills base (cognitive skills, digital, cognitive, and managerial). Furthermore, the technical component of the educational curricula lacks periodic updates to keep it abreast of new technologies and methods.

One way of upgrading the skills of youth could be done through circular migration because it allows them to be exposed to new experiences and upskilling. Furthermore, circular migration could result in an increase in remittances and help the Egyptian economy in its pathway towards development. Unfortunately, most of the emigration policies and regulations are directed towards the permanent emigrants such as attracting them to visit their home countries, maintenance of dual citizenship, and exposing them to investment opportunities in Egypt.

8.2 Recommendations

Within the agriculture sector, most of the MENA region countries concentrate on the agriculture strategic products such as cereals, though it is costly to produce. The OECD (2023) views an urgent need for finding the means of enhancing the productivity of various agricultural crops. It is recommended that new improved cultivation practices should be introduced while taking advantage of modern technology and machinery. Furthermore, forward linkages (transportation and storage) should be enhanced to avoid food loss. It is recommended that more efforts should be directed towards this node in the agriculture value-added chain.

In the horticultural products' field several interventions would be beneficial such as enhancement of the supply chains as related to linkages, productivity and advanced production methodologies, improved management of soil, water and environmental aspects, compliance to quality standards, supporting players in the chain through business development activities aiming at enhancing their capabilities, helping stakeholders in promoting their products (branding, fairs … etc.), and connecting farmers to lead firms (International Labour Organization, 2020).

Linked to this issue is the nature of land ownership in Egypt that witnesses small ownership and small-scale farmers lack the capacity to get access to international markets. Though some efforts are directed in this domain, yet more is needed. In this respect, farmers need to get exposed and trained on digital technologies that enable them to get access to information about marketing opportunities, better methods of production, etc… It is important to note that the role of agriculture cooperatives and extension services need to be vitalized or substituted by other players. Therefore, more initiatives should be directed towards integrating small-scale farmers into entities, thereby increasing their competitive power.

Since most of the agriculture sector relies on informal seasonal workers who are not covered by the current labour law, they usually work within hard working conditions at low wages. It is recommended that a reform is made to the labour law to allow for inclusion of such workers. Moreover, most of the workers within this sector are youth who are faced with various challenges such as climate change, there is great need to upgrade their skills especially that it is expected that the future would require semi-skilled rather than low-skilled labour (OECD, 2023).

Finally, since education is at the heart of development, it is essential that the higher education curricula should be periodically developed to meet the challenges of the labour market. In this domain, more attention should be given to incorporating the practical learning component into the curricula which allows students to get

exposed to real life situations. In this respect, more attention should be directed towards the teaching methods through training instructors to incorporate the interactive and practical components to their educational approach. This could be achieved through developing networking activities with the private sector companies for opening possible internship opportunities and potential job openings in the future. Finally, in the area of research, instructors should be encouraged to network with international research communities to get exposed to the latest advancements in the field.

The development of career counseling centers within universities would play a vital role in assisting students in their career paths through mentoring, for example. Accordingly, career counseling center employees need to be trained on how to maintain ties with alumni, research the labour market requirements, mentor students and provide counseling on how to enter the labour market. These centers may also search for circular migration opportunities that can be used to upgrade the skills of students and expose them to new experiences.

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Appendix (1): Other relevant international cooperation projects

Table 9: Inventory of international cooperation projects

Project / Program Name	Implementing organization	Donor	Domain	Location	Target beneficiaries	Services provided	Source
Agriculture: Capacity building - totally or partially (in alphabetical order)							
Agricultural Innovation - Project (AIP)	MALR	German Federal Ministry for Economic Cooperation and Development (BMZ)	Agriculture Capacity building	Upper Egypt	Farmers who cultivate less than 3 feddans (1.26 hectares), Micro- small, and medium-sized companies, Members of producers associations	The project concentrates on the horticulture sector value chain and how to expand the domestic and export market of high market value products especially medical and aromatic crops, pepper and chilies, onion and garlic with a focus on enhancing small-scale farmers' incomes. The first support is directed towards enhancing competitiveness in the value chain, providing roundtables, and promoting public-private partnership to promote micro-companies development. The second form of support ensured better institutional backing for smallholders, the project invests in improving the capacities of farmer organizations and other rural service providers. The third domain of the project is associated with fostering market access and promoting organic farming throughout the entire value chain. The final domain explores digital solutions that help in facilitating information access, marketing, extension and financial services. It is worth mentioning that the project activities concentrated on women and youth inclusion by taking into consideration their needs and opportunities within the agriculture sector.	https://www.giz.de/en/worldwide/92509.html

Table (9): Inventory of international cooperation projects (continued)							
Project / Program Name	Implementing organization	Donor	Domain	Location	Target beneficiaries	Services provided	Source
Promoting sustainable agriculture and green energy	WFP MALR	Coca-Cola Foundation	Agriculture Capacity building	Luxor	Farmers and rural communities	A two-year program to create a model farm using water- and energy-saving methods to make the most use of scarce resources. The model farm will also encourage income generation through sustainable agriculture and give farmers an opportunity to access markets through enhanced value chains.	https://shorturl.at/hiEOR
Enhancing water efficiency and food security through Egyptian TVET	Maastricht University, Aeres University, Kafr El Sheik University, Sadaat University	Dutch Ministry of Foreign Affairs	Agriculture Capacity building		Educators, Students	Enhancing the capacity of participants in sustainable climate-smart agriculture across the whole value chain.	https://shorturl.at/fnJN0
Farmers' Field Schools	Wageningen Centre for Development Innovation, Van Hall Larenstein University of Applied Sciences, Fayoum University, ICRA	NUFFIC	Agriculture Capacity building	All governorates	Small-scale farmers	In light of the long-term sustainable development agricultural strategy, this initiative encompasses the application of the farmers field schools approach throughout Egypt's governorates. Accordingly, the project increasing the Farmers Field Schools participants standard of living through fostering their skills and access to knowledge thereby enhancing on and off-farm productivity. In this sense, attention is given to developing participants' skills in management, logistics, and research. The project also expands methodological competence of staff as well as upgrading the contents of the schools' curriculum.	https://www.wur.nl/en/show/niche-egy-109-1.htm

Table (9): Inventory of international cooperation projects (continued)

Project / Program Name	Implementing organization	Donor	Domain	Location	Target beneficiaries	Services provided	Source
Boosting Egypt's fruit and vegetable exports by improving food safety and quality through Competitiveness program	EBRD FAO	EU	Agriculture Capacity building	Egypt	Farmers & exporters from five value chains: tomato, citrus, strawberry, grapes, medicinal and aromatic plants.	The implementation of training courses with farmers and exporters on pesticides management and microbiological contamination.	https://shorturl.at/oGR13
Farmers' Field Schools	MALR & Ministry of Trade and Industries	Italian Agency for Development Cooperation (AICS)	Agriculture Training & Advisory services	Egypt	Suppliers, Farmers, Manufacturers of tomato products	Support and development of the whole tomato value chain throughout Egypt.	https://shorturl.at/bjAJ7
Support to the Reform of the law governing the Agricultural Cooperatives in Egypt	UPA-DI MALR CAAC	FAO	Agriculture Capacity building & law reform	Egypt	MALR Staff of CAAC Staff and members of agricultural cooperatives.	The project developed a mapping study for agricultural cooperatives to evaluate their performance and then an action plan was prepared to support reforms and law implementation that facilitates cooperatives' work. The project sustainability was backed by training of trainers and capacity building programs. Cooperative members were also trained and an electronic or virtual network was developed to allow for national dialogue. Finally, two study tours took place in France and Kenya to allow participants exposure to successful cooperative experiences.	

Table (9): Inventory of international cooperation projects (continued)

Project / Program Name	Implementing organization	Donor	Domain	Location	Target beneficiaries	Services provided	Source
Sustainable Agriculture Service provision Enterprise Network in Egypt (SASPEN)	Care Egypt Foundation	Dutch Embassy in Egypt	Agriculture Capacity building	Egypt	Egyptian agribusiness professionals from small and medium enterprises	The aim of the SAPSEN project is to connect Egyptian agribusiness professionals from small and medium enterprises to Dutch projects, companies, and other partners in the agricultural sector to strengthen collabouration and stimulate the exchange of knowledge. addressing technical needs for small and medium agribusiness in Egypt and solving their challenges through the support of Dutch expertise. We are targeting young agribusiness professionals working in the Agri sector.	https://www.futurewater.eu/2022/09/futurewater-provided-training-course-on-climate-smart-agriculture-as-part-of-the-saspen-project/
Tailor Made Training (TMT+)	Aeres University & PMU	NUFFIC	Agriculture Capacity building	Cairo & Kafr El Sheikh	Public sector (mainly from AENRI, SWERI & KFS professors) and private sector companies	The aim was to give a training on climate smart agriculture. It was a high-level training but combined online and offline sessions, field visits and 12 of the 40 trainees were chosen to go on a study tour in the Netherlands.	Interviews

Table (9): Inventory of international cooperation projects (continued)							
Project / Program Name	Implementing organization	Donor	Domain	Location	Target beneficiaries	Services provided	Source
Agriculture: Academic Scholarships (in alphabetical order)							
Scholarship Program to Empower Women and Combat Climate Change in Egypt	AUC	USAID	Academic scholarship	Egypt	Students from underserved communities, Mid-career professionals from governmental and non-public entities	Scholarships to at least 700 young Egyptians (50 percent women) from underserved communities to obtain undergraduate degrees in Egypt. Additionally, scholarships to at least 60 mid-career Government of Egypt (GOE) professionals to obtain master's degrees in the US or Egypt. Also, scholarships to at least 50 mid-career GOE professionals to pursue post-doctoral studies in the US. Finally, U.S.- and Egypt-based technical training for at least 250 mid-career Egyptian GOEs and at least 200 mid-career professionals from non-public entities.	https://shorturl.at/jH568
MENA Scholarship Programme (MSP)	Still in tendering process	NUFFIC	Capacity building Scholarship	Egypt and other countries in the region (including Tunisia)	Professionals	Providing capacity building activities to professionals from Egypt through training courses. It also subsidies group training tailored to the needs of participants	https://www.nuffic.nl/en/subjects/scholarships/mena-scholarship-programme-msp

Table (9): Inventory of international cooperation projects (continued)

Project / Program Name	Implementing organization	Donor	Domain	Location	Target beneficiaries	Services provided	Source
Agriculture: Higher education							
Erasmus+ Project: Steering Migration through Sustainable Development: Euro-Egyptian Program for Agriculture and Rural Development	Swedish University of Agricultural Sciences, DeVilag consortium	EU	Capacity Building	Egypt	Egyptian universities	The Project aims at enhancing Egyptian universities in meeting the needs of small-farm holders through the provision of a capacity building initiative for agriculture university teachers to facilitate the acquisition of skills and knowledge of students, thereby meeting the labour market demands. The project is expected to increase farmers income, reduce unsustainable rural out migration and irregular international migration.	(Abu Hatab & Krautscheid, 2022)
Center of Excellence in Egypt	MOHESR, Cornell University, Cairo, Ain Shams, Assiut, Benha , and Suez Canal Universities in Egypt, Michigan State University, Purdue University, University of California-Davis	USAID	Higher education	Egypt	Universities	Upgrading the Egyptian universities curricula in the agriculture sector. It also aims at fostering joint research between Egypt and the US at the undergraduate and graduate levels. In addition, the project links Egyptian and American universities and developing joint programs and scholarships (special emphasis is given to women in disadvantaged areas).	(USAID, 2020)

Table (9): Inventory of international cooperation projects (continued)

Project / Program Name	Implementing organization	Donor	Domain	Location	Target beneficiaries	Services provided	Source
Agriculture: Gender							
Advanced Marketing and Agribusiness Logistics (AMAL) project	HEIA	USAID	Agriculture productivity & Gender	Assuit, Aswan, Luxor, Beni Suef, Minia, Qena, Sohag	14,000 small farmers & 12,000 females	AMAL created an inclusive horticultural value chain in Upper Egypt which incorporated small-scale farmers into high-value export market, the construction of a perishable terminal at Luxor airport as well as provision of targeted training which allowed those farmers to compete in international markets.	https://shorturl.at/ag247 & https://moic.gov.eg
Gender equality	Daltex	IFC	Agriculture & Gender	Egypt	Women	Assisting Daltex in creating employment and generating income for females at Daltex farm and within various parts of the value chain.	https://www.daltexcorp.com/impact/
Agriculture: Others							
Al Mufeed in Food and Agriculture	MALR	FAO	Mobile application	Egypt	Rural women Growers of citrus and date All members of Egyptian families	A mobile application that supports agriculture extension through provision of digital extension content on citrus, date palm, household poultry, healthy nutrition, wholesale prices of vegetables and fruits. The application contains Arabic content in the form of written documents, videos and voice recordings. The project includes support activities such as training extension agents and farmers	https://www.fao.org/egypt/programmes-and-projects/digital-agriculture/en/

Table (9): Inventory of international cooperation projects (continued)

Project / Program Name	Implementing organization	Donor	Domain	Location	Target beneficiaries	Services provided	Source
Strengthening of the Horticulture information Network for Small Farmers in Egypt - HORTISUN	AUC, ARC, Mobinil, UPEHC, FAOD	FAO	Information support network	Egypt	Small-scale farmers & Market service providers	Project aimed at improving access to and flow of horticulture information and knowledge sharing to support small-scale farmers and market service providers by strengthening the capacity of the MALR to establish an effective and efficient horticulture sector information support network/system. Accordingly, HORTISUN incorporates six modules namely, agriculture operation and diseases, specialized institutes, experts, documents related to horticulture crops, marketing, and NGOs.	https://www.fao.org/egypt/programmes-and-projects/infosys/en/
Economic integration of women in the MENA region	GIZ	German Federal Ministry for Economic Cooperation and Development (BMZ)	Women empower-ment	Egypt, Tunisia, Morocco, Jordan	Women	The project aims at improving women's integration in business and employment. To achieve this objective, the project consisted of four phases. First, it developed a media campaign in collabouration with the civil society to alter the attitudes and perception about women in work. Second, partner countries (Egypt, Tunisia, Morocco, Jordan) were provided with advisory services as well as the implementation of economic and employment policies that were gender sensitive. Third, the establishment of value chain analysis and support projects in some rural sub-sectors that are gender sensitive. Finally, mentoring programs were developed to help university female students when transitioning from university to employment.	https://www.giz.de/en/worldwide/15981.html

Table (9): Inventory of international cooperation projects (continued)							
Project / Program Name	Implementing organization	Donor	Domain	Location	Target beneficiaries	Services provided	Source
Migration (in alphabetical order)							
Programme Migration for Development	Ministry of State for Emigration and Egyptian Expatriates' Affairs, GIZ	(BMZ)	Migration	Egypt	Young Egyptians	Helping returning migrants to find job opportunities. This program is part of the "Returning to New Opportunities" project. The program provides career counselling, psycho-social support, training, job placement and employment opportunities with the aim of economic and social reintegration for Egyptian returnees.	https://www.giz.de/en/worldwide/100398.html
Programme Migration for Development	Ministry of State for Emigration and Egyptian Expatriates' affairs managed by GIZ	(BMZ)	Migration	Egypt	Young Egyptians	Helping returning migrants to find job opportunities. This program is part of the "Returning to New Opportunities" project. The program provides career counselling, psycho-social support, training, job placement and employment opportunities with the aim of economic and social reintegration for Egyptian returnees.	https://www.giz.de/en/worldwide/100398.html
Towards a Holistic Approach to Labour Migration Governance and Labour Mobility in North Africa (THAMM)	Ministry of State for Emigration and Egyptian Expatriates' Affairs (MoSEEEA)	EU (Partners: GIZ, ILO, IOM, Belgian development agency ENABEL, French Office for Immigration and Integration -OFII)	Migration Vocational training	North Africa	Government institutions responsible for labour migration, Migrant workers, Job seekers interested in employment abroad, Vocational training institutions	The project takes a comprehensive approach incorporating both training and employment for migrants. In this respect, THAMM pilots migration of young people to Germany for the purpose of vocational training and employment based on the needs of both Egypt and Germany. Furthermore, the project open discussions between labour migration institutions with the intent of promoting and sharing experiences beside fostering networking on labour migration. This would involve the development of tools that analyze the different means for safe migration in the long-run. Finally, field trips would be undertaken with the aim of developing the competencies of individuals in vocational training and development.	https://www.giz.de/en/worldwide/92649.html

Table (9): Inventory of international cooperation projects (continued)							
Project / Program Name	Implementing organization	Donor	Domain	Location	Target beneficiaries	Services provided	Source
Multi-Educational Program for Employment Promotion in Migration-affected area (MEPEP)	AICS, MoTI & MoETE	European Fund & Emergency Trust Fund for stability	Vocational education and training	Sharkeya Governorate	Youth	The program concentrates on the development of Technical and Vocational Training (TVET) with the aim of promoting more inclusive social and economic environment. This implies it would be directed towards enhancing the teaching methods for teachers, trainers, and students' skill acquisition, thereby improving job placement. This would be realized through improving the physical and technical structure, physical and technical equipment of 10th of Ramadan training center.	https://ilcairo.aics.gov.it/home/country/environment/ https://eu-mepep.org/
Development of a Comprehensive Migration and Development Trainer's Manual		IOM	Migration Capacity building	North and West Africa	Policy makers & practitioners	The objective of the project was to design a training course on migration and development. To achieve this objective the project underwent four phases. The first phase was related to the development of the course curriculum with special emphasis on North and West Africa. The second phase was associated with field testing where the course was implemented in English. During the third phase, the training manual was translated into French and Arabic. Finally, two training of trainers courses were implemented which were later available for the use by trainers, IOM staff, and requesting partner countries.	https://www.iom.int/

Appendix (2): Production in Lower (Delta) Egypt Region

Table 10: Pomology

Product	Total annual production, Egypt	Production of Lower (Delta) Egypt & Nubaria	% of total production of
Kawta (Winter cherry)	326	326	100.00%
Summer Valencia oranges	1,353,098	1,353,098	100.00%
Avocado	1,050	1,050	100.00%
Mulberry	1	1	100.00%
Kiwi	269	269	100.00%
Strawberry	666,649	665,238	99.79%
Blood by oranges	6,507	6,477	99.54%
Naval orange	1,608,806	1,575,745	97.94%
Sour oranges	6,591	6,190	93.92%
Sweet melon	252,622	221,447	87.66%
Water melon	931,897	794,950	85.30%
Rough lime	1,000	851	85.10%
Khalily oranges	1,014	843	83.14%
Guava	357,787	282,181	78.87%
Saccharine 0ranges	67,638	52,577	77.73%
Sour lime (lemon)	366,726	274,061	74.73%
Melon Shahd	108,904	77,068	70.77%
Yafawy and Shamoty oranges	422	296	70.14%
Graft oranges	108,551	74,460	68.59%
Persimmon	19,981	12,916	64.64%
Cantaloupe	538,967	336,818	62.49%
Mango	766,128	476,167	62.15%
Prickly pear	37,758	15,297	40.51%
Palm dates (total)	1,713,610	682,321	39.82%
Mandarin	951,396	348,640	36.65%
Banana	1,185,148	426,053	35.95%
Olive	1,056,548	359,819	34.06%
Pear	82,746	27,972	33.80%
Seed oranges	80,645	27,122	33.63%
Plum	46,653	10,742	23.03%
Grape Fruit	2,190	487	22.24%
Grapes	1,472,418	319,489	21.70%
Sweet lime (lemohn)	1,869	401	21.46%
Custard apple	2,412	476	19.73%
Apricot	66,207	13,059	19.72%
Peach	276,608	37,670	13.62%

Pumpkin	4,414	379	8.59%
Medlar	1,587	131	8.25%
Pomegranate	672,827	40,104	5.96%
Fig	211,438	10,320	4.88%
Apple	863,370	32,716	3.79%
Compiled by the research team from ((Ministry of Agriculture and Land Reclamation Egypt, 2020-21, 2020-21)			

Table 11: Olericulture

Product	Total annual production, Egypt	Production of Lower (Delta) Egypt & Nubaria	% of total production of
Beet	1,826	1,826	100.00%
Paprika	251	251	100.00%
Tomato cherry	1,545	1,545	100.00%
Chilly pepper	674	2,727	100.00%
Sweet Potato	491,182	465,253	94.72%
Pepper Color	4,252	3,947	92.83%
Radish	6,816	6,274	92.05%
Snake cucumber	39,662	33,884	85.43%
Taro	156,734	132,079	84.27%
Carrot	215,570	175,688	81.50%
Dry beans	134,591	133,614	99.27%
Turnip	24,935	19,529	78.32%
Lettuce	110,667	86,639	78.29%
Eggplants	1,417,395	1,174,773	82.88%
Artichoke	502,189	349,745	69.64%
Cabbage	485,570	320,540	66.01%
Rocket	23,747	15,033	63.30%
Pepper	798,935	646,107	80.87%
Green peas	224,135	171,989	76.73%
Celery	3,196	1,909	59.73%
Onion	3,575,245	2,117,802	59.24%
Green coriander	17,630	9,649	54.73%
Cucumber	760,356	450,001	59.18%
Okra	82,726	37,200	44.97%
Squash (Zucchini)	401,695	307,955	76.66%
Dry peas	4,486	1,959	43.67%
Tomato	6,397,972	3,886,755	60.75%
Green onion	54,206	23,022	42.47%
Egyptian Leek	4,058	1,428	35.19%
Potato	6,273,931	2,646,823	42.19%
Green beans	215,372	107,055	49.71%
Spinach	28,692	11,499	40.08%
Jews Mallow	66,621	11,158	16.75%
Broccoli	2,883	480	16.65%
Garlic	493,471	46,110	9.34%
Chard	509	25	4.91%

Compiled by the research team from ((Ministry of Agriculture and Land Reclamation Egypt, 2020-21, 2020-21)

Table 12: Floriculture

Product	Total annual production, Egypt	Production of Lower (Delta) Egypt & Nubaria	% of total production of
Jasmine flower (feul)	8	8	100.00%
Violet	1,316	1,316	100.00%
Lavander	1	1	100.00%
Panse flower	3	3	100.00%
Jasmine	4,011	3,937	98.16%
Rose	723	232	32.09%

Compiled by the research team from ((Ministry of Agriculture and Land Reclamation Egypt, 2020-21, 2020-21)

Appendix (3): Agriculture exports from Egypt and EU countries except Netherlands (Trade values in US Dollars)

Exports from Egypt to Netherland

Product	Trade Value (in US Dollars)
Potatoes	809,383
Tomatoes	513,984
Onions	31,168,005
Cabbages	209,578
Lettuce	148,802
Cucumbers	13,121
Other Vegetables	851,270
Tropical Fruits	265,583
Citrus	83,784,332
Grapes	51,924,995
Melons	104,574
Other Fruits	4,658,640
Total agricultural exports to Netherlands	174,452,267
Total exports to Netherlands	711,000,000
% of agricultural exports to total exports to Netherlands	24.54%

Exports from Netherland to Egypt

Product	Trade Value (in US Dollars)
Potatoes	32,424,941
Other Vegetables	1,027,818
Tropical Fruits	40,531
Other Fruits	342,931
Other Agricultural Machinery	4,025,529
Total agricultural exports to Egypt	37,861,750
Total exports to Egypt	2,470,000,000
% of agricultural exports to total exports	1.53%

Source: (Export-Development-Authority)
Compiled by Research Team

Exports from Egypt to Austria

Product	Trade Value
Onions	131,721
Cabbages	1,833
Other Vegetables	7,133
Citrus	12,681
Grapes	386,617
Other Fruits	7,754
Spices	95,358
Total agricultural exports to Austria	643,097

Exports from Austria to Egypt

Product	Trade Value
Potatoes	191870
Apples and Pears	4921696
Fruit Pressing Machinery	18181
Other Agricultural Machinery	71887
Total agricultural exports to Egypt	5203634

Source: (Export-Development-Authority)
Compiled and adapted by research team

Exports from Egypt to Bulgaria

Product	Trade Value
Potatoes	4,426
Onions	117,855
Cabbages	10,761
Lettuce	66,782
Citrus	492,796
Cinnamon	1,955
Spices	117,929
Total agricultural exports to Bulgaria	812,504

Exports from Bulgaria to Egypt

Product	Trade Value
Grapes	150,809
Apples and Pears	379,685
Spices	4,993
Other Agricultural Machinery	14,454
Total Agriculture exports to Egypt	549,941

Source: (Export-Development-Authority)
Compiled and adapted by research team

Exports from Egypt to Croatia

Product	Trade Value
Potatoes	937,322
Onions	1,065
Other Vegetables	6,609
Citrus	2,163,310
Total agricultural exports to Croatia	3,108,306

Exports from Croatia to Egypt

Product	Trade Value
Pepper	9,482
Spices	6,384
Total Agriculture exports to Egypt	15,866

Source: (Export-Development-Authority)
Compiled and adapted by research team

Exports from Egypt to Estonia

Product	Trade Value
Potatoes	30,817
Onions	60,836
Other Vegetables	588
Citrus	1,550,578
Grapes	480,889
Melons	27,941
Other Fruits	140,220
Total agricultural exports to Estonia	3,108,306

Exports from Estonia to Egypt

Product	Trade Value
None	

Source: (Export-Development-Authority)
Compiled and adapted by research team

Exports from Egypt to Finland

Product	Trade Value
Potatoes	150,357
Tomatoes	11,611
Onions	196,843
Cabbages	57
Other Vegetables	30,593
Citrus	5,882,225
Grapes	5,643,895
Apples and Pears	662
Spices	16,365
Total agricultural exports to Finland	11,932,608

Exports from Finland to Egypt

Product	Trade Value
None	

Source: (Export-Development-Authority)
Compiled and adapted by research team

Exports from Egypt to Lithuania

Product	Trade Value
Onions	66,995
Citrus	10,090,889
Grapes	172,199
Other Fruits	78,966
Total agricultural exports to Lithuania	10,409,049

Exports from Lithuania to Egypt

Product	Trade Value
Harvesting Machinery	73,673
Total Agriculture exports to Egypt	73,673

Source: (Export-Development-Authority)
Compiled and adapted by research team

Exports from Egypt to Germany

Product	Trade Value
Cut Flowers	33,054
Potatoes	20,007,213
Tomatoes	16,857
Onions	24,423,743
Cabbages	23,777
Cucumbers	96,753
Other Vegetables	1,011,604
Dried Vegetables	19,411,632
Bananas	31
Tropical Fruits	1,158,819
Citrus	4,733,754
Melons	103,522
Apples and Pears	54,017
Other Fruits	6,359,527
Dried Fruits	924,014
Citrus and Melon Peels	62,945
Tea	28,549
Spice Seeds	7,170,577
Spices	3,393,553
Other Agricultural Machinery	661
Total agricultural exports to Germany	89,014,602

Exports from Germany to Egypt

Product	Trade Value
Potatoes	3,552,687
Apples and Pears	292,444
Tea	39,861
Spice Seeds	47,710
Spices	171,844
Other Agricultural Machinery	5,581,948
Total Agriculture exports to Egypt	9,686,494

Source: (Export-Development-Authority)
Compiled and adapted by research team

Exports from Egypt to Belgium

Product	Trade Value
Potatoes	1,235,135
Onions	902,974
Lettuce	7,740
Other Vegetables	9,831
Tropical Fruits	46,723
Citrus	1,667,517
Grapes	282,068
Other Fruits	2,883,184
Tea	1,659
Pepper	8,795
Spices	191,718
Perfume Plants	435,982
Other Agricultural Machinery	6,915
Total agricultural exports to Belgium	7,680,241

Exports from Belgium to Egypt

Product	Trade Value
Potatoes	1,978,253
Apples and Pears	86,876
Spices	6
Other Agricultural Machinery	9,439,835
Total Agriculture exports to Egypt	11,504,970

Source: (Export-Development-Authority)
Compiled and adapted by research team

Exports from Egypt to Cyprus

Product	Trade Value
Onions	26,332
Lettuce	13,079
Other Vegetables	65,057
Citrus	233,300
Grapes	27,833
Melons	13,756
Spices	11,519
Total agricultural exports to Cyprus	390,876

Exports from Cyprus to Egypt

Product	Trade Value
Other Fruits	29,805
Total Agriculture exports to Egypt	29,805

Source: (Export-Development-Authority)
Compiled and adapted by research team

Exports from Egypt to Lativia

Product	Trade Value
Potatoes	30,737
Citrus	2,888,102
Grapes	69,796
Total agricultural exports to Lativia	2,988,635

Exports from Lativia to Egypt

Product	Trade Value
None	

Source: (Export-Development-Authority)
Compiled and adapted by research team

Exports from Egypt to Denmark

Product	Trade Value
Potatoes	16,742
Onions	1,067,072
Other Vegetables	1,493
Tropical Fruits	47
Citrus	546,713
Grapes	1,220,574
Other Fruits	17,737
Pepper	1,668
Spices	30,317
Total agricultural exports to Denmark	2,902,363

Exports from Denmark to Egypt

Product	Trade Value
Potatoes	6,078,642
Total Agriculture exports to Egypt	6,078,642

Source: (Export-Development-Authority)
Compiled and adapted by research team

Exports from Egypt to Malta

Product	Trade Value
Potatoes	11,838
Onions	7,932
Citrus	822,594
Grapes	29,890
Perfume Plants	6,034
Total agricultural exports to Malta	878,288

Exports from Malta to Egypt

Product	Trade Value
None	

Source: (Export-Development-Authority)
Compiled and adapted by research team

Exports from Egypt to Greece

Product	Trade Value
Onions	1,738,626
Cabbages	14,128
Lettuce	726,387
Other Vegetables	44,165
Tropical Fruits	208,534
Citrus	852,696
Apples and Pears	37,943
Pepper	8,787
Spices	39,286
Total agricultural exports to Greece	3,670,552

Exports from Greece to Egypt

Product	Trade Value
Potatoes	48,229
Tropical Fruits	206,197
Apples and Pears	60,155,564
Spices	91,544
Total Agriculture exports to Egypt	60,501,534

Source: (Export-Development-Authority)
Compiled and adapted by research team

Exports from Egypt to Portugal

Product	Trade Value
Citrus	517,629
Grapes	15,103
Total agricultural exports to Portugal	532,732

Exports from Portugal to Egypt

Product	Trade Value
Apples and Pears	107,508
Other Fruits	2,679
Total Agriculture exports to Egypt	110,187

Source: (Export-Development-Authority)
Compiled and adapted by research team

Exports from Egypt to Hungry

Product	Trade Value
Potatoes	175,832
Tomatoes	138,425
Onions	31,535
Lettuce	27,005
Cucumbers	15,125
Other Vegetables	756,062
Citrus	180,576
Grapes	38,977
Other Fruits	37,415
Spices	85,731
Total agricultural exports to Hungry	1,486,683

Exports from Hungry to Egypt

Product	Trade Value
Apples and Pears	1,192,821
Pepper	3,385
Peptones	545*
Total Agriculture exports to Egypt	1,196,751

Source: (Export-Development-Authority)
Compiled and adapted by research team
*As highlighted before data is not always reliable. Thus some of these figures are too low and do not make sense.

Exports from Egypt to France

Product	Trade Value
Potatoes	16,014
Cabbages	15,072
Lettuce	34,881
Other Vegetables	234,296
Tropical Fruits	330,987
Citrus	7,756,273
Grapes	1,051,020
Spices	669,274
Other Agricultural Machinery	50,051
Total agricultural exports to France	10,157,868

Exports from France to Egypt

Product	Trade Value
Potatoes	13,931,640
Lettuce	31
Other Vegetables	9,178
Citrus	37*
Grapes	134,342
Apples and Pears	173,913
Citrus and Melon Peels	1,018
Spices	56
Other Agricultural Machinery	795,131
Total Agriculture exports to Egypt	15,045,346

Source: (Export-Development-Authority)
Compiled and adapted by research team
*As highlighted before data is not always reliable. Thus some of these figures are too low and do not make sense.

Exports from Egypt to Italy

Product	Trade Value
Potatoes	17,097,988
Tomatoes	10
Onions	7,380,375
Cabbages	23,492
Lettuce	428,664
Cucumbers	9,866
Other Vegetables	11,989,994
Citrus	8,232,839
Grapes	4,204,982
Melons	86,637
Other Fruits	1,473,208
Pepper	13,065
Ornamental Trimmings	260,637
Other Agricultural Machinery	1,206
Total agricultural exports to Italy	51,202,963

Exports from Italy to Egypt

Product	Trade Value
Potatoes	158,972
Other Vegetables	13,542
Apples and Pears	82,897,364
Other Agricultural Machinery	3,919,245
Total Agriculture exports to Egypt	86,989,123

Source: (Export-Development-Authority)
Compiled and adapted by research team
*As highlighted before data is not always reliable. Thus some of these figures are too low and do not make sense.

Exports from Egypt to Poland

Product	Trade Value
Potatoes	1,524,562
Tomatoes	63,674
Onions	3,441,092
Cabbages	17,919
Lettuce	20,388
Cucumbers	3,199
Other Vegetables	69,064
Tropical Fruits	8,979
Citrus	13,101,603
Grapes	3,702,338
Melons	69,380
Other Fruits	863,442
Harvesting Machinery	10,071
Total agricultural exports to Poland	22,895,711

Exports from Poland to Egypt

Product	Trade Value
Potatoes	404,735
Apples and Pears	81,209,905
Total Agriculture exports to Egypt	81,614,640

Source: (Export-Development-Authority)
Compiled and adapted by research team

Exports from Egypt to Romania

Product	Trade Value
Potatoes	390,006
Tomatoes	10,861
Onions	808,199
Cabbages	122,379
Lettuce	71,085
Other Vegetables	822,028
Citrus	9,131,598
Grapes	322,346
Melons	152,666
Other Fruits	104,735
Pepper	21,683
Total agricultural exports to Romania	11,957,586

Exports from Romania to Egypt

Product	Trade Value
None	

Source: (Export-Development-Authority)
Compiled and adapted by research team

Exports from Egypt to Spain

Product	Trade Value
Potatoes	2,964,603
Onions	1,207,541
Cabbages	746*
Lettuce	28,304
Other Vegetables	6,738
Tropical Fruits	493*
Citrus	26,871,041
Grapes	739,483
Melons	9,063
Apples and Pears	10,297
Other Fruits	60,206
Pepper	5,207
Perfume Plants	4,277,017
Total agricultural exports to Spain	36,180,739

Exports from Spain to Egypt

Product	Trade Value
Apples and Pears	638,415
Other Fruits	2,307
Pepper	2,426,291
Perfume Plants	14,511
Total Agriculture exports to Egypt	3,081,524

Source: (Export-Development-Authority)
Compiled and adapted by research team
*As highlighted before data is not always reliable. Thus some of these figures are too low and do not make sense.

Exports from Egypt to Sweden

Product	Trade Value
Potatoes	1,446,401
Onions	299,300
Cabbages	528*
Cucumbers	3,746
Other Vegetables	34,007
Citrus	4,130,720
Grapes	149,280
Melons	20,766
Other Fruits	51,254
Pepper	25,697
Cinnamon	16,732
Perfume Plants	146,820
Total agricultural exports to Sweden	6,325,251

Exports from Sweden to Egypt

Product	Trade Value
Tomatoes	59,931
Pepper	350*
Total Agriculture exports to Egypt	60,281

Source: (Export-Development-Authority)
Compiled and adapted by research team
*As highlighted before data is not always reliable. Thus some of these figures are too low and do not make sense.

Exports from Egypt to Luxembourg

Product	Trade Value
Potatoes	11,210
Tomatoes	51
Onions	102,062
Cabbages	589
Lettuce	2,683
Cucumbers	2,751
Other Vegetables	12,425
Bananas	26
Tropical Fruits	26,533
Citrus	26,203
Grapes	267,922
Melons	24
Total agricultural exports to Luxembourg	452,479

Exports from Luxembourg to Egypt

Product	Trade Value
Potatoes	463,458
Total Agriculture exports to Egypt	463,458

Source: (Export-Development-Authority)
Compiled and adapted by research team