UNITED NATIONS
INDUSTRIAL DEVELOPMENT ORGANIZATION

Canada

Ministry of Trade & Industry
وزارة التجارة والصناعة

Gender-sensitive analysis of the palm date sector in Fayoum and Giza governorates

October 2021

Acknowledgement
This study was conducted by Dcode Economic and Financial Consulting (Dcode EFC), commissioned by the United Nations Industrial Development Organization (UNIDO) for the Women Economic Empowerment for Inclusive and Sustainable Growth in Egypt Joint Programme "Rabeha". The Joint Programme is funded by Global Affairs Canada and implemented by UNIDO in partnership with UNWomen, with support from its Egyptian government counterparts National Council for Women, Ministry of Trade and Industry and MSMEDA.
Dcode EFC's team was led by Mr. Mohamed Youssef, Chairman and CEO, and included Mr. Aly El Sherei, Vice Chairman and Managing Director, Ms. Heba Helmy, Senior Associate, in addition to Dr. Sherif El-Sharabasy, International Date Palm Expert, and Ms. Dalia Kabeel, Market Expert. The team was strongly supported by Ms. Eman Aly, Researcher and Ms. Nerveen Osman, PR Coordinator.
The consultants are grateful to the local partners who supported in organizing the field visits in Bahareya Oasis, by Mr. Ahmed Ragab and Mr. Eid Sufi, Wahet Dar El-Salam for Community and Environment Development Association, and in Fayoum by MSMEDA local office led by Mr. Ashraf Darwish and his team. Special thanks to Dr. Amgad El-Kady, Head of the Food and Agro Industries Technology Center for his support and all the experts and stakeholders interviewed in Cairo and in the field visits.
It would not have been possible to complete the report without the guidance received from the UNIDO team led by Ms. Virpi Sucki, Project Manager and Chief, Rural Entrepreneurship, Job Creation & Human Security Division, Ms. Sherihan Habib, National Project Coordinator and Ms. Navjot Kaur, Project Associate.
The team is grateful to all the Programme partners, experts and stakeholders who have all cooperated and shared knowledge and insights that have helped put the report, and most importantly the analysis and recommendations, in the final format.

TABLE OF CONTENTS

LIST OF ABBREVIATIONS

AEC	Agricultural Export Council
ARC	Agricultural Research Center
ASEAN	Association of Southeast Asian Nations
AUC	American University in Cairo
BMI	Business Monitor International
BoD	Board of Directors
BWE21	Businesswomen of Egypt 21
CAGR	Compound annual growth rate
CAPMAS	Central Agency for Public Mobilization And Statistics
CBE	Central Bank of Egypt
CDA	Community Development Association
CFC	Chlorofluorocarbons
CFI	Chamber of Food Industries
CLDPRD	Central Laboratory for Date Palm Research and Development
CLDPRD	Central Laboratory for Date Palm Research and Development
CO2	Carbon dioxide
Covid-19	Coronavirus disease 2019
CPSD	Country Private Sector Diagnostics
CSP	Concentrated Solar Power
EBWA	The Egyptian Businesswomen's Association
ECES	Egyptian Center For Economic Studies
Ecocert	Organic Certification Organization
EECH	Egyptian Export Council for Handicrafts
EGP	Egyptian Pound
EU	European Union
FAITC	Food and Agro Industries Technology Center
FAO	Food and Agriculture Organization
FAOSTAT	Food and Agriculture Organization Corporate Statistical Database
FEC	Food Export Council
FEI	Federation of Egyptian Industries
FTC	Food Technology Center
FTRI	Food Technology Research Institute
FY	Fiscal year
GAFI	General Authority for Investment
GCC	Gulf Cooperation Council
GDP	Gross domestic product
GEM	Global Entrepreneurship Monitor
GHG	Greenhouse gas
Gms	Grams
GoE	Government of Egypt
GVCs	Global value chains
HACCP	Hazard analysis and critical control points
HEIA	The Horticultural Export Improvement Association
HFCs	High-fructose corn syrup
HS Codes	Harmonized system codes – classifying goods in a six-digit code system
ICT	Information and communication technology

ICTI	Industrial Council for Technology and Innovation
IFPRI	International Food Policy Research Institute
IFS	International Featured Standards
IMC	Industrial Modernization Centre
ITC	International Trade Center
KG	Kilograms
KIAAI	Khalifa International Award for Date Palm and Agricultural Innovation
KSA	Kingdom of Saudi Arabia
LCA	Life Cycle Assessment
MALR	Ministry of Agriculture and Land Reclamation
MENA	Middle East And North Africa
MPED	Ministry of Planning and Economic Development
MSME	Micro, small and medium enterprises
MSMEDA	Egyptian Micro, Small and Medium Enterprises Development Agency
MTI	Ministry of Trade & Industry
NCW	National Council for Women
NFSA	National Food Safety Authority
NGO	Non-Governmental Organization
Non-GMO	Product was produced without genetic engineering
OSH	Occupational safety and health
PV	Photovoltaics
R&D	Research & development
RPW	Red Palm Weevil
SFDA	Saudi Food and Drug Authority
SOEs	State-owned enterprise
SoW	Scope of work
TDMEP	Trade and Domestic Market Enhancement Programme
Tea	The percentage of adults aged 18–64 actively engaged in starting or running a new business
TechnoServe	Initiative for Inclusive Agricultural Business Models
UAE	United Arab Emirates
UNIDO	United Nations Industrial Development Organization
US	United States
USD	United States Dollar
USDA	United States Department of Agriculture
Y-O-Y	Year-over-year
YTD	Year to date

1. BACKGROUND

The UNWomen-UNIDO "Women's Economic Empowerment for Inclusive and Sustainable Growth" joint project aims to increase women's economic participation in Egypt's private sector, harnessing their full potential as entrepreneurs, employees, and agents of change in their workplaces and communities, and reducing gender-specific barriers to foster more inclusive economic growth. Within the project, UNIDO commissioned Dcode EFC to conduct a gender-sensitive study of the palm date sector in Fayoum and Giza (Al Wahaat Al Bahariya) Governorates. The study provides up-to-date information and analytical foundations for the development of a detailed action plan to expand and improve the inclusion of women in the sector. In addition, the study is expected to contribute significantly to the compilation of the programme's baseline elements.

Expected results within the target value chains include:

- Increase in female venture creation, especially in the green economy
- Productivity and profitability improvements in women-led enterprises
- Retention of, or increase in, new jobs at women-led enterprises, including green jobs
- Increase of female employees along the primary value chain as well as in supporting sectors (e.g. R&D, quality assurance, marketing, data analysis, etc.)

1.1. Methodology

1.1.1. Desktop research

The research team conducted a rigorous desktop review of secondary sources and data. Resources and data gathered at this stage included both national and international sources covering empirical and qualitative studies, information, data and trends relating to the palm date sector in Egypt including peer-reviewed scholarly research, reports from various sources and renowned institutions in the field (governmental, non-governmental and third-party) and publications. Specific focus was laid on information related to Fayoum and Giza (El Wahat El Bahareya), whenever relevant. Examples of sources include, but are not limited to, CAPMAS, FAO, ITC, the World Bank, UNIDO, etc.

The desktop research covered the macroeconomic context, the agricultural sector and the date palm sub-sector, and the cross-cutting role of women, in addition to the initial mapping of the date palm value chain in Egypt.

1.1.2. Initial value chain mapping

Based on the desktop research, and building on input from the team's experts in the field, the initial date palm value chain map was developed. The mapping covered all stages of the value chain, grouped under four main stages: pre-harvesting; harvesting; post-harvest; and commercialization. The main products and processes were mapped, along with the role of women in each. The support organizations were identified as well as the main challenges and opportunities.

Primary research

In order to verify and complement the information gained from the desktop research, to finalize the value chain mapping and contextualize it against the geographical locations of focus and the role of women as such, primary research was conducted. The individuals and organizations included governmental and quasi-governmental organizations, farmers, private sector processing facilities, women entrepreneurs, women workers, NGOs, a businesswomen's association, technology and research centres. The field research activities included the following:

- Field mission to Wahat – April 2021 (nine meetings including a focus group discussion)
- Field mission to Fayoum – August 2021 (10 meetings, including 2 focus group discussions)
- Interviews with central organizations in Greater Cairo (13 interviews[1])
- Field visits to events taking place at the time the research was conducted: a) the Dates Festival in Orman Garden (April 2021); and b) Dyarna Handicrafts Exhibition (June 2021).

The information collected tackled the following topics:

- Description of the value chain from the initial agricultural stages, to processing, packaging, design (in handicrafts), and transport, and on down to the market channels of the final products.
- Analysis of the extent of value chain integration and assessment of backward and forward linkages.
- Employment and workers' skills and knowledge and the potential for enhancing the skills and knowledge of workers to meet market requirements.
- Formality of businesses and employment.
- Transportation and logistics management.
- Waste management and environmental practices and the potential for green processes and environment-friendly solutions and the use of technology as such.
- Productivity and capacity.
- Technology use and R&D and the potential for enhanced technology use, digitization and automation of processes.
- Assessment of support services and regulations and their implications in the value chain.
- Means to improve the support environment and to fill existing gaps.

1.1.3. Detailed value chain mapping

In light of the primary research, the detailed product value chains in the two governorates were mapped. The current status and processes were identified, the current and potential role of women was assessed and an overall picture of the priority value chains in the two focus geographical locations was reached. The local support organizations were preliminarily assessed for potential partnership with UNIDO in the implementation of the project interventions.

1.1.4. Selection of priority products and their markets

Of the two main product lines, fruit-based and handicraft, it was agreed with UNIDO that priority be given to fruit-based products. A list of fruit products was developed, and each was assessed against a set of criteria as follows:

- Production using semi-dry dates (varieties grown in Wahat and Fayoum)
- Degree of innovativeness of the product
- Market potential
- Processing taking place in Fayoum or Wahat
- Role of women in Fayoum and Wahat
- Investment requirements
- Potential interventions

Accordingly, four products were identified, and their local and international markets were assessed. These products are:

- Coated and stuffed dates
- Date paste/agwa
- Date energy bars/balls
- Date syrup/dibs

[1] Including one interview with a Fayoum NGO.

1.1.5. **Recommended strategy and action plan:**

Building on the secondary and primary research and analysis, the market analysis of the selected products and the assessment of gaps, support interventions were recommended, targeting women directly and indirectly. The recommended actions can be categorized under four main areas; in each area, detailed activities and their timeframe were identified. These areas are:

- Building partnerships with support institutions in the field at the central and local level.
- Building up the capacity of existing support institutions to enable them to better perform their roles and to undertake the interventions during and beyond the project timeframe.
- Awareness-raising interventions that target the community at large as well as women.
- An incubation program that would provide its services to the entrepreneurs at different stages of business development as well as their workers. These services include:
  - Training at the various stages, from ideation and start-up to business growth.
  - Long-term technical assistance and mentoring and coaching. This will better serve real-life application of the learnings gained during the training and support long-term problem-solving in relation to the technical and environmental aspects of the business. This is also intended to contribute to the sustainability of the support interventions. The existing support institutions will have a key role in these long-term interventions.

2. MACROECONOMIC CONTEXT

2.1. Overview

Prior to the COVID-19 outbreak, the economic reform measures implemented by the government of Egypt had led to a significant improvement in Egypt's macroeconomic situation and helped overcome major imbalances (mainly represented in a high fiscal deficit and a significant shortage in foreign currency). This was manifested in a narrower current account deficit (13.0% from July-Dec 2019), the reaching by the EGP of a YTD low of EGP 15.56 per USD on February 22,2020, headline inflation slowing to 5.3% in the same month (driven down by lower food and beverage prices), containment of the budget deficit, and record-high international reserves.

As in all countries, the COVID-19 crisis has taken its toll on Egypt's economic activity, bringing economic growth into negative territory during Q4 2019/20. Despite this, Egypt was one of a few countries worldwide able to maintain positive growth rates during FY 2019/20 (3.6%) compared to 5.6% a year earlier. Underlying this figure was robust 5.6% growth in the first half of the year which slowed to 1.6% in the second half largely driven by a huge slump in investments – 38.4% on an annual basis during the second half of the year. Growth during that period was mainly supported by consumption which, according to official data, grew by 9.3% y-o-y during that half. Indeed, at 100+ million, Egypt's population is by far the largest in the MENA region with an average annual growth of 2.2%, constituting a solid domestic consumption base which provides an important buffer at times when global economic conditions are not conducive.

The economic performance during the pandemic was also a result of a number of measures taken by the GoE which helped mitigate the short-term effect on the most vulnerable groups in 2020. In continuation of those efforts, in April 2021, a three-year structural reform program was announced, designed to support private sector-led economic growth, capitalize on recent economic reforms, and take advantage of the opportunities created by changing global economic trends following the pandemic. One of the main pillars in the strategy is the diversification of the economy, with a focus on improving productivity in the agriculture and manufacturing sectors, advancement of the labour market, including advancing women's labor force participation to close the gender gap, and preparing the labour force for digitized work needed in the near future.

2.2. Agriculture and agribusiness (food) sectors

The agriculture sector is the third biggest sector in the Egyptian economy, representing 11.3% of GDP (FY 2019/20), has the highest share of employment with 21.0% (June 2020), is the least volatile in terms of real growth,[2] averaging 3.2% between 2003/04 and 2019/20, and during the 10-year period from 2010/11 to2019/20, it accounted for the second highest contribution to real GDP growth after wholesale and retail trade. Investment in the agricultural sector almost doubled in 2018/19 to EGP 48.9 bn under the government's plan to intensify public investments that support economic and social development in various fields, including the agriculture and irrigation sectors, and to achieve sustainable agriculture. In 2019/20, investment in the sector dipped by 17% to EGP 40.8 bn, largely due to the downturn caused by the pandemic. Contrary to common belief, the agriculture sector accounts for the the third-highest value added per 1 EGP of investments (EGP 22.1) behind financial intermediation (EGP 148.3) and wholesale & retail rrade (EGP 25.2)[3]. While it is still growing at a steady pace and is still one of the biggest sectors, the agriculture sector's

[2] During the ten-year period (2010/11-2019/20), Agriculture sector was the least volatile in terms of growth (coefficient of variation = 0.06).

[3] Dcode EFC calculations based on data from CAPMAS.

GDP share has declined over the years in tandem with increasing contributions of services and industry sectors. The table below shows Egypt's most important agricultural crops, including palm dates.

Table (1): Production of the most important agricultural crops (in thousand tons)

Agricultural crops	2017/18	2018/19	% change
Sugar beet	10,377	12,247	18.0%
Wheat	8,349	8,559	2.5%
Maize	8,349	7,593	-9.1%
Fruits	7,615	7,429	-2.4%
Citrus	5,047	4,947	-2.0%
Rice	3,124	4,804	53.8%
Onion	3,067	3,125	1.9%
Palm dates	1,564	1,644	5.1%
Sorghum	805	758	-5.8%
Peanuts	210	199	-5.2%
Beans	158	139	-12.0%
Barely	82	107	30.5%
Linen (fibers)	66	106	60.6%
Sesame	36	41	13.9%
Soya beans	47	36	-23.4%
Sunflowers	21	16	-23.8%

Source: CAPMAS

In 2018/19, the food product subsector[4] represented 17.7% of the manufacturing sector's production value (2nd highest) and 17.7% of manufacturing sector employment (3rd highest). The food processing industry, with USD 27.5 bn worth of sales, accounted for 9% of GDP in 2019[5]. The share of Egypt's food exports as a percentage of merchandise exports more than doubled in 20 years from 8% in 2000 to 16.6% in 2019. According to the ECES, underlying this trend is an increase in Egypt's exports of vegetables and fruits, whose value increased almost 20-fold during this period. Nevertheless, Egypt currently realizes only 30%-40% of its agricultural export potential; around USD 10 bn in agricultural and food export potential is untapped, due to challenges in the value chain.[6] These challenges can be summarized as follows:[7]

- **High waste:** As a result of inadequate transport facilities, insufficient bonded warehousing capacity, and weak cold-chain infrastructure it is estimated that waste reaches 15%-20% for non-perishable crops and 25%-50% for perishable crops. The lack of cold-chain services in general hampers Egypt's ability to integrate into agribusiness GVCs successfully.
- **Land fragmentation** and the lack of a land titling system constrain agricultural productivity and limit the ability of farmers to realize economies of scale.
- **Increasing state role:** According to the World Bank, in agribusiness, the large State footprint – through food and fertilizer subsidies, tariff protection, export bans, and numerous SOEs[8] – "limits

[4] Under the manufacturing sector.
[5] ECES, 2018. Services contribution to value chains: A case study of the Egyptian food processing sector. Cairo.
[6] World Bank, 2020. Country Private Sector Diagnostic: Realizing the Full Potential of a Productive Private Sector: Creating Markets In Egypt. World Bank, Egypt.
[7] According to the World Bank's Country Private Sector Diagnostics (CPSD) report published in December 2020 in addition to other sources.
[8] SOEs in agri-processing represent 60% of wheat milling, 75% of sugar-refining capacity, 25% of domestic milled rice production.

the room for private sector participation in certain subsectors", which constrains efficient market functioning.

- **Weak and constrained exports:** The export potential of agribusiness products is hampered by several factors, including poor transport and logistics, weak food safety and phytosanitary conditions, and inadequate R&D and skills.
- **Environmental:** There is pressure on available land and water resources.
- **The regulatory environment** is also challenging for other agribusiness subsectors. Egypt ranks 72 out of the 101 countries in the Enabling Business of Agriculture rankings, with lower performance on access to quality seeds and fertilizers.

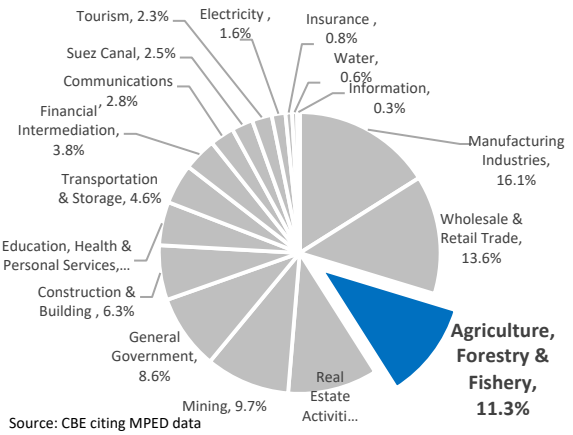
Despite the fact that palm date cultivation and harvesting practices are different from those related to most crops cultivated in Egypt, they share similar challenges along the value chain (discussed in detail in the value-chain mapping section), and despite the fact that Egypt is the world's leading date producer (17.7% of global date production in 2019), only around 3% of production is exported.[9] The major constraints are:

- Lack of know-how on good technical production practices.
- Lack of trained workers
- Majority of produced dates are of an uneconomic nature
- Negative effect of pests and disease on production and expansion of production
- Lack of sufficient postharvest and processing knowledge and facilities
- Lack of quality control regime
- Weak market information system and marketing
- "The biggest major constraint is the lack of effective value chain linkages for the whole date sector (linkage between the farmers, the traders/collectors, and the the packers/processors)"[10]

Given these challenges, while eying opportunities the government of Egypt adopted several policy directions and actions to enhance the agriculture sector's economic performance, and increase its value-addition, all as part of a socio-economic reform. This is evident from SDS Vision 2030 and the structural reform strategy and the national projects in that area (e.g. the one million feddan, irrigation infrastructure projects etc.). As for palm dates, it was in 2016 that the Ministry of Trade and Industry, the Ministry of Agriculture and Land Reclamation, and the FAO developed a national strategy for the sector with an action plan targeting the gaps and challenges in the value chain. The efforts ranged from national projects implemented by the government (e.g. the 1 million palm tree project, the annual dates festival etc.), donor-funded projects focusing on certain geographical locations (e.g. El Wadi El Gedid, Aswan etc.), and quasi-governmental efforts providing mostly non-financial services (e.g. CFI, Food Export Council, MSMEDA etc.).[11] All the efforts helped increase investment in the sector, yielding an increase in production of 5.1% in FY 2018/19 (YoY). Improving value-chain processes has a direct impact not only on the economic side but also on the livelihoods of vulnerable groups (e.g. farmers, women, youth etc). To foster more inclusive growth in the sector, it is imperative to increase local women's economic participation in the sector and across the value chain, harnessing their full potential as entrepreneurs, employees, and agents of change.

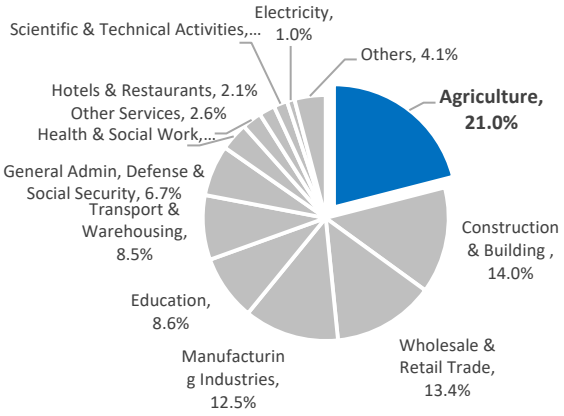
[9] https://www.fao.org/egypt/programmes-and-projects/dates-palm/en/
[10] https://www.fao.org/egypt/programmes-and-projects/dates-palm/en/
[11] More details in the following sections.

Sector share in GDP in 2019/20



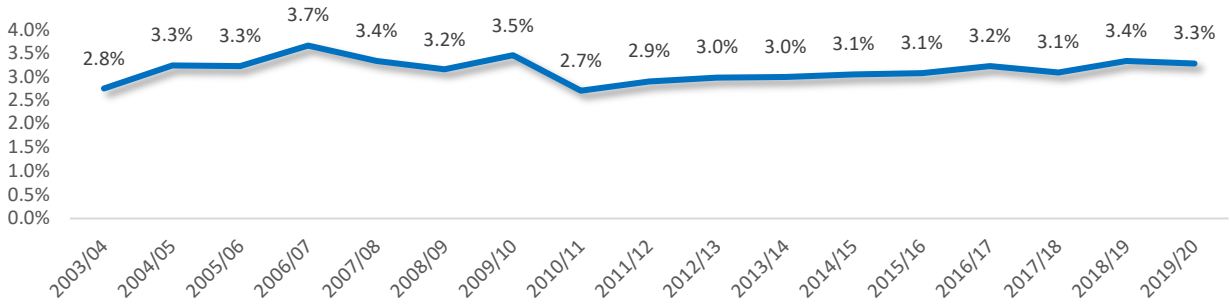
Source: CBE citing MPED data

Employment by sector in June 2020



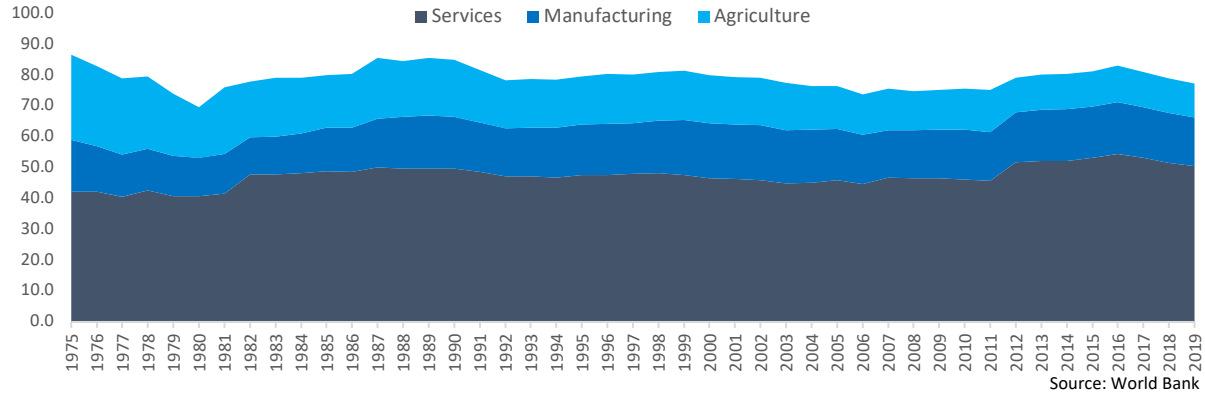
Source: CAPMAS

Agriculture sector real GDP growth (%)



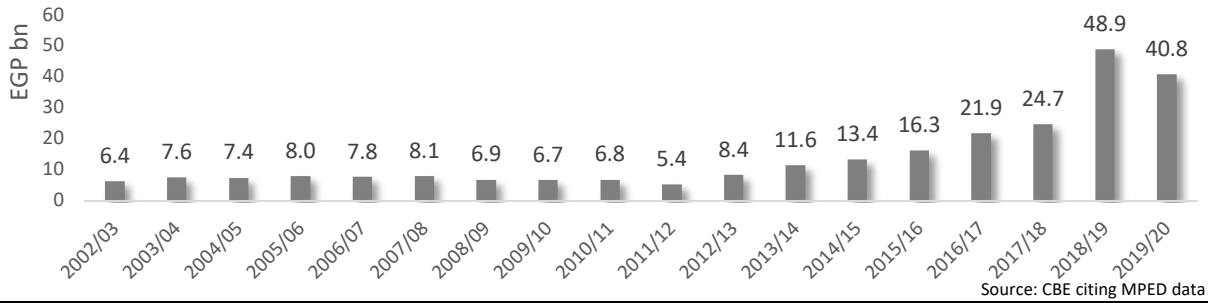
Source: MPED

Share of main economic sectors in GDP

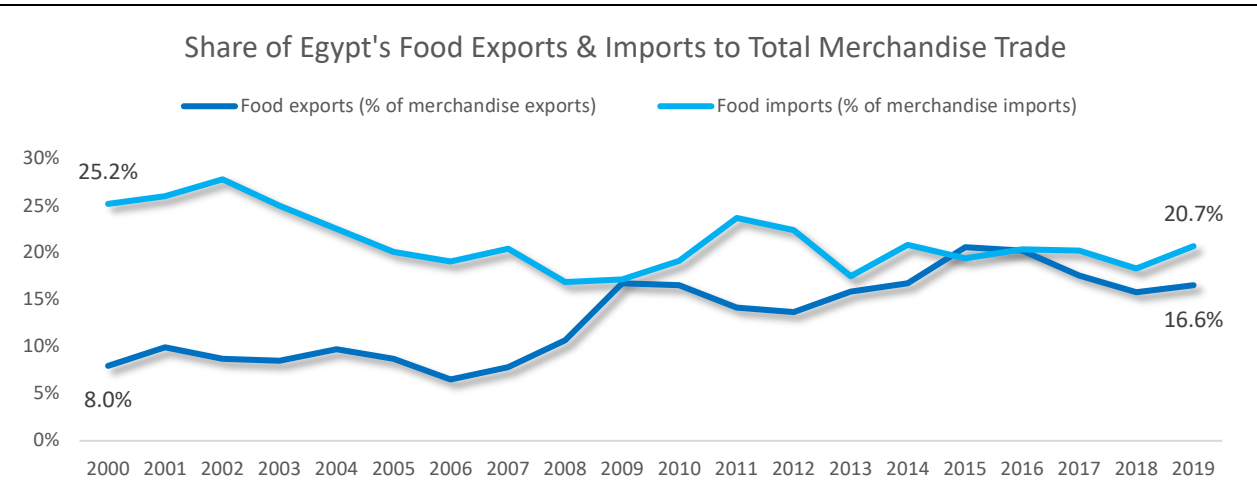


Source: World Bank

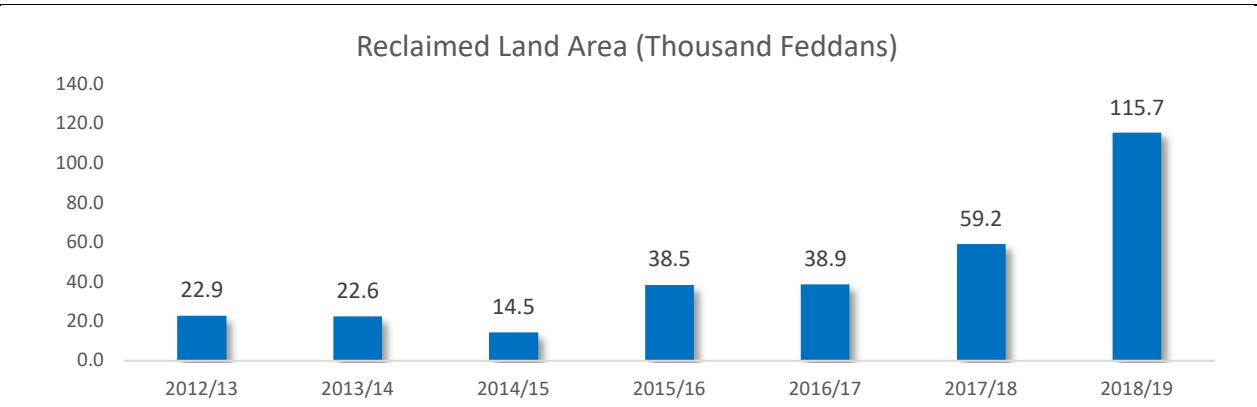
Implemented Investments in the Agricultural Sector (Nominal; EGP bn)



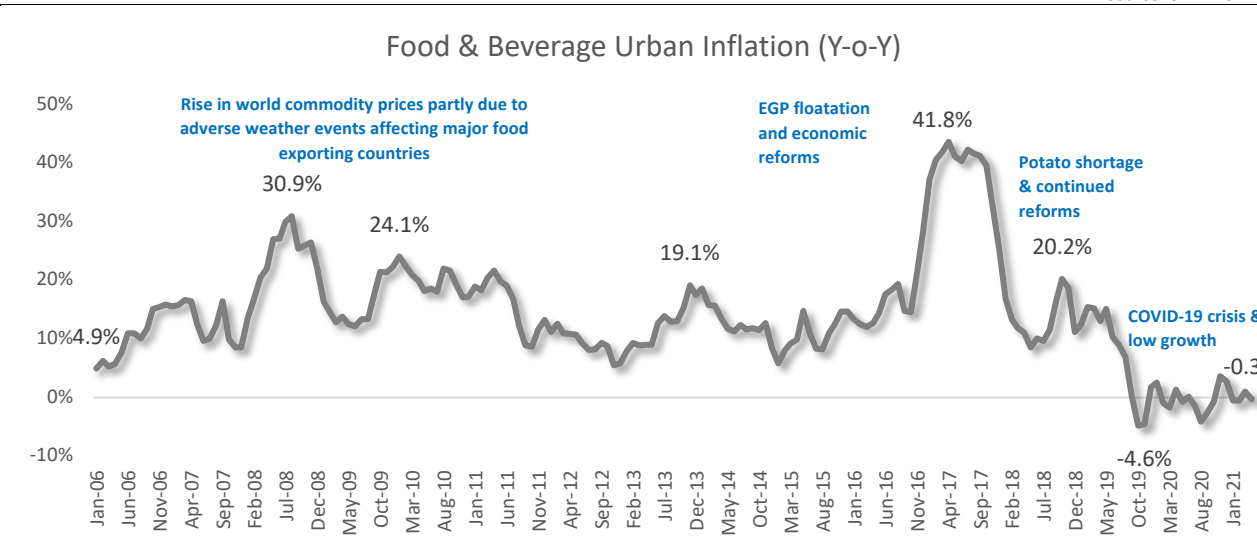
Source: CBE citing MPED data



Source: World Bank



Source: CAPMAS



Source: CAPMAS

Other indicators[12]

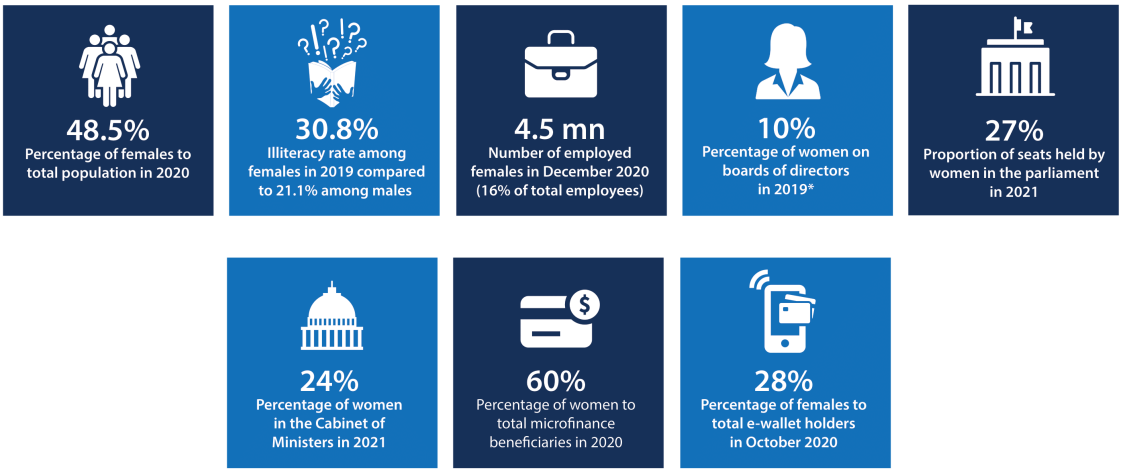
	Agriculture	Manufacturing
% of temporary employees	6.1%	4.5%
% of unpaid employees	54.5%	20.4%
Future employee requirements (2020-2023)	1,493	58,623
% of unregistered establishments (informality)	73.0%	53.7%
Female wages as % of male wages (2010-2019 average)[13]	94%	80%

[12] Source of first four rows: CAPMAS' latest economic census (2018)

[13] CAPMAS' Statistical Yearbook 2020, Chapter 4 - Labour

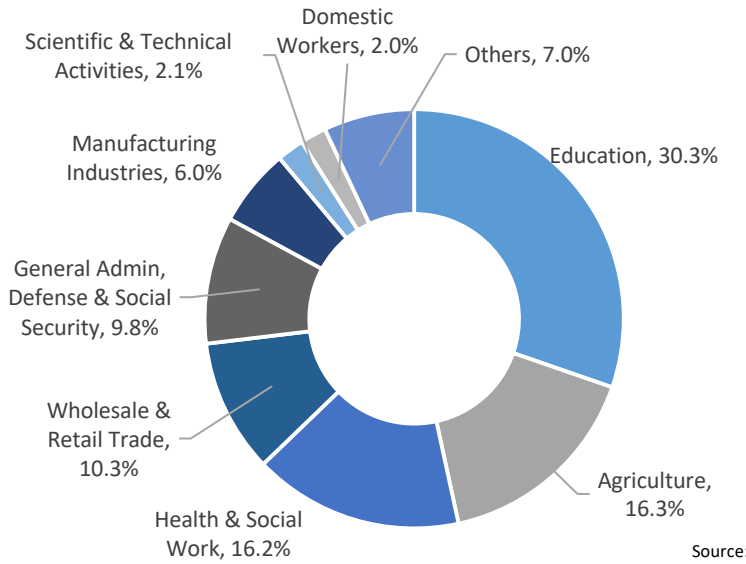
2.3. Women in the economy

While a lot has been achieved on the women's empowerment front over the past years, women are still under-represented in the Egyptian economy, contributing just14.3% to the total workforce (15+ years), compared to 67.4% for men. Females are also more often unemployed (16.8% in December 2020 compared to 5.1% for males) and have higher rates of illiteracy (30.8% in 2019 compared to 21.1% for males). Meanwhile, the percentage of females enrolled in higher education was 48.7% in 2019/20 compared to 51.3% for males. Life expectancy at birth for females was 75.9 years compared to 73.4 years for males.



As shown in the chart below, 30.3% of Egypt's female employees work in the education sector, followed by 16.3% in agriculture – down from 21.6% in June 2019). Women in the agriculture and manufacturing sectors receive lower compensation than their male peers. Between 2010 and 2019, female wages in the agricultural sector stood on average at 94% of male wages according to CAPMAS figures. The situation is worse, relatively, in the manufacturing sector (80%). It is worth noting that there is no national data on wage differntials in the palm date value chain, but the qualitative research conducted with the different stakeholders in the target governorates revealed that women are paid 80% of male wages.

Female Employment by Sector in June 2020



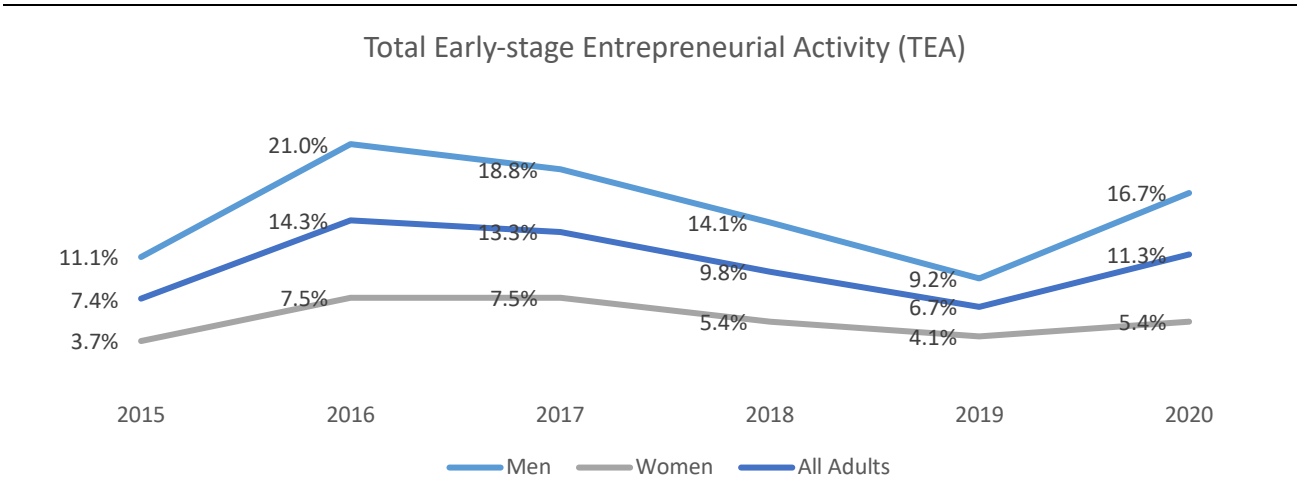
Source: CAPMAS

Women in the economy: An agricultural sector demographics snapshot

	Total Egypt
Female population in January 2021	49,241,159
Percentage of females out of total population in January 2021	48.5%
Total employment (15+) in 2019	26,123,100
Female employment (15+) in 2019	3,989,400
Percentage of females out of total employment in 2019	15.3%
Total employment in the agriculture sector in 2019	5,509,000
Female employment in the agriculture sector in 2019	844,600
Percentage of females out of total agriculture employment in 2019	15.3%
Total employment in the manufacturing sector in 2019	3,384,500
Female employment in the manufacturing sector in 2019	300,400
Percentage of females out of total manufacturing employment in 2019	8.9%
Ratio of urban population in January 2021	42.9%
Total area (km^2) in July 2020	1,010,408
% of inhabited area out of total area	6.8%
Poverty rate in 2017/18	32.5%
% of population aged 15-59 years	59%

Source: CAPMAS

According to a Global Entrepreneurship Monitor (GEM) report[14], entrepreneurship among women is much lower than among men. As depicted in the figure below, men and women follow almost the same trends over time, but the gap between men and women in each year persists. In 2020, 5.4% of women aged 18-64 were engaged in early-stage entrepreneurial activity (TEA),[15] compared to 16.7% of men in the same age group, and a national average of 11.3%. The female/male TEA ratio shows an average of 0.37 from 2015 to 2020, meaning that for each 100 men in TEA, there are 37 women in TEA.



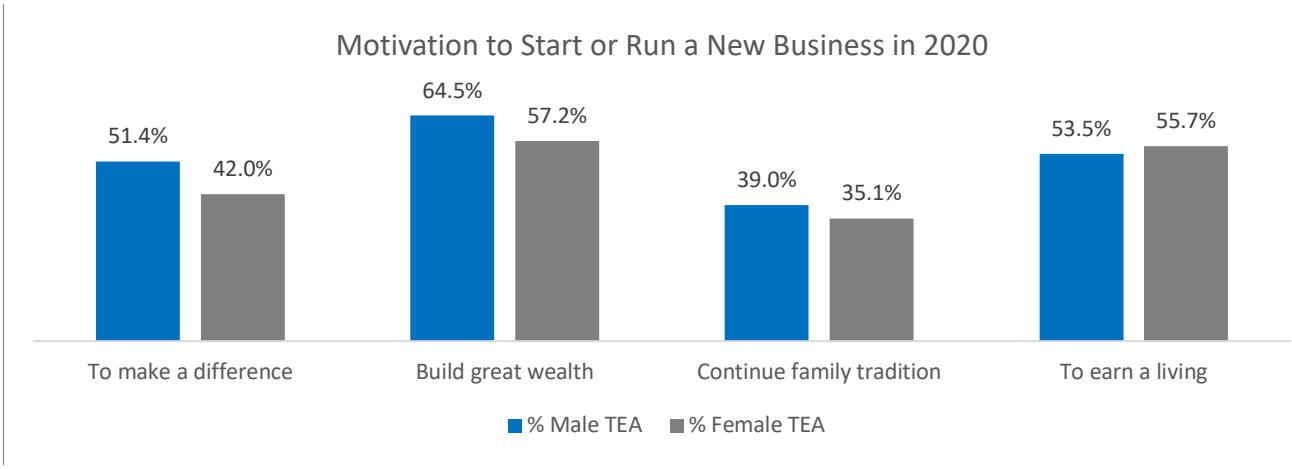
Source: GEM Reports 2015-2020

Among those engaged in running a new business (TEA), the motivation for starting a business varies, with evidence of an inclination towards responding to perceived necessity higher in women than in men. The 2020 data show that more men start businesses to make a difference, to build wealth or to continue a family tradition, compared to women. On the other hand, more women are starting their businesses to earn a living, compared to men. In the palm date sector, the women entrepreneurs interviewed were mainly "opportunity entrepreneurs", they saw a gap in the market, and they pursued their endeavour. Thus, they have the same characteristics as opportunity entrepreneurs (highly educated, have access to funds, have access to

[14] GEM Reports, 2015-2020.

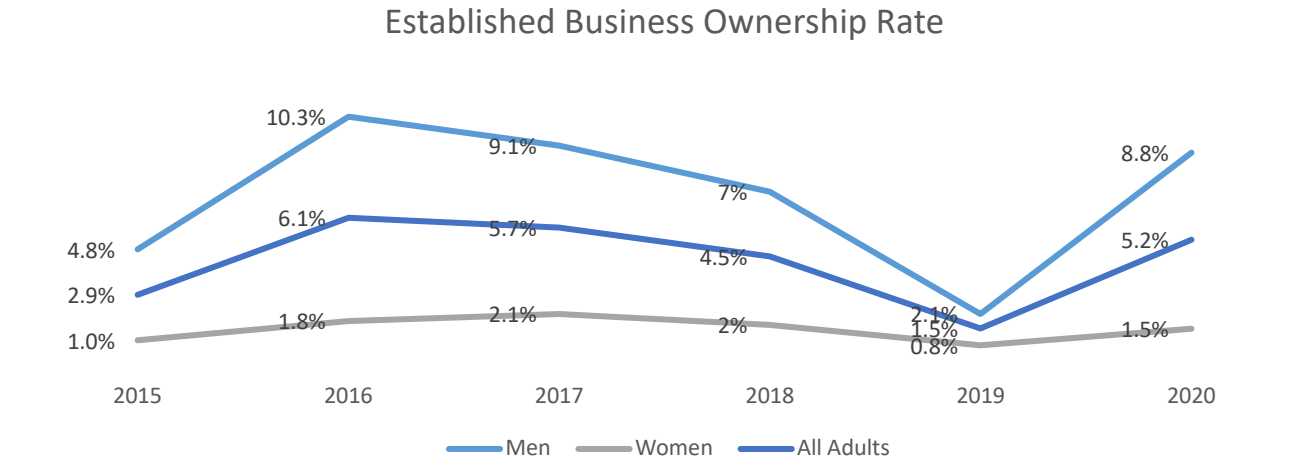
[15] TEA: The percentage of adults aged 18–64 actively engaged in starting or running a new business.

networks). The problems and challenges faced by them are not particular to gender issues: difficulty in sourcing high-quality dates, finding trained workers, and gaining better access to markets. Despite this, there one interviewee mentioned that suppliers and/or retailers did not take the entrepreneur seriously in the early encounters because she was a woman.



Source: GEM 2020/2021 Global Report.

As for the established businesses ownership rate[16], the changes over time tended to be sharper in the men's rate; women have not followed the same pattern as men over the last five years. Nonetheless, there is still a gap between men and women owning established businesses. In 2020, only 1.5% women aged 18-64 owned established businesses, compared to 8.8% of men in the same age group and a national average of 5.2%. The female/male established business ratio came in at an average 0.23 from 2015 to 2020, meaning that for each 100 men owning established businesses, there was a corresponding number of 23 women. This reflects an even wider gap than that in TEA, from which one may infer that businesses owned by women are less likely to continue operation for more than 3.5 years compared to those owned by men.



Source: GEM Reports 2015-2020

Note: The data for the rate of men and the rate of women in 2018 are unavailable. The figures shown in the graph (7% for men and 2% for women in 2018) were computed by Dcode EFC assuming the same change rate from 2017.

[16] Established Business Ownership Rate: Percentage of adults aged 18–64 who are currently owner-managers of an established business, i.e. who own and manage a running business that has paid salaries, wages or made any other payments to the owners for over 42 months (3.5 years).

2.3.1. Challenges facing women in the agricultural and manufacturing sectors[17, 18]

- Generally, women are crowded into the lower nodes of the value chains and are hired on a seasonal basis to perform "delicate" and "detail-oriented" tasks such as fruit picking, labeling, sorting, and packing. This is applicable as well to the palm date sector (explained in detail later).
- Men are the preferred hires for more senior positions, such as those related to engineering, and supervision.
- Female laborers are regularly exposed to physical, sexual, or verbal abuse, with no recourse to labor law or unions.
- Labor contractors who come from the same village as workers often perpetuate harassment, given the leverage they have as middlemen between the families and the employers. Company managers and owners reject liability for such mistreatment.
- Farm managers and company owners often fear the risks of integrating female workers into deserted locations, or male-dominated locations, and prefer not to disrupt the status quo because of potential safety risks.

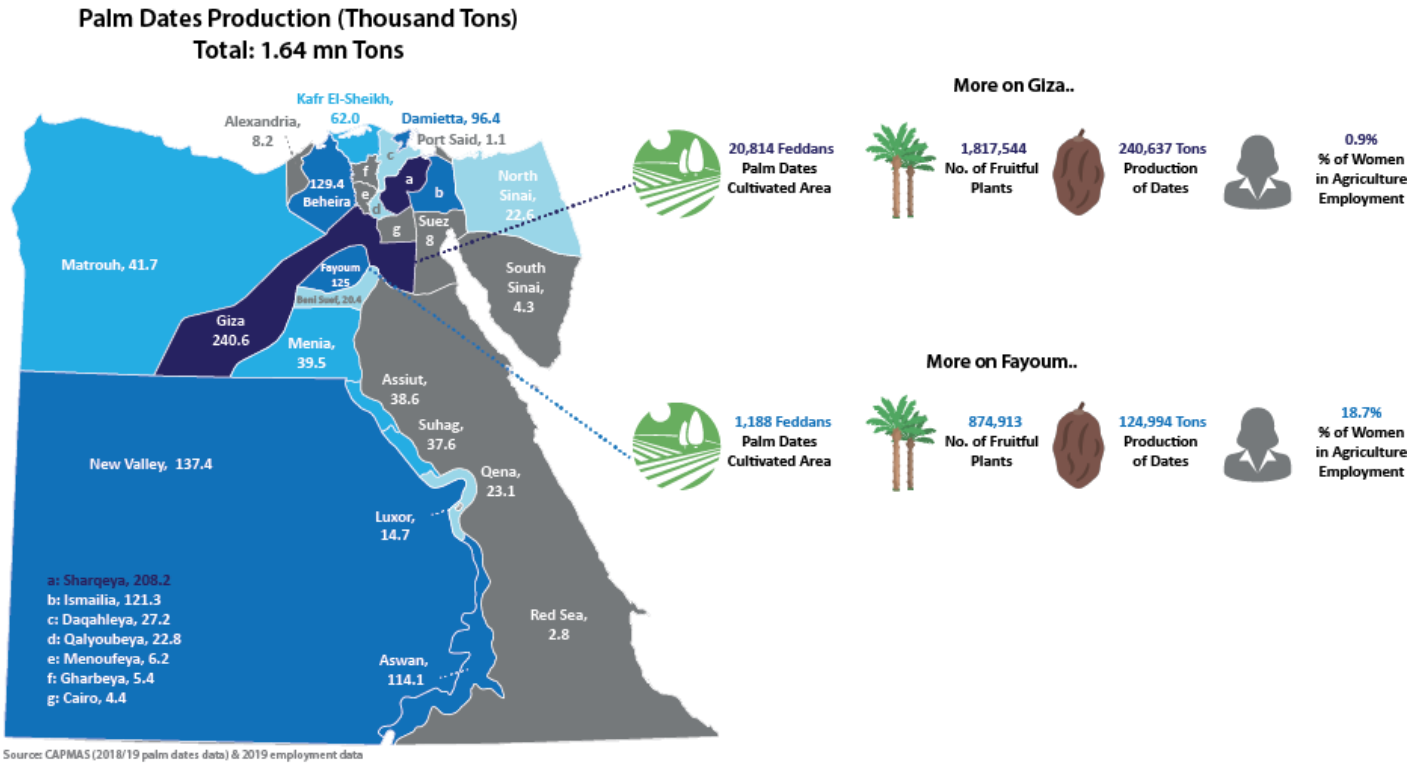
Despite the challenges, the agribusiness sector offers substantial potential for growth and for creating productive employment opportunities for women. Egypt has made great strides in recent years in different agricultural products that have a potential for export. The floatation of the pound in 2016 provided a great opportunity to increase other agricultural exports, such as potatoes, strawberries, grapes, onions, tomatoes, and other vegetables, and was further boosted with the disruption of supply chains caused by the pandemic in 2020 (regional countries imported from Egypt to compensate for the halting of Chinese exports). Post-harvest processing jobs in the agricultural export sector, including in the date sector, tend to be highly feminized and can potentially be an important source of employment growth for rural and urban women.

[17] World Bank, 2020. Country Private Sector Diagnostic: Realizing the Full Potential of a Productive Private Sector: Creating Markets In Egypt. World Bank, Egypt.
[18] Khorazaty, N., 2021. Egyptian Women's Agriculture Contribution; Assessment of the Gender Gap for Sustainable Development. The American University in Cairo. Cairo, Egypt.

3. PALM DATE SECTOR IN EGYPT

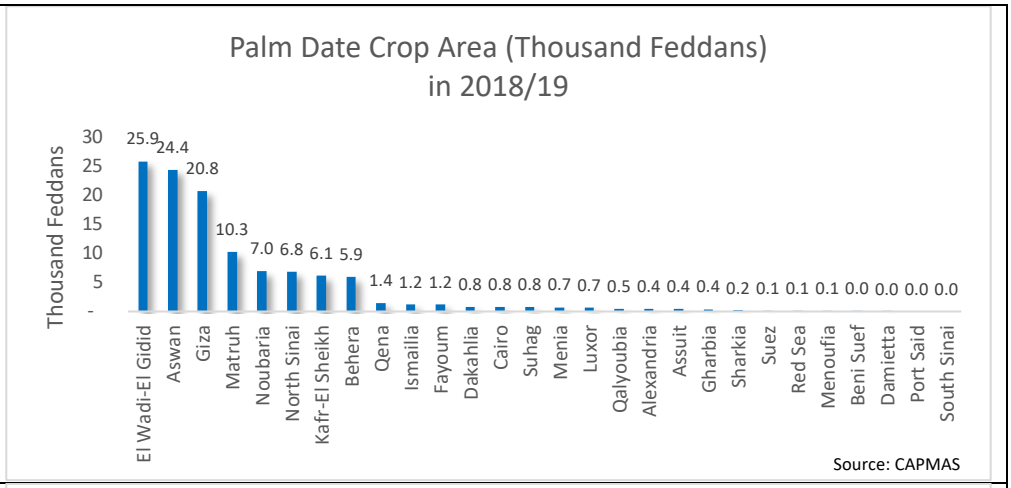
3.1. Overview

According to CAPMAS data (2018/19), the total palm date crop area in Egypt reached 117.1 thousand feddans in 2018/19 compared to 113.2 thousand feddans in 2017/18 (+3.4%); and palm date production reached 1.64 million tons compared to 1.56 million tons in 2017/18 (+5.2%). Fruitful palms across Egypt amounted to 14.4 million in 2018/19 compared to 14.1 million in 2017/18 (+2.0%). The Giza Governorate ranks first for palm date production, representing 14.6% of Egypt's total production (the remaining governorates are presented in the figure below). A recent study/presentation by the Food Export Council and Dr. Amgad El Kady , the head of the Food Technology Centre, stated that the number of fruitful palm trees had reached 15 million, producing more than 1.7 million tons – a figure not far removed from that reported by CAPMAS.[19] These numbers make Egypt the world leader in date production, accounting for 17.7% of estimated global production of 9 million tons, and 24.4% of Arab countries' production. The average productivity of palm trees in Egypt is around 106 kg per palm. In recent years, there has been a significant public and private expansion in palm cultivation, date production, and processing, as a result of the government's focus on increasing exports from the sector. Below are the main highlights of the sector's performance in the Egyptian economy.

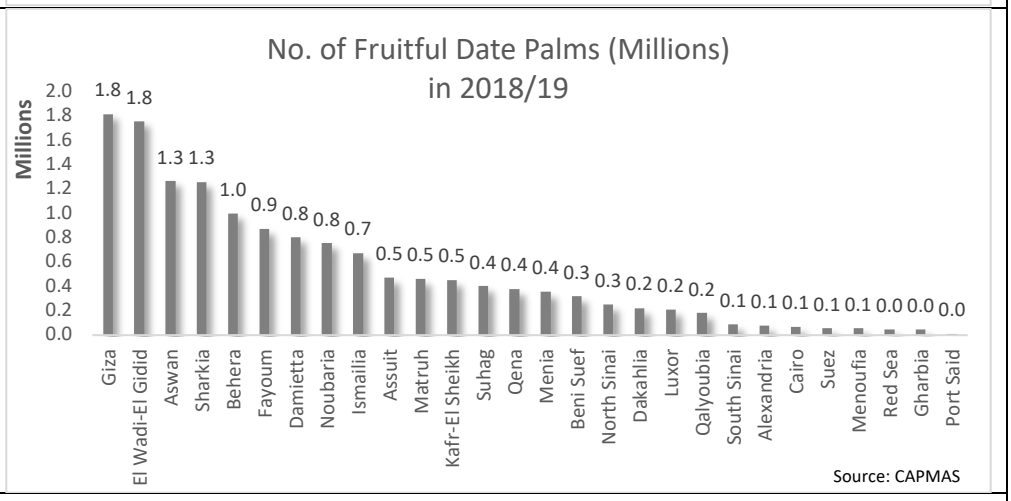


[19] The interviews conducted thus far indicate challenges in obtaining accurate up-to-date data and there is agreement that collection methods lack thoroughness and numbers are actually higher.

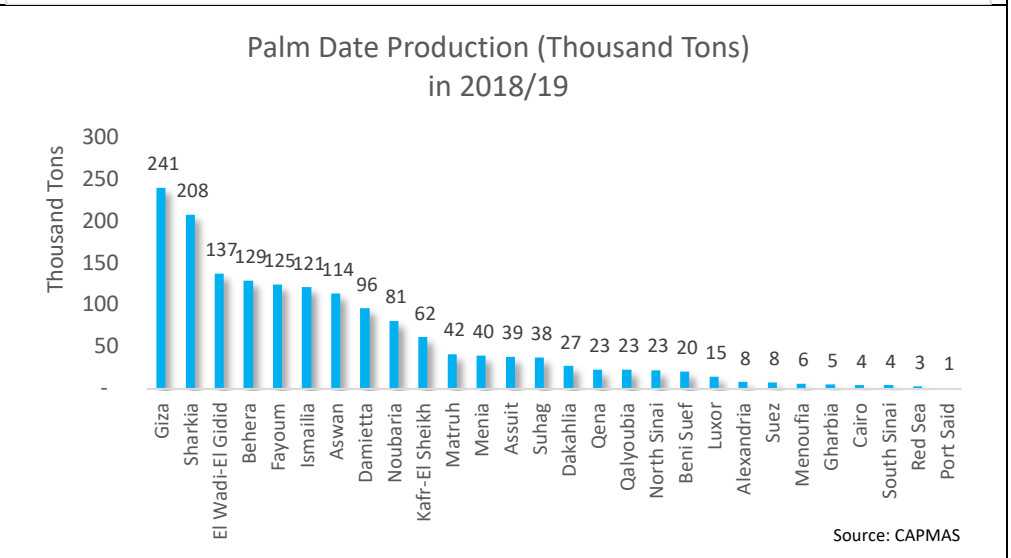
El Wadi-El Gedid (New Valley) has the biggest palm date crop area (25.9 thousand feddans), followed by Aswan (24.4 thousand feddans) and Giza (20.8 thousand feddans).



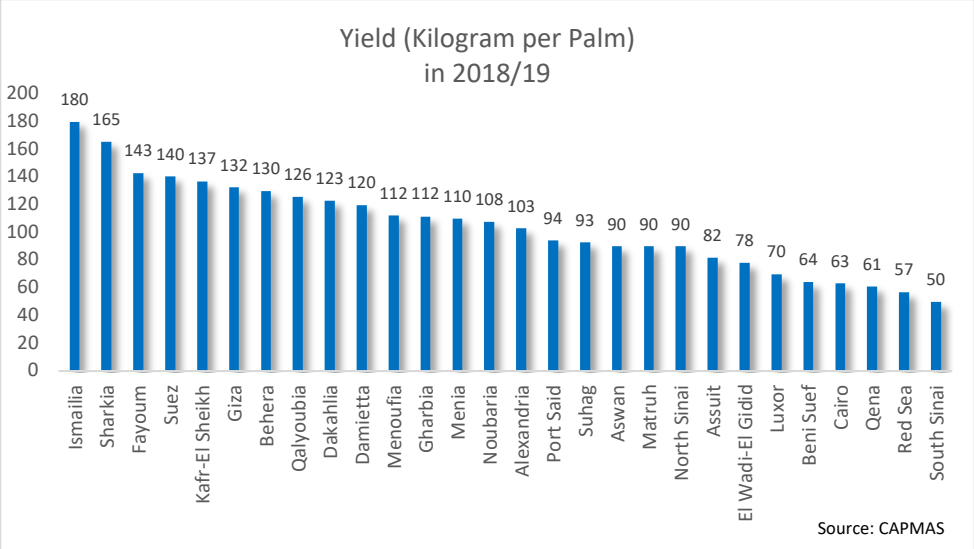
Meanwhile, Giza has the highest number of fruitful date palms (1.82 million palms) followed by El Wadi-El Gidid (1.76 million palms) and Aswan (1.27 million palms).



Giza Governorate has the highest production of palm dates (241K tons) followed by Sharkia (208K tons) and El Wadi-El Gidid (137K tons). Fayoum Governorate ranks fifthwith 125K tons.

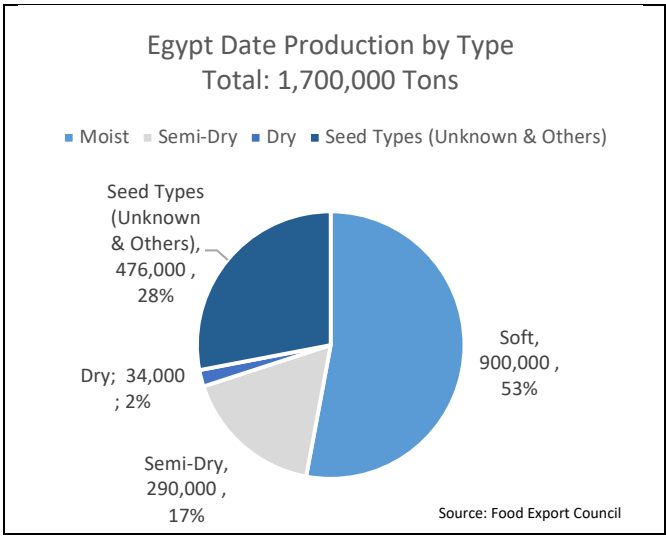


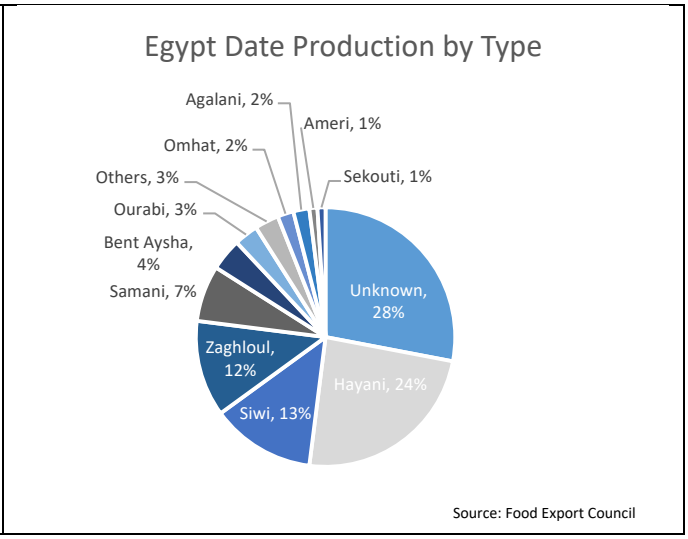
Ismailia has the highest yield in kilograms per palm (180), followed by Sharkia (165) and Fayoum (143).



3.2. Date varieties

Egypt's climate is perfect for growing a wide variety of dates. Plantations are spread across the country with concentrations along the Nile River, in South and North Sinai, along the Red Sea, in the New Valley and in Matrouh Governorate. The date palm plantations in the Nile delta alone constitute about one third of the productive date palms of the country. The irrigation of palm trees in Egypt depends on either water from the Nile or from groundwater (outside the Nile valley).[20] There are three main varieties of dates, categorized primarily by their moisture content and distributed throughout Egypt according to weather conditions and soil composition. Below are the three main varieties of dates, their characteristics, and the areas they are cultivated in:[21]





1. Soft varieties (high moisture content)

Soft varieties are cultivated in the Lower Egypt region and represent 53% of total Egyptian production (as shown in the graphs below). The relative lack of heat and humidity in this region means the fruit must be harvested and consumed while it is still humid, because date maturation in similar conditions is very slow or even incomplete at the late stage. Because of the +30% moisture content of this variety, it should not be stored in ambient conditions lest the fruit ferment and deteriorates. This fruit varies in color but is usually oblong in shape and most of its sugars are inverted. Some of these varieties can be consumed fresh (e.g. Hayani, Zagloul and Samani) while others are only edible when mature (e.g. Amhat). The latter variety can mature naturally or artificially, thus all these varieties are consumed fresh and frozen locally and no further processing is performed.

The most important cultivars of this group are: Zagloul, Samani, Hayani, Bent Aasha, El Sergy, Soqr El Damin, El Kaboushi, El Arabi, Amhat, Oshek Engebel, Taktakt, Amezoh, Eghrawn Nehloten, Ezwagh, Keabi, El Falek, Hegazy, Centrawi, Halawi, Om El Ferakh, Selmi, Beid El Gamal, Kaboushi, Sofer El Domin Abo- Teda and El Kanabi.

2. Semi-dry varieties (medium moisture content)

Representing 17% of Egypt's total production, fruit of this variety is mainly cultivated in the centre of Egypt as it grows in higher temperatures than soft varieties (>27 oC). This variety has moderate

[20] FAO, 2016, Egypt's Palm and Dates Promotion Sector Strategy
[21] Date Palm Sector in Egypt - Value Chain Analysis (Author: UNIDO) - 2009

moisture content (20%-30%), low sucrose content, high soluble-solids content, and a high percentage of inverted sugars – thus it can be preserved for longer than soft varieties. Types of this variety are in global demand and enter into processing (semi- and heavy processing as explained later in the document). The main types of this variety are Siwi, Saidy, Amri, Aglani, Karamat, Helw Ghanem, Agua, Ashbeer.

3. Dry varieties (low moisture content)

Fruit of this variety can be stored for a very long time at room temperature because it has low moisture content (less than 20%) in addition to high sugar content (65%-70%, mainly sucrose). It is mainly cultivated in the southernmost governorates of Upper Egypt (Qena, Luxor & Aswan), but can also be found in smaller volumes at the New Valley oasis (mainly the Frahi variety). It represents 2% of Egyptian production, is considered low-quality, and is consumed locally. The most important types of this variety are: Barakawi, Abrimi, Sakkoti, Bartamouda, Malakabi, Gondila, Garagouda (Beida & Bonni), Degna, Shamia (Beida & Bonni), Raghm Ghazal, Frahi, Olkik, Wngem, Ghazaly, Hasawi, El-Homra, Aienat, Mogrash, Tamr El Wadi, Gaagaa, Sultani and Tazarakht.

More than 65% of the date palms in Upper Egypt have been developed from seeds, so they are quite diverse, and the quality of their date yield is often low. Around 28% of total Egyptian production is from these unknown varieties, is usually consumed fresh locally, and has no economic viability.

Several oases are located outside the Nile Valley i.e. the Western Desert, the Eastern Desert and the Sinai Peninsula: Siwa, Al Bahareya, Al Farafra, Al Dakhla, Al Kharga and Fayoum. Around 50% of the palms in this area are of the Siwi and Saidy varieties, and their dates are pass through the Nile Valley markets as a result of their good quality. Production in areas outside the Nile Valley is expected to spike due to a new national project to plant 2.5 million palm trees on 40 thousand feddans in the El Wadi El Gedid Governerate;[22] the palms will be mainly of untraditional or high-quality varieties, such as Medjool and Barhi, and they will be cultivated via selected offshoots or tissue cultures. The same thing is happening in Toshka where there is a plan to plant another 2.5 trees. Currently, an estimated 100k-200k palm trees have been cultivated in El Wadi El Gedid, and around 1 million in Toshka.[23]

[22] Almasry Alyoum article dated 20/1/2019.
[23] According to insights from interviews.

Soft Varieties (High moisture content)

+30% moisture content

Around 53% of Egypt's Production
Highly perishable, thus consumed fresh or frozen in the local market.

Semi-dry Varieties (Medium moisture content)

20-30% moisture content

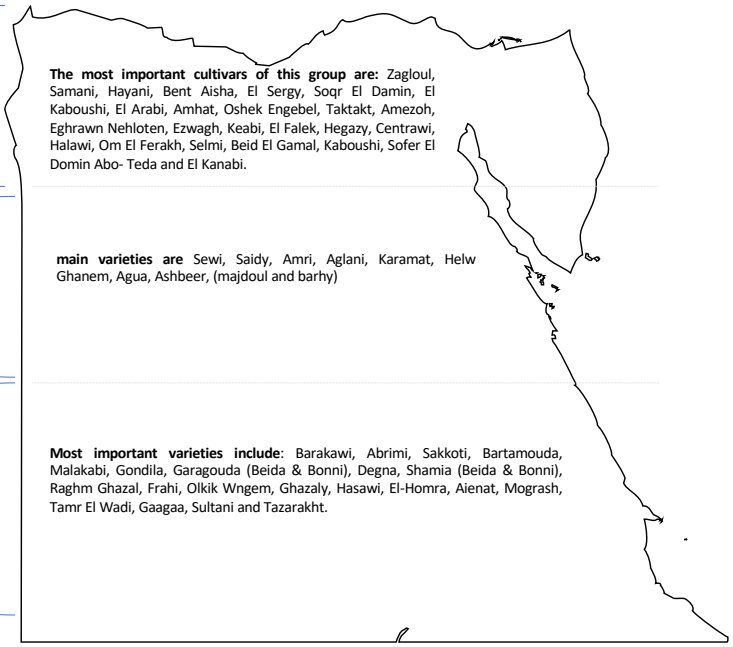
Around 17% of Egypt's Production
Most of the production is packaged, semi processed, and fully processed. Constitute the majority, if not all, of Egypt's current exports.

Dry Varieties (Low moisture content)

low moisture content (15-20%)

Around 2% of Egypt's Production
Mostly low grade varieties, and consumed fresh locally, and used in for semi processed products

Around 28% are unknown varieties with no economic viability due to low grade and low production. Most of those are products of seed cultivation, and are mostly dry.



3.3. Products & by-products

Date fruit in Egypt is sold minimally processed, semi-processed, processed or heavily processed. However, most dates are currently sold unprocessed, which shows there is huge potential to upgrade the existing value chain by increasing the share of processed dates, especially since processed date production can make better use of lower-grade dates and increase their value. Also, other than the palm fruit (dates), different parts of the palm tree are used to produce secondary products that further push up the returns on this crop. The following list presents the different products and by-products, noting that not all are produced in Egypt, and not all are economically viable.

Palm date products can be categorized as follows:

A. <u>Propagation</u>

- Tissue culture propagation

B. <u>Date fruit products:</u>

- **Packed date fruits** washed, packed, and sold directly to the consumer without any further processing.
- Dates with minimal processing (value-added):
  - **Pitted dates:** After washing the date, seeds are removed before packaging.
  - **Stuffed dates:** The seeds are removed, and nuts are inserted in their place.
  - **Coated dates: E.g.** dates coated with chocolate, possibly also stuffed with nuts.
- Semi-finished date products
  - **Date paste:** Paste can be pressed, with seeds or dates minced through mincers. The fineness of the grind can be adjusted by using dice with holes of different diameters. The most popular use is as a filling in bakery products, in addition to production of date paste sheets known as tamaruddin.
- Ready-to-use date products
  - **Date preserve:** A popular use is for date jam, marmalade, and compote. The less mature fruit (Kimri & Khalal) is also sometimes used in pickling.

- **Date mixtures:** Ground dates are added to other ingredients to produce products such as energy bars (mixed with nuts and other ingredients), Tamarina (a protein-rich food mixture for feeding infants and pre-school children), Tamarheep (dates & milk) etc., in addition to use in breakfast cereals and with traditional halawa.
- **Date condiments:** Used to add relish to food, e.g. in the form of date condiments added to tomato ketchup.
- **Date desserts and confectionary:** Dates can be used in desserts like ice cream and puddings and some of these products have now been commercialized. This use also includes dates covered in chocolate and date-mixture balls (bliss balls) as well as date spread.
- **Dried powder:** Used as an alternative to sugar and in dairy products, ice cream, drinks, etc.
- **Date pits/seeds:** Used as alternative coffee, in cosmetics, animal feed, and pharmaceuticals.

- Products derived from dates
  - **Juice concentrate:** The most popular version is 'dibs'. Other versions are **date syrup** and liquid sugar.
  - **Date juice:** Similar to fruit juice.

- Heavily processed dates
  - **Vinegar:** Made through anaerobic conversion of date juice to ethanol using baking yeast, and aerobic oxidation of ethanol to acetic acid at 30°C via old vinegar.
  - **Alcohol:** Made by fermenting date juice.
  - **Yeast**
  - **Citric and oxalic acids**
  - **Sugar:** Sugar extracted from dates, similar to sugars extracted from sugarcane, beet and corn.
  - **Caramel**

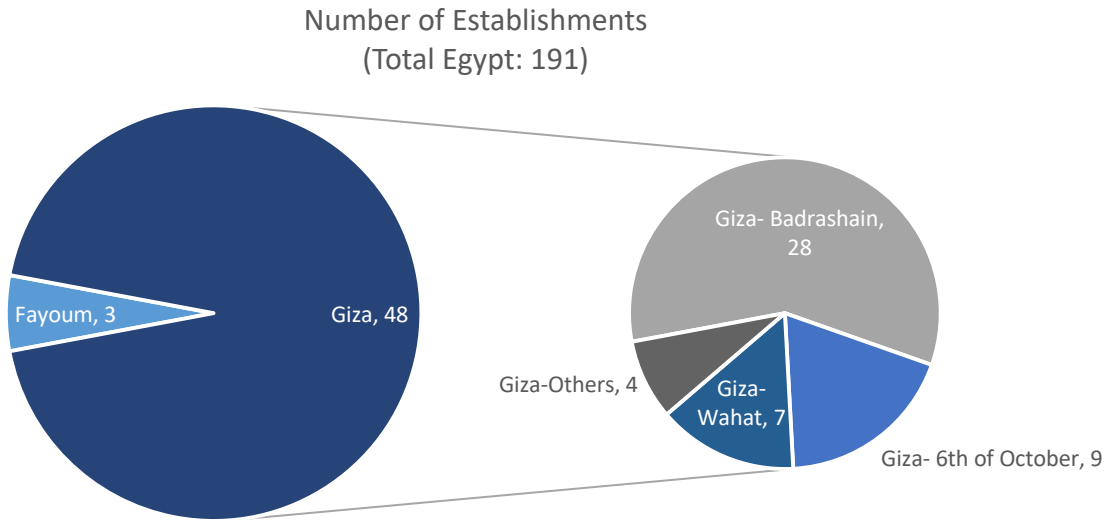
- By-products from date processing
  - Low-grade rejected date fruit, date pits, and date press-cake are mostly utilized in animal feed and as substrate for fermentation products because of their nutritive components such as sugars, proteins, minerals, and fiber.

C. <u>B. Secondary products of date palm trees</u>

- **Trunk**: Mainly used as wood in the form of furniture (such as tables and chairs) in addition to other uses, e.g. as firewood.
- **Leaves** (whole leaves, midribs, leaflets and spines, and the sheath at the leaf base): Used for fencing, furniture, ropemaking, charcoal, baskets, mats, toothpicks, fishing tools, upholstering, etc.
- **Reproductive organs** (spathes, fruit stalk, spikelets and pollen): Used in brooms, saddle girths, medical research (e.g. fertility and cancer-related research), etc.

3.3.1. Dates factories and packaging stations in Egypt

According to the Chamber of Food Industries, 191 factories, across Egypt's governorates, currently operate in the sectors of date product manufacture, packing, distribution, or trading, as their main activity. The ones in Fayoum and Giza are:



Source: Chamber of Food Industries (CFI)

30 **No. of Establishments Headed by Women across Egypt**

3.4. Global trends & Egypt's exports

Several countries in the MENA region, notably Saudi Arabia, UAE, Israel, Pakistan, Algeria and Tunisia, invested heavily in the cultivation of date palms in the early 1980s – motivated by a surge in the global price of dates as a result of shortages in supply to the EU and Asian markets caused by the Iran-Iraq war. Consequently, date production in the last two decades has been growing. In the last decade alone, global date production increased by 20% to exceed 9 million tons.[24] Global production of dates has exhibited noticeable volume fluctuations over the years, the main reason being changes in growing conditions from one season to the next, as well as political factors such as instabilityin producing countries and trade embargos.

For reasons related to cultural heritage, Muslim communities (with more than 1.6 billion inhabitants) are loyal consumers of dates, and hence the peak season for consumption is usually during the Muslim holy month of Ramadan. Consumption of dates also surges during other festive occasions for other religions including Christmas. In European and North American markets, dates have been integrated into sweets, confectionery, chocolates, baking products, preservatives, salads, sauces and breakfast cereals. Dates are still gaining ground in those markets with R&D in food technology producing new and useful products. In those markets, dates are predominantly sold during the dark winter months starting in October and ending around April.[25]

World date production is almost exclusively a northern hemisphere industry centred on North Africa and the Arab states. Egypt is the biggest date producer in the world (17.7% of global date production in 2019). Combined, the date production of Egypt, Saudi Arabia and Iran represents almost half of global production. Algeria, Iraq, and Pakistan are relatively large producers: their shares of global production are 12.5%, 7% and 5.3% respectively. [26]

In 2019, the value of the global date trade was slightly above 1.8 billion dollars and 1.3 million tons. Exported date prices ranged from as low as USD 200 per ton to as high as USD 28,000 per ton, but the global average

[24] FAOSTAT: https://www.fao.org/faostat/en/#country/59
[25] Date Palms Sector in Egypt - Value Chain Analysis Report - (Author: UNIDO) – 2009
[26] FAOSTAT: https://www.fao.org/faostat/en/#country/59

price per ton was USD 1,300[27]. The price difference was related to the quality of dates in terms of type, size, weight, texture, and taste, in addition to environmental and food safety standards applied when cultivating and processing them. It is worth mentioning that the volume of global exports has increased by 166% in the past 10 years; in 2010, global exports were at 503 thousand tons before reaching 1,335 thousand tons in 2019.

Iraq, UAE, Iran, Saudi Arabia, Algeria, Tunisia, and Pakistan exports constituted 88% of the volume and 65% of the value of global date exports in 2019. The variation in date prices is considerable and is correlated to the type and quality of dates exported, in addition to promotional and branding efforts to market the dates. Hence, even though Iraq is the top global exporter by volume (19.6%), the percentage value of its exports is only 6%. On the other hand, Tunisia, the sixth largest exporter at 8.5% of global export volume, accounts for 15% of global export value. Tunisia produces untraditional date types such as Medjool & Deglet Noor and their selling prices are among the highest.

Top importing countries of dates grouped and categorized in segments:

- High-volume and low-value market: South & East Asian countries
- Medium-volume and medium-value market: Arab countries
- Low-volume and high-value market: North and western Europe

Global trade map for palm dates:

Top Exporting Country	Importing Country (ranked from highest amount of imports to lowest)				
Tunisia	Morocco	Germany	France	Spain	USA
Saudi Arabia	UAE	Kuwait	Yemen	Turkey	Oman
UAE	India	Morocco	Bangladesh	Oman	Indonesia
Israel	Netherlands	France	UK	Russia	Spain
Iran	India	Pakistan	Turkey	Kazakhstan	Iraq
Algeria	France	Russia	Spain	Morocco	USA
Egypt (mainly consisting of half-dry varieties[28])	Indonesia	Morocco	Malaysia	Bangladesh	Thailand

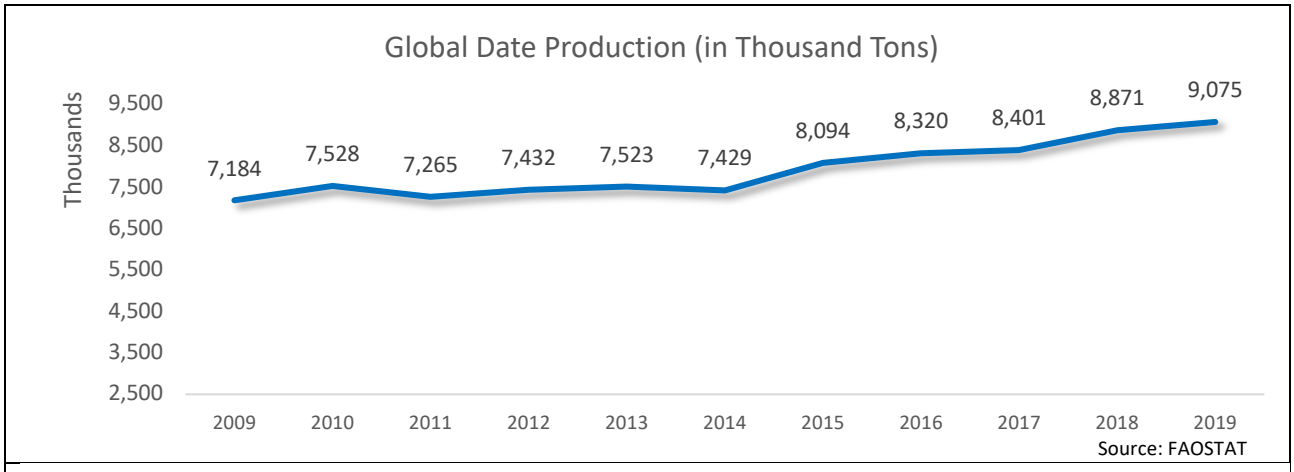
Source: ITC Map, year?

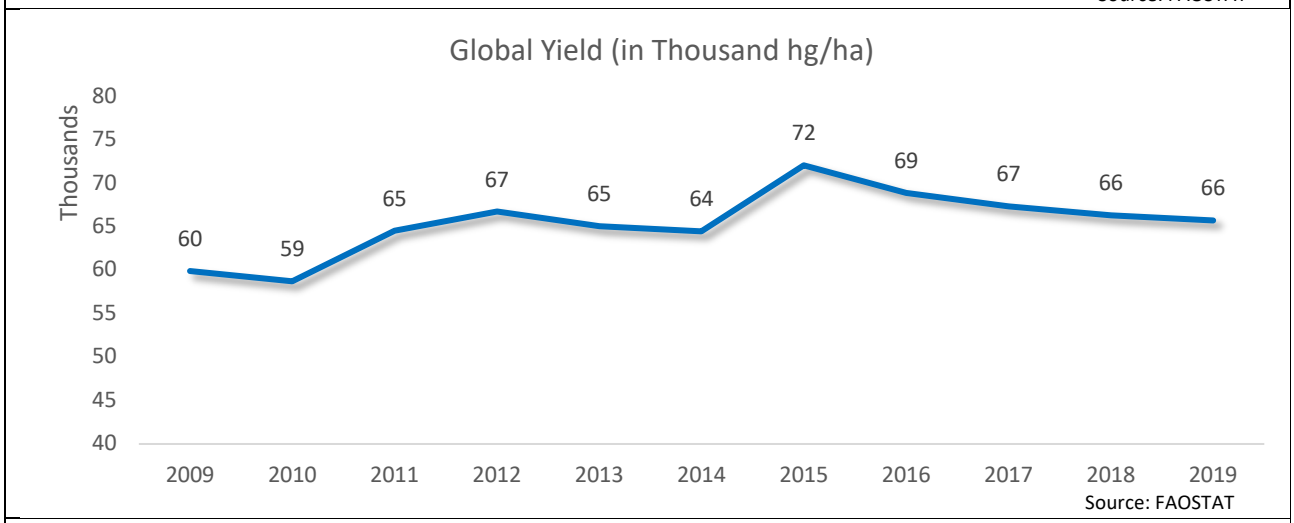
Egyptian date exports in 2019 amounted to 40.6 tons at a total value of 43 million US dollars, with an average price of 1,059 US dollars per ton, which is below the global trade price. The aforementioned figures rank Egypt as the eighth largest exporter of dates by volume (3.04% of global export volume) and the 11th by value (2.4% of global export value). Egypt's share of global export volume has ranged from 2% to 4% with a 10-year average of 3%. Egypt's share of global export value has ranged from 2% to 3.6% with a 10-year average of 2.8%. In the past 10 years, Egypt's exports have increased from 20.5 thousand to 40.6 thousand tons – an increase in volume of 97.6% and in value from 22.7 million US dollars to 43 million US dollars (value increase of 89%).[29]

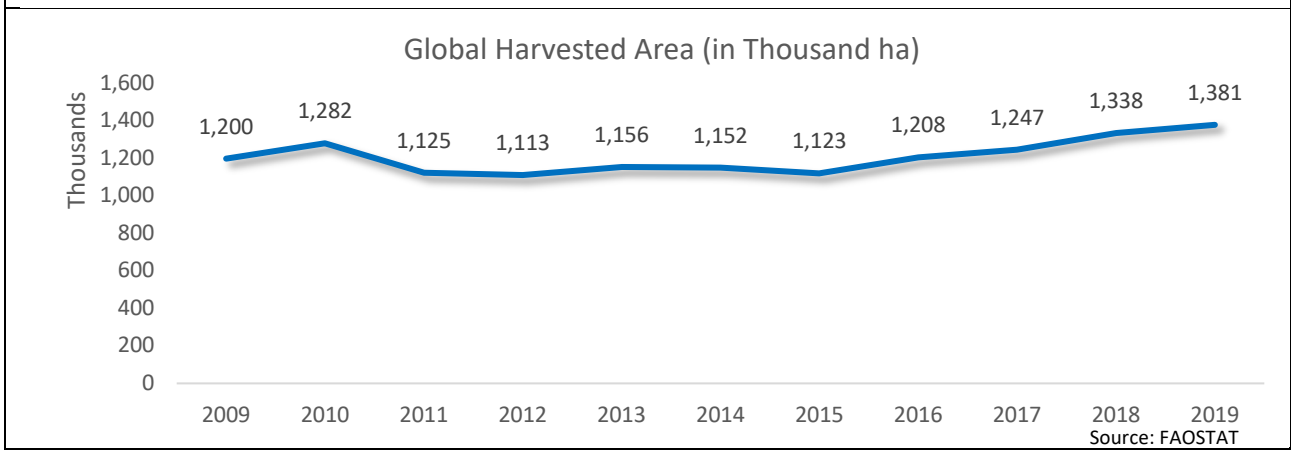
Most Egyptian exports are to South and East Asian countries, which account for the highest global demand especially during Ramadan, in addition to North Africa, which is ahigh-volume but low-value market. Egypt is thus expanding cultivation of the untraditional-variety Medjool date, so it can penetrate the high-value North

[27] Calculated from figures extracted from ITC Map: https://www.trademap.org/Index.aspx
[28] FAO, 2019. Palm Dates Value Chain Development in Egypt. Cairo, Egypt.
[29] ITC Map: https://www.trademap.org/Index.aspx

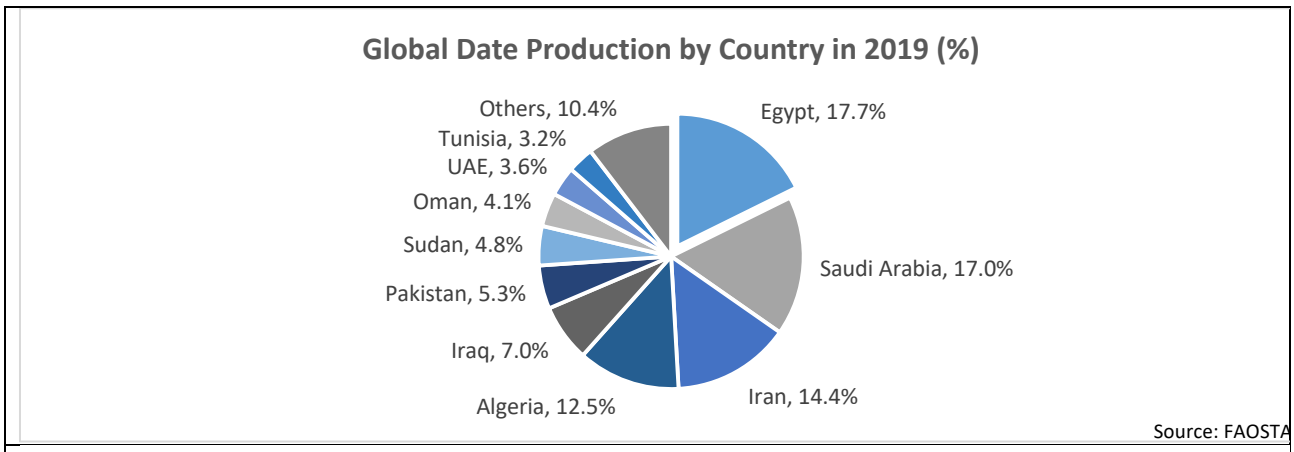
& West European and North American markets. Despite the increase in production in recent years, it is believed that export potential is far from having been fully exploited. "Despite being ranked the top date producing country in the world, Egypt's export contribution to the international date market is low. Food safety issues and a lack of international quality standards (e.g. size, appearance, colour, texture and freedom from defects) contribute to Egypt's low date exports. Other problems that occur during growth and post-harvest (e.g. sunburn, skin separation, sugar migration and fermentation) along with difficulty managing the Red Palm Weevil (RPW), a major pest for date palms, are other factors that negatively impact Egypt's date exports."[30]



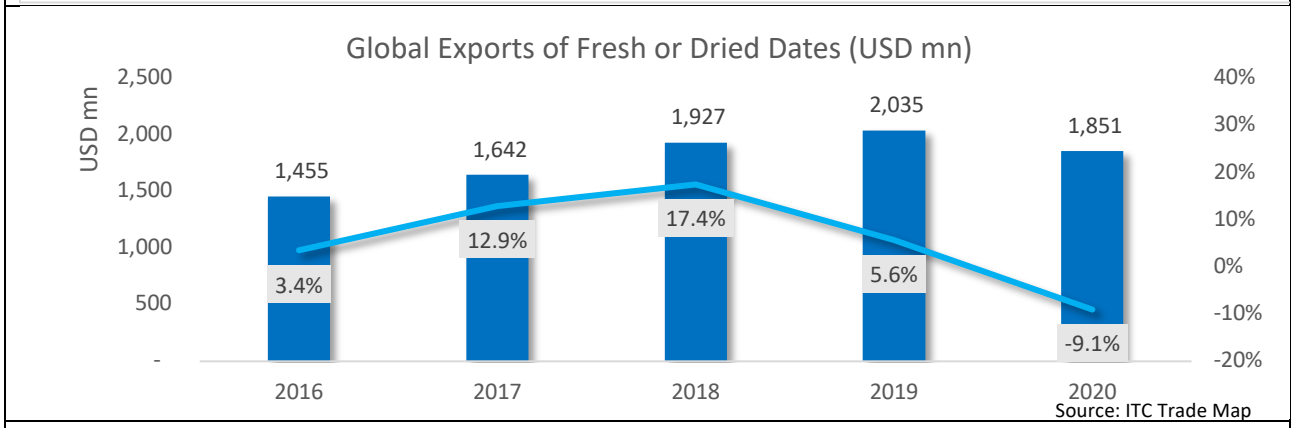




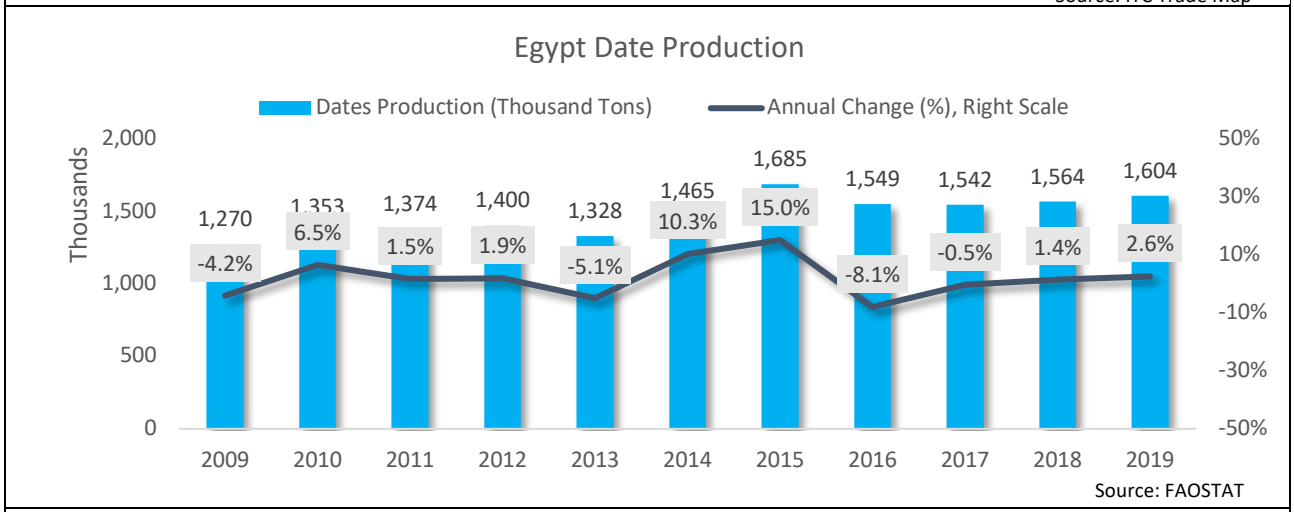
[30] FAO, 2019. Palm Dates Value Chain Development in Egypt. Cairo, Egypt.



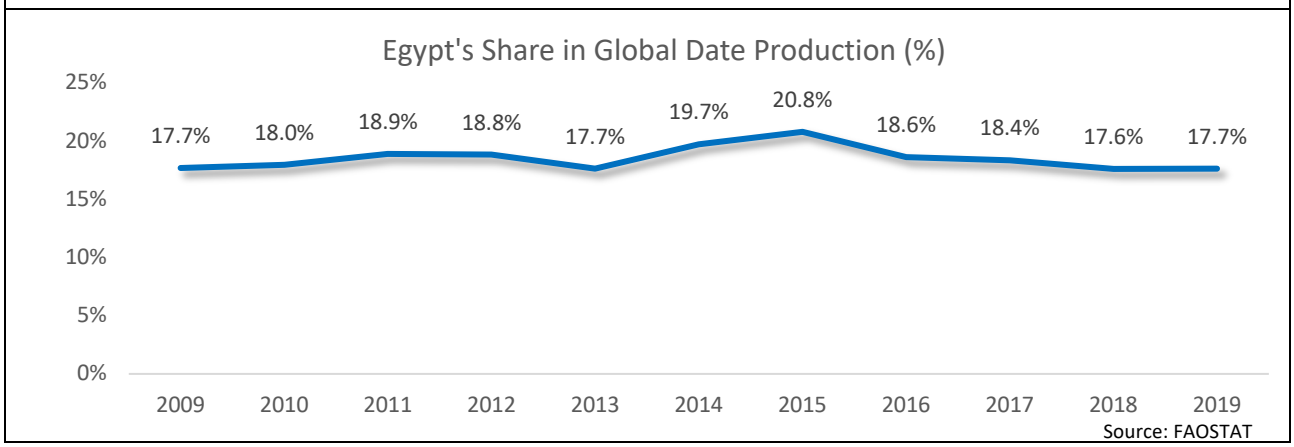
Source: FAOSTA



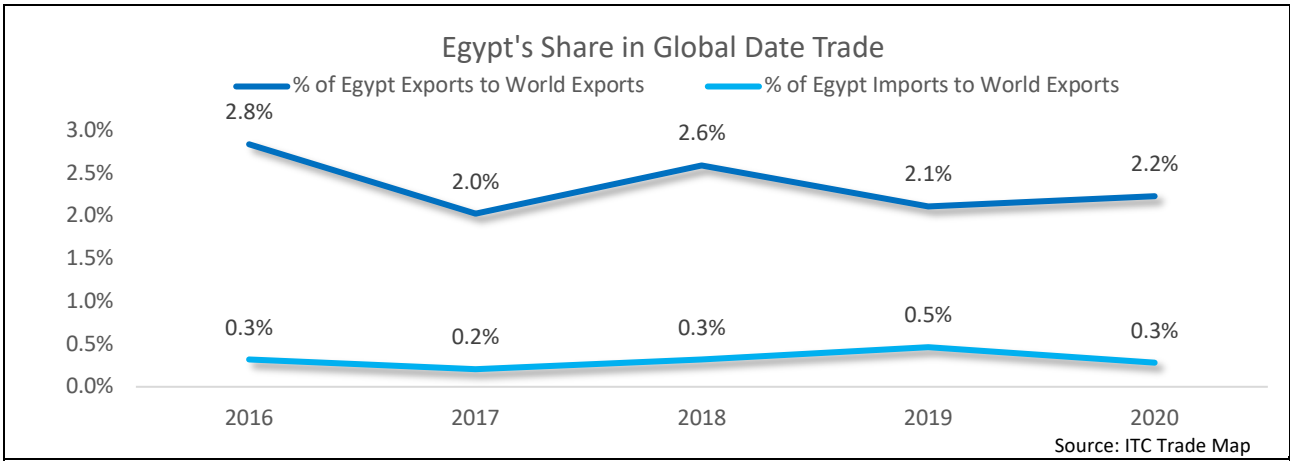
Source: ITC Trade Map

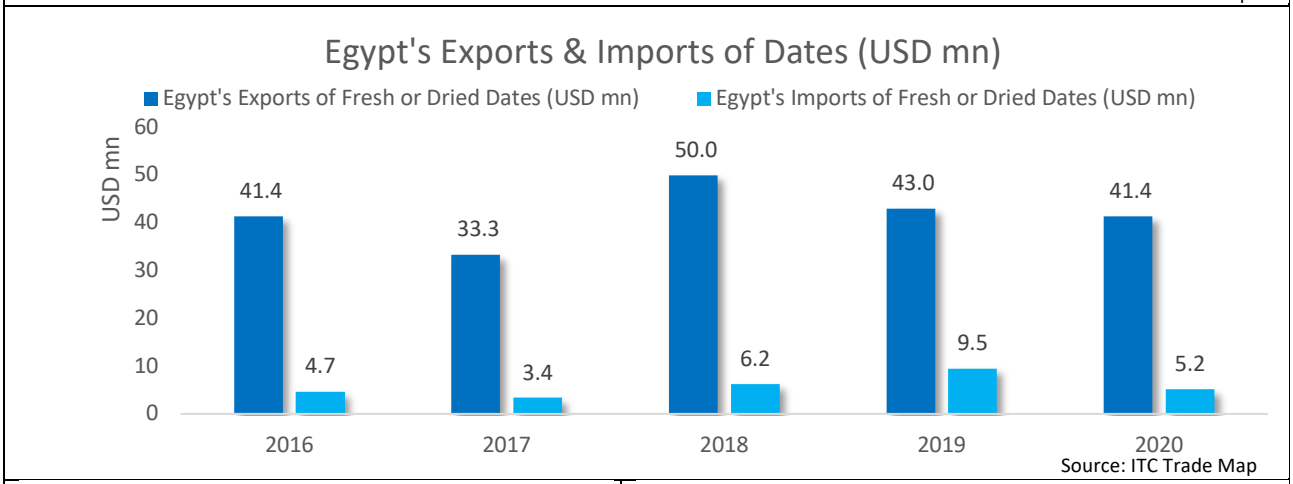


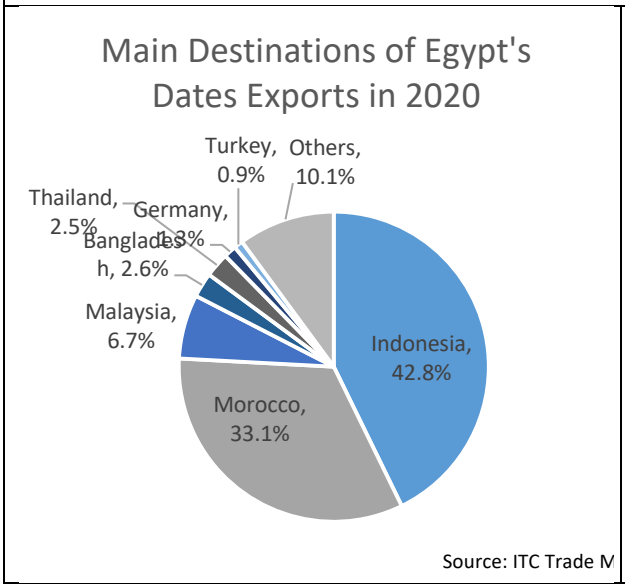
Source: FAOSTAT

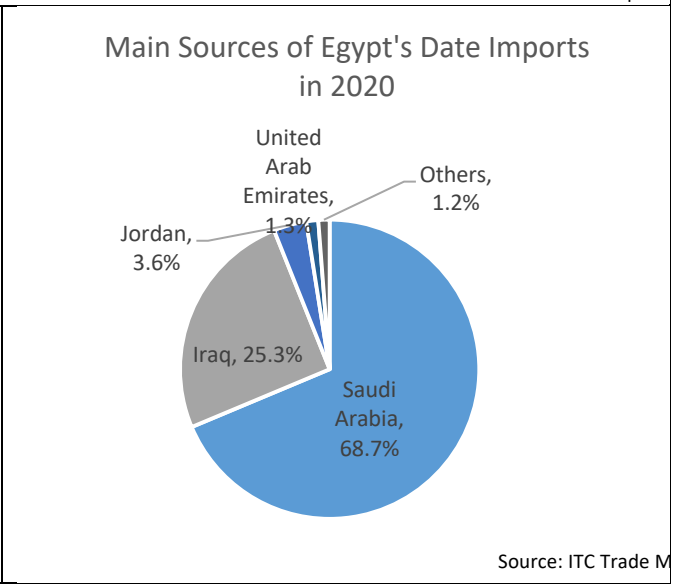


Source: FAOSTAT


Egypt's Share in Global Date Trade
% of Egypt Exports to World Exports
% of Egypt Imports to World Exports
3.0%
2.5%
2.0%
1.5%
1.0%
0.5%
0.0%
2.8%
2.0%
2.6%
2.1%
2.2%
0.3%
0.2%
0.3%
0.5%
0.3%
2016
2017
2018
2019
2020
Source: ITC Trade Map

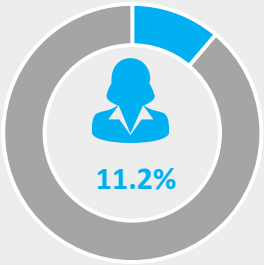
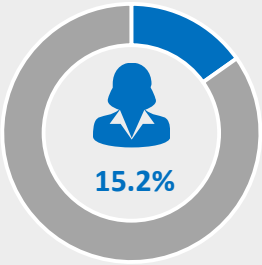
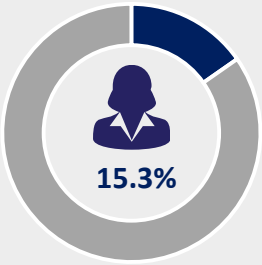
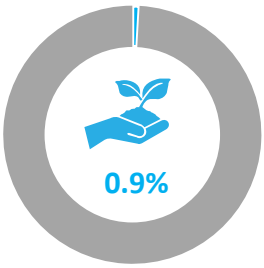
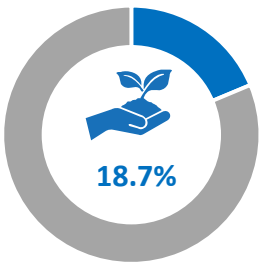
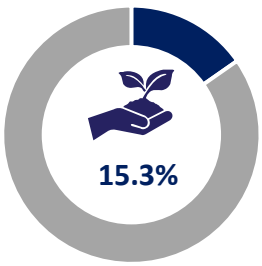
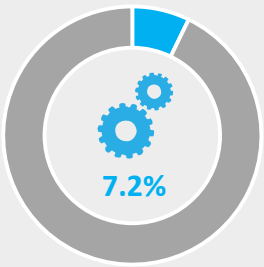
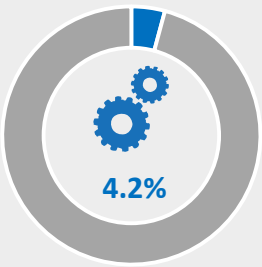
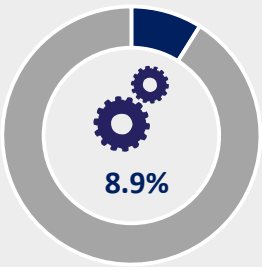

Egypt's Exports & Imports of Dates (USD mn)
Egypt's Exports of Fresh or Dried Dates (USD mn)
Egypt's Imports of Fresh or Dried Dates (USD mn)
USD mn
60
50
40
30
20
10
0
41.4
4.7
33.3
3.4
50.0
6.2
43.0
9.5
41.4
5.2
2016
2017
2018
2019
2020
Source: ITC Trade Map


Main Destinations of Egypt's Dates Exports in 2020
Turkey, 0.9%
Others, 10.1%
Thailand, 2.5%
Germany, 1.3%
Bangladesh, 2.6%
Malaysia, 6.7%
Indonesia, 42.8%
Morocco, 33.1%
Source: ITC Trade M


Main Sources of Egypt's Date Imports in 2020
United Arab Emirates, 1.3%
Others, 1.2%
Jordan, 3.6%
Iraq, 25.3%
Saudi Arabia, 68.7%
Source: ITC Trade M

3.4.1. General statistics on the target governorates

Women's employment in the target governorates

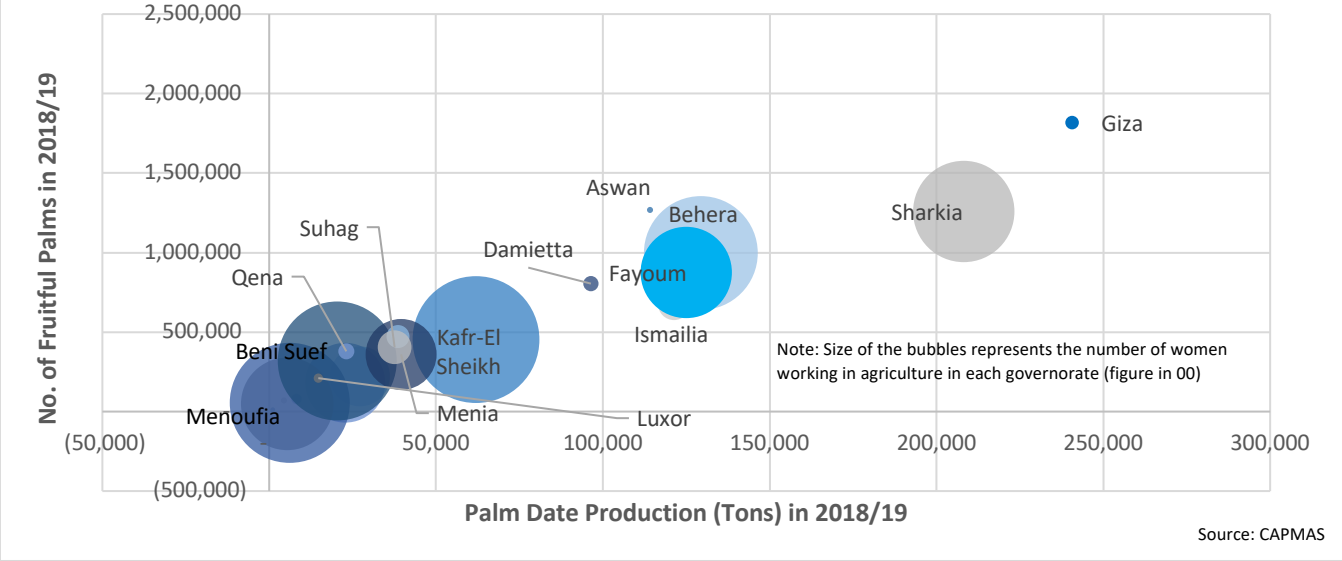
Giza	Fayoum	Total Egypt
		
 Percentage of Females out of Total Employment in 2019	 Percentage of Females out of Total Employment in 2019	 Percentage of Females out of Total Employment in 2019
 Percentage of Females out of Total Agriculture Employment in 2019	 Percentage of Females out of Total Agriculture Employment in 2019	 Percentage of Females out of Total Agriculture Employment in 2019
 Percentage of Females out of Total Manufacturing Employment in 2019	 Percentage of Females out of Total Manufacturing Employment in 2019	 Percentage of Females out of Total Manufacturing Employment in 2019

Source: CAPMAS

As shown in the chart below, while Giza had the highest number of fruitful palms and the highest palm date production in 2018/19, it had a relatively low number of women working in the agriculture sector (1,500 in 2019)[31] as indicated by the size of the bubble. Meanwhile, while Fayoum had almost half the number of Giza's fruitful palms and only half its palm date production, it was characterized by a greater number of women working in the agriculture sector (68,100 in 2019).

[31] Given Fayoum's higher rural population ratio (76.8%) compared to Giza (39.7%) and the national average (57.1%).

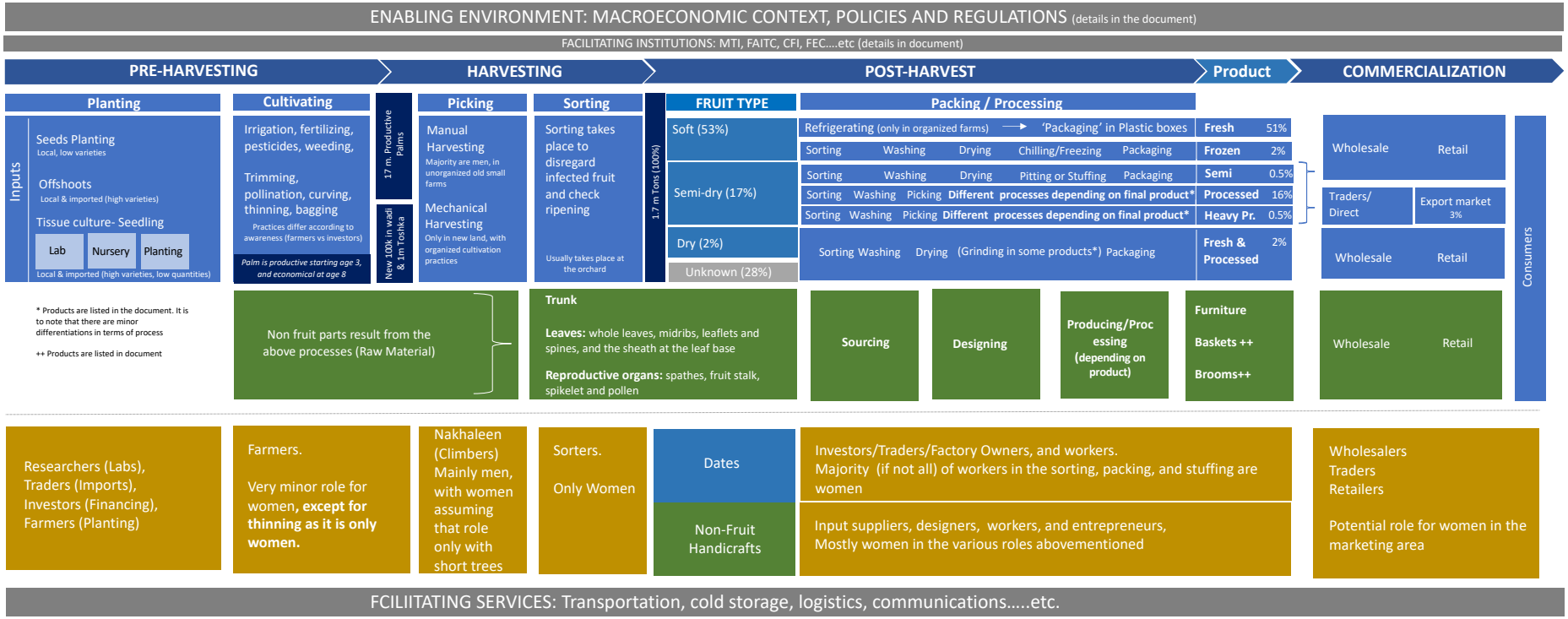
Palm Date Production, No. of Fruitful Palms & Females in Agriculture Employment



Source: CAPMAS

4. DATE PALM VALUE CHAIN

4.1. Complete value chain for dates and handicrafts (fruit and non-fruit)



4.1.1. Fruit value-chain: Functions & actors

The collective value chain was mapped according to the research conducted (secondary and primary) in the two governorates.

Pre-harvesting

Planting

Inputs in planting are distributed between:

1. Seed planting: This yields low-grade unknown varieties and is usually performed in Upper Egypt. As explained earlier these varieties are not economically viable.
2. Offshoots: This is the most common practice; the offshoots are either local or imported. It is worth noting that current Egyptian demand is causing global pressure on offshoots.
3. Tissue culture: There is no economic production of tissue culture in Egypt yet. Because it takes the imported seedling around six months to emerge from agricultural quarantine, there is currently lower demand.

Main players: Researchers, importers (traders), investors, and farmers
Current role of women: There is no particular current role within this stage of the value chain
Potential roles for women: Given the perceived[32] need in Fayoum Governorate to expand on organized cultivation of palm trees, there are potential opportunities for women to be part of such a direction either as workers in plantations or as researchers and workers in nurseries. However, these are not considered feasible short-term interventions since they require high investment.

Cultivating

There are two main cultivation processes that take place in the early life of palms:

1. "Trunk" caring: This includes irrigation, fertilizing, pesticides, and weeding.
2. "Leaves" caring: This includes trimming, pollination, curving, thinning, and bagging.

The palm tree starts producing at the age of three but becomes economically productive at age eight. The cultivation practices differ according to the level of awareness.

Main players: Farmers
Current role of women: If the tree is short, women can perform all the necessary caring. Thinning in particular is perceived as a delicate process and is often performed by women.
Potential roles for women: Increased participation within existing roles, as with other cultivation processes, requires strength.

Harvesting

Picking

Picking is performed either manually (most cases) or mechanically through cranes. Using machines requires abidance by standard spacing between trees, thus only new farms/orchards can make use of such mechanization.

Main players: Nakhaleen (climbers)
Current role of women: None. Only when the tree is short.

[32] Mentioned in only one interview; not substantiated or verified with data.

Potential roles for women: There is no perceived role for women in this stage.

Sorting

Sorting usually takes place in the farms manually, to get rid of infected fruits and check ripeness.

Main players: Farmers
Current role of women: Sorting is performed exclusively by women.
Potential roles for women: Increased participation in the same role and enhancement of skills.

Post-harvesting

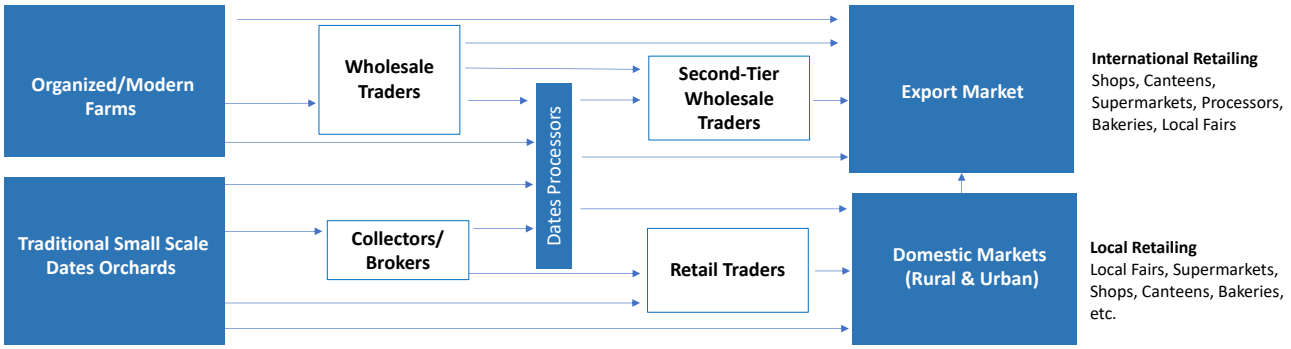
Packing and processing

Processing and hence the final product depend largely on the type of variety, as shown in the map and explained in detail in the products section. In semi-processing, very minimal variations that require additional equipment are added to permit production of different products. In heavy processing, it appears from the interviews conducted thus far, there are no economically viable companies yet (to be investigated more in the next stage).

Main players: Investors/traders/factory owners, and workers
Current role of women: Majority (if not all) of workers in sorting, packing, and stuffing are women.
Potential roles for women: Increased participation, raising of skill levels, assistance with assumption of higher-level roles, including as entrepreneurs with regard to high-value-added products. Products with such potential are identified in section 6.

Commercialization

Final products enter the local market through wholesalers and retailers. Regarding the export market, direct export occurs, as well as export through traders/distributors. As explained earlier, around 3%, only, of Egyptian production is exported. Below is a diagram showing the process.



Main players: Wholesalers, traders, and retailers
Current role of women: Women are taking on various blue- and white-collar roles in organized food retail (however, not specific to dates and applicable to other products). There are existing roles for women who either own trade fair service companies and/or in export promotion by quasi-governmental entities. These are not widespread roles and also are not confined particularly to dates.
Potential roles for women: For a release of marketing potential related specifically to date palms, there should be linkage between being an entrepreneur, and innovative processing, along with innovation in packaging and marketing (including research).

4.1.2. Non-fruit/handicrafts value chain: Functions & actors

This value chain is a result of secondary and primary research (conducted in Fayoum). The different products identified in Fayoum are listed below with a brief depiction of the different processes, showing where women dominate the process.

Handictafts value chains									
Midribs	Sourcing	Drying	Taking Measuremtents	Cutting & Shaping by machine	Fine tuning the cut and shape by hand	Puncturing (Making Holes)	Glueing	Painting	Arabisque
Midribs	Sourcing	Drying	Taking Measuremtents	Cutting (manually or by machine)	Filing	Puncturing (Making Holes)	Glueing	Furniture	
Midribs	Sourcing	Drying	Taking Measuremtents	Cutting (manually or by machine)	Puncturing (Making Holes)	Fruits and Vegtable Crates Chicken Hutch			
Leaflets	Sourcing	Drying	Sorting	Shredding	Braiding	Shaping & Sewing	Hats Bags Baskets Mats Home Accesories		
Leaflets	Sourcing	Drying	Sorting	Shredding	Shaping & Sewing around Rice Straws filling	Baskets Bowls Table heat protection mats			
Fibers	Sourcing	Dapening	Disentangling	Twirling	Rope				
Fibers	Sourcing	Dapening	Shaping	Sewing	Broom				
Empty Bunch	Sourcing	Taking Measuremtents	Cutting	Sewing & attaching to a stick	Broom				
Whole leaves	Sourcing	Taking Measuremtents	Cutting	Binding with ropes	Fence Roof Partitioner		Men Women Both Men & Women		
Trunk Body	Sourcing	Taking Measuremtents	Cutting	Binding with ropes	Roof Light foot bridge Pillars		Touristic Products Basic Products		

4.2. Challenges Within the Value-Chain:[33, 34]

Generally, several constraints hinder the full utilization of the sector potential, including technical post-harvest practices, the prevalence of small farms, weak extension services, a lack of sufficient research and development (R&D), a lack of market information, poor infrastructure, and a high percentage of waste. Nevertheless, it is believed that date production in Egypt has a comparative advantage due to the high production and lower costs compared to other countries in the region such as Tunisia, Saudi Arabia and Algeria.

According to the Palm Dates Strategy,[35] a thorough analysis of the date sector shows that the following strengths and opportunities are significant:

- Availability of competitive date varieties, like Siwi and Majdool, since these are in high demand globally.
- New farms follow good agricultural practices and can thus produce quality dates.
- The large size of the domestic market.
- Introduction of innovative processed products.
- Establishment of refrigerating facilities for fresh produce.

On the other hand, the main challenges along the value-chain are as follows:

[33] FAO, 2016, Egypt's Palm and Dates Promotion Sector Strategy.

[34] تحديات واستراتيجيات تطوير زراعة النخيل: الافاق العامة، جائزة خليفة الدولية لنخيل التمر ووزارة التجارة والصناعة المصرية، 2018.

[35] Ministry of Trade and Industry, 2016. Development Strategy for Egypt's Dates and Palms Sector. FAO, MTI, and Ministry of Agriculture. Cairo, Egypt.

Pre-harvesting stage

- Specialized research: Produce is not in line with international standards and varieties in demand internationally. There are no research organizations dedicated to developing varieties that best meet the needs of the global market. Any work performed by agricultural research organizations has not benefited the farmers due to weak extension services and the absence of any coordination between entities.
- Most farms have overcrowded (high-density), low-quality or old palm trees, which negatively affect productivity.
- Widespread pests and diseases and ineffective methods to combat them.
- Use of traditional farming methods and lack of knowledge of modern ones, which enhance yield quality and quantity.
- The majority of Egyptian date palm farmers living and working on date farms have little education or training regarding how to care for and manage date palm farms. They have gained knowledge through years of experience of working on the land but lack the training to be considered skilled farmers.
- Inadequate date sector structure: For example, there is a lack of effective unions for farmers that can develop effective strategies and provide capacity-building to enhance farmer productivity.
- Lack of guidance on best practices in cultivation that can lead to high yields.
- Aged orchards (many existing orchards are older than 100 years) with little effort at renewal due to the high cost of cultivation.
- Advance sales, due to financial constraints: Farmers are often forced to sell their produce in advance to collectors/traders at prices far lower than those at which the traders sell the products on.
- Some of the pesticides used are either harmful or used above the recommended doses.

Harvesting & post-harvest stage

- Use of traditional methods in harvesting and post-harvesting processes: Examples include use of traditional methods in drying (tansheer), right after harvesting, where women rely on weather conditions to dry the fruits (reduce moisture levels); manual handling of fruit until it reaches the processing facility. In both these examples, alternative drying methods can be adopted (lat asphalt areas or rooms/greenhouses with fans) and proper preliminary sorting and handling can be adopted to promote food safety and reduction of waste.
- Absence of automation at most stages of the value chain.
- Lack of trained labour in harvesting and processing dates.
- High pre- and post-harvest losses due to infections, poor agricultural practices, dust, and poor handling, storage, and transportation practices.
- Very few farms, packing houses or factories are certified as per international farm, quality or food safety management system standards (e.g. Global GAP, ISO 22000, BRC, HACCP etc).
- Lack of attention given to the processing stage of dates, despite its importance in increasing the value of lower-quality dates and decreasing waste: Many of the facilities (commonly referred to as factories) are merely packing houses where dates are packaged and sold without adding value to the product, even though innovative products can be simple and inexpensive to invest in. In addition, processed dates (paste or bars for example) do not require a perfect shape and can thus be made with low-grade dates disregarded in packaged date products.

Marketing stage

- Standardization: There are no laid-down procedures for standardization and quality specifications, with the exception of very popular date types such as Medjool, Barhi and Deglet Noor. In the absence of recognized brand names, the importer is not sure of the quality he/she will be getting, which prevents better-quality dates from fetching a higher price in the international market.
- Small farm size and fragmentation with consequences for commercial viability and the ability to deal with market volatility.

- Weak marketing: No institutional support is available for marketing on an international level. The individual exporters are not large enough to run international marketing campaigns to promote a brand name. Moreover, due to the absence of basic infrastructure, large orders cannot be entertained.

4.3. Palm dates and women's participation in Giza (Wahat) and Fayoum Governorates

The main findings from the quantitative and qualitative research conducted in both governorates are as follows:

4.3.1. Main findings from Wahat

Farming

- The main variety in Wahat are the traditional Siwi dates (mostly small farms), with new investments in large farms in Medjool and Barhi. The only cluster in Wahat is El Zabou village for date fruits.
- Applying good agricultural practices is a major challenge in Wahat. There have been efforts recently to apply these practices (e.g. curving and bagging) and they are yielding technical results but farmers are yet to grasp the financial benefit.
- Farms are owned by men. Even if a woman inherits part of a farm, the ownership and management is automatically transferred to her husband, who provides for the family. If she does not have a husband, a male family member provides for her as per the traditional norms and social support system. It is noteworthy that most of the land ownership is not legalized yet, and even if a woman inherits a legalized farm, she signs the legal paperwork, but the actual decision-making and management is performed by her husband.

Processing

- There are around 40 facilities operating in Wahat, most of them informal. All of the facilities are basically packing houses, except for one (Joud, an Egyptian-Saudi-Tunisian venture) which has a dibs production line that is yet to start operating. The technology used is primitive and is the same across all facilities. Local community members confirmed that all facilities are owned by men, as according to cultural norms men are responsible for leadership and women's work is limited to their homes.
- The majority of workers are from other governorates, mainly Menia, especially after a new Wahat-Menia road was opened. They come in families: Where the men find job opportunities, women may find opportunities too. As far as dates are concerned, the role of women is mainly in traditional drying (*tansheer*, done at home), sorting and packing. As part of Wahati culture and norms, Wahati women do not work outside of their homes.
- Drying is mostly done by women in homes relying on weather conditions to dry the fruit to the required moisture level (from 30% at harvest to 18%-20%). Preliminary sorting is done in parallel at this stage, for the ripeness stage and exclusion of infected fruit (used as animal feed). Traditional drying takes around 20 days and increases the possibility of insect/pest infection.
- In packing/processing facilities, women, mostly from Menia, work on sorting and packaging (manual work that requires accuracy). Men work on stages that require carrying heavy loads such as washing and drying.

Handicrafts

- Handicrafts made of date palm by-products are made by women in Wahat but are less developed and require capacity-building.
- In handicrafts, local women assemble around a woman leader, and they work together. The men in the family allow unmarried girls or married women to do this kind of work as long as it is at home and the woman takes care of her children at the same time. All girls and women learn to perform this handicraft work.

4.3.2. Main findings from Fayoum

Agriculture

- Palm date agriculture is extremely scattered (only 3 known farms), with poor farming practices.
- Offshoot nurseries were mentioned as potential businesses needed in the governorate.

Fruit processing

- Very few packing/processing facilities: The Biahmo facility is the only well-established one.
- The one facility that is woman-led is actually owned by the woman's husband.
- Women's roles in packing facilities are mainly in sorting and packaging.
- More awareness about the potential role of women's entrepreneurship in innovative date processing is needed.

The main clusters in Fayoum:

- Biahmo village for date fruit products.
- Eelam village for handicrafts. UNIDO can become involved for women (producing straw-based items like bags, hats, baskets, etc.).
- Agameyin village for midrib crates and furniture, where women have a role, but there is not much room for intervention.

Handicrafts

- Midrib crates
  - The craft is concentrated in Agameyeen village.
  - Almost all families working in Agameyeen work in crate manufacturing.
  - Crate manufacturing is a family income model where the man cuts midribs and makes the holes and women assemble the pieces. All the work is done at home.
  - Women support their husbands at home (no entrepreneurship or paid employment).
  - In the production and trading chain, families fall between suppliers of midribs and traders of crates and earn margins per quantity delivered.
  - Little furniture work is done with the same concept.
  - Sourcing is from other governorates and sales go to almost all governorates.

- Handicrafts (mainly bags, hats, baskets, tissue boxes)
  - The craft is concentrated in Eelam village.
  - Women are highly engaged in the craft. Almost all women learn it from a very young age.
  - They work at home and are supported by their husbands. They spend their income on the family.

- They source the fronds from suppliers and sell to traders who provide them with orders. Their margin is per quantity delivered.
- A relatively high potential/appetite for women's leadership roles as entrepreneurs & traders.
- There are a few role models like Ms. Kamla and Ms. Laila, who are well-known traders.

- Suppliers and traders have high bargaining power over workers.
- There is a need for training on entrepreneurship, design, product development, marketing, and communication and negotiation skills, in addition to support for access to finance and exhibitions (revenue percentage basis).

Status of women in general

- Village women are engaged in activities mainly inside their homes but can commute and deal with men when needed.
- City women can be engaged more in activities outside (but close to) their homes.
- Microfinance through CDAs is more suitable for women.
- Key role for *ra'edat rifeyat* (pioneer rural women), CDAs and the NCW Secretariat to identify women entrepreneurs, current and prospective.
- More awareness is needed on women's entrepreneurship and existing opportunities.
- Success stories are a key incentive for women to take more active and leadership roles.

Other programs

- A project funded by Spain focusing on the date sector in Fayoum is planned, involving cooperation with local organizations including MSMEDA and the Eelam CDA.
- It is important to coordinate with this project to avoid duplication of efforts and ensure integration and complementarity of interventions.

About the Spanish project in Fayoum

A two-year project (February 2021 - January 2023) is funded by Spanish Agency for International Development Cooperation, in cooperation with its Egyptian counterpart MSMEDA. The project objective is to promote the economic empowerment of women in rural areas of Egypt, by strengthening business skills and capacities of productive groups of women in four governorates, including Fayoum. Target beneficiaries include women in organic clusters, women in the artisanal sector of palm tree residues, women wanting to start their business, designers and young innovators, MSMEs in the value chains, women's NGOs that support the productive groups, supply chain institutions and export entities, as well as universities and research centers.

4.4. Key potential partner support service institutions in the target governorates

Below is the summarized matrix for potential entities; the full analysis is in the annex section.

Name of institution	Preliminary assessment of gaps & needs
MSMEDA Public/ Quasi-governmental Giza Office Established in 2017, originally Social Fund for Development, established in 1991	- Better outreach to remote areas like Wahat. - Access to market information and trends. - Innovation and technology. - Skills to assess MSMEs' specific needs, not wants. - Skills to customize non-conventional capacity development programs. - Support for local incubation services.
Wahet Dar El Salam CDA NGO Giza (Wahat) Established in 2006	- Awareness about women's potential and socio-economic role. - Awareness about cultural aspects and gender equality. - Access to market information and trends. - Innovation and technology. - Training & TOT especially on change management, and communication & negotiation skills.
National Council for Women Public organization Fayoum & Giza Offices Established in 2000	- Better access to remote areas like Wahat. - Better hands-on knowledge of women entrepreneurship opportunities. - Better knowledge of and links with support service institutions.
Biahmo Community Development Association NGO Fayoum Established in 1967	- Access to market information and needs. - Product development and innovation. - Awareness and training on the role of women and on women's entrepreneurship. - Good agricultural and processing practices. - Environmental impact and green business opportunities.
MSMEDA Public/ Quasi-governmental Fayoum Office Established in 2017, originally Social Fund for Development, established in 1991	- Access to market information and trends. - Innovation and technology. - Skills to assess MSMEs' specific needs, not wants. - Skills to customize non-conventional capacity development programs. - Support for local incubation services.
Food Export Council Quasi-governmental, non-profit representative Cairo Established in 1999 (as a Commodity Council), services started in 2003	- Sub-sectoral strategies and prioritization. - Enhanced market intelligence and access to detailed market information on the various products in the various markets. - Enhanced role in branding, certification and standardization. - Enhanced outreach to potential women entrepreneurs in remote areas.
Food and Agro-Industries Technology Center (FAITC) Public Research Center Cairo	- Access to market information and needs. - Better local outreach. - Linking research to markets. - Understanding of financial feasibility of innovations.

Name of institution	Preliminary assessment of gaps & needs
Established in 2001	- Integration and having a unified sector vision coordinated with different stakeholders. - Better focus on ideas suitable for women entrepreneurs. Better focus on environmental impacts and on green products.
Chamber of Food Industries Quasi-governmental, non-profit representative Cairo Established in 1958	- Having an internal strategy and vision for sub-sectors. - Better access to informal enterprises. - Outreach to local women entrepreneurs. - More focus on environmental impact and green business.

4.5. Environmental analysis

The date palm industry has a high potential to lead towards a bio-circular economy. Date palms are an essential component of a delicate ecosystem. Its cultivation and preservation can have a global impact on various industries at a socio-economic level as well as the environmental level.[36] There are different environmental risks and opportunities related to date cultivation across the value chain from farming to post-harvesting processes.

Key *environmental risks in cultivation practices* are those related to land-water resources pollution due to excessive pesticide use. Estimates suggest that up to 25% of Egypt's trees have already been infested, often by the red palm weevil, threatening the date industry because of the potential total loss of trees. Growers in Egypt face challenges in managing this pest, largely due to the lack of implementation of a national strategy. Many farmers opt for the intensive use of pesticides or burning infested trees, but these approaches have significant drawbacks. Heavy use of pesticides erodes soil quality and can contaminate fruits and vegetables. Pests eventually build up a resistance to the toxins, forcing farmers to rely on more chemicals. Furthermore, the uncontrolled distribution of propagation material can cause the introduction of pests that cause a significant threat to the industry and the eco-system, as occurred during the 1990s with the date palm weevil.

A potential *mitigation measure* to address the risk of land-water resources pollution due to excessive pesticides use is to work with producers on improving practices and promoting sustainable interventions for pest management. In addition, spreading awareness about the importance of pest-free propagation material by working closely with national and international research institutions and tissue-culture labs.

Agricultural *waste management*: The date palm industry currently produces a large amount of waste that can be avoided, with an average of 23 kg per tree, resulting in environmental pollution. The palm tree canopy is managed on an annual basis, resulting in the availability of a lot of leaves and wood and other material suitable for use in complementary industries. Each tree produces around 20 kg of dry leaves annually and the date pits represent around 10% of the date fruit. Nevertheless, experts observe that many communities do not make use of these by-products and tend to burn them. A potential *mitigation measure* to address the risk of agricultural waste management is to support the development of creative industries and value addition, as well as a sustainable approach for waste management that integrates women and youth, creates employment opportunities and new sources of income, and empowers beneficiaries.

A potential *mitigation measure*: The non-fruit parts can be used in the manufacture of a number of products such as handicrafts and furniture (mainly dominated by women), hence reducing solid waste and improving environmental impact. For example, the fiber is used to make ropes, thermal insulation and evaporative cooling equipment. The field research has shown that a wide range of secondary products are being produced but competition with non-organic and modern products, coupled with the lack of marketing and sometimes technical

[36] Date palm: The secret ingredient for a bio-circular economy? Circular Online, Feb 2021.

capacity, has led to underutilization of potential. If these challenges are tackled, the date palm industry can be a sustainable profitable business that creates a large number of green jobs.[37]

It is worth noting that the agricultural phase, including planting, cultivation, irrigation, fertilization, pesticide application etc. has many aspects that can have a significant impact on the environment. However, given the focus of the study, the environmental analysis focuses mainly on the post-harvest stages of the selected fruit-related product value chains.

Post-harvest environmental risks and practices are mainly related to drying of dates in Egypt, often still done through fumigation using internationally banned methyl-bromide. It is still a service provided by the Ministry of Agriculture in some locations, resulting in an enormous environmental threat to the ecosystem, and posing a health risk to consumers and a barrier to international trade. A potential *mitigation measure* is to work with driers and traders to improve post-harvest practices and promote alternative drying and preservation methods for more sustainable production and compliance with international market requirements.

Other risks could be related to the amount of *waste* resulting from post-harvest activities such as sorting of uninfected deformed fruits. A potential *mitigation measure* to address the waste management risks is to use low-grade dates sorted in the harvest and pre-packaging stages in the production of processed products such as chopped dates, date paste, date syrup, etc.

Supporting compliance with national environmental laws and regulations: In a market that is not environmentally savvy, the cost of environmental compliance and impact reduction can be prohibitive. Thus, incentives should be created to prompt women entrepreneurs to implement recommended environmental practices, including for example:

- Investment support for equipment and machinery that satisfy environmental requirements.
- Access to low-cost finance.
- Export promotion and support for environment-friendly products.
- Support for water and energy waste efficiency as well as sustainable wastewater management during post-harvesting processes.
- Creation of a field demonstration in relation to agricultural water saving, climate change adaptation and/or mitigation interventions during both agricultural production and post-harvest processing.

Based on life cycle assessment (LCA) methodology, the table below summarizes the analysis of the potential environmental impacts of the selected products / value chains.

[37] Date palm: The secret ingredient for a bio-circular economy? Circular Online, Feb 2021.

4.5.1. Environmental analysis summary:

Stage	Activity	Environmental Aspect	Environmental Impact	Recommendations
Cultivation	Propagation	Uncontrolled distribution of propagation material	Introduction and/or spreading of pests	Raise awareness about the importance of pest-free propagation material by working closely with national and international research institutions and tissue-culture labs
	Irrigation	Use of fossil fuel	Depletion of natural resources and emission of GHG gases	Use renewable energy sources (solar CSP)
		Use of flood irrigation	Inefficient use of water	Promote usage of drip irrigation systems
	Pest Control	Excessive use of chemical pesticides	▪ Land water pollution ▪ Erosion of soil quality ▪ Contamination of crops	Promote sustainable measures for pest management such as bio-management (e.g. trichogramma)
	Fertilization	Excessive use of chemical fertilizers		Promote usage of sustainable bio-fertilizers
Harvesting	Fruit collection and rib cutting	Use of improper tools	Emissions evolving during fruit and rib cutting	▪ Use safety harness ▪ Consider using the palm fronds as alternative agriculture fuel from agricultural waste ▪ Enclose the site to reduce the particulates evolving from the cutting process ▪ Do not operate during windy days ▪ Install proper fabric surrounding the palms (geotextile for instance) to control the waste collection process
Agricultural waste management	Pruning, harvesting, and sorting	Burning of dry fronds	▪ Air pollution ▪ Erosion of soil quality ▪ Water pollution ▪ Spread of pest infection	▪ Develop creative industries (handicrafts) ▪ Consider using the fronds as alternative agriculture fuel from agricultural waste ▪ Use as animal feed ▪ Use to produce compost ▪ Use deformed (uninfected) fruit in value-added products such as chopped dates, paste, syrup, etc. ▪ Develop value-added products
		Dumping of fronds, bunches, infected fruits and seeds		

	Pest control	Burning trees that are infested with red palm weevil	▪ Air pollution ▪ Erosion of soil quality ▪ Water pollution	Raise awareness about proper sustainable disposal of highly infested date palms
Post-harvesting	Fumigation	Using the internationally banned methyl-bromide	Environmental threat to the ecosystem, posing a health risk to consumers, and a barrier to international trade	Promoting sustainable preservation and storage methods such as using non-hazardous material or refrigeration.
	Sorting & packing	Packing in plastic baskets	Solid waste	▪ Use of environment-friendly baskets ▪ Bio-circular economy: consider using the midrib crates while avoiding their disadvantages
		Low-grade fruits	Organic waste	Animal feed: Use in processed products (e.g. paste and syrup)
		Infected	Organic waste	Biomass, or biofuel production
	Washing	Washing using fresh water	Water consumption, resources depletion	Monitor & reduce the use of fresh water through recycling (to be reused in palm irrigation)
Logistics	Handling & storage	Cold storage	Coolants used for refrigeration (CFC, GHG Etc.) can lead to Ozone depletion & global warming	Use environmentally friendly coolants such as HFCs
Processing & packaging	Processing including drying, heating, stuffing, grinding, pressing etc.	Heating energy	Use of fossil fuels resulting in depletion of natural resources	Use natural gas or solar energy & apply energy efficiency practices (emissions from the drying equipment should be measured and recorded as within set values for such industries as per applicable law)
			CO_2 emissions impacting global warming	Use renewable energy sources (solar CSP)
		Electricity consumption	Use of fossil fuels resulting in depletion of natural resources	Use of natural gas, energy efficiency practices & renewable energy sources (Solar PV)
	Cooling	Refrigeration	Coolants used for refrigeration (CFC, GHG etc.) can lead to ozone depletion & global warming	Use environmentally friendly coolants such as HFCs
	Packaging	Packaging material	Use plastic bags	Source eco-friendly packaging material such as biodegradable/recycled material
			Cartons from virgin paper	▪ Use recycled cardboard

				▪ Any waste resulting from packaging should be transported and filled in a proper landfill
Industrial waste management	Waste disposal	Organic waste	GHG and natural resources depletion	Circular economy: Use for lower-grade products, animal feed, biomass or biofuel
		Wastewater	Water pollution	Wastewater treatment before discharge
		Inorganic waste	Solid waste	Collection and resale to recycling plants

4.5.2. Recommended Interventions

It is understood that the program interventions mostly target small-scale projects led by women entrepreneurs. The size of these projects is a challenge in the implementation of the recommendations stated above due to the low power of buyers, limited funding and resources, and a lack of awareness and skills. However, there are simple, unsophisticated ways to use eco-friendly processes and material that can be adopted (see pictures for packaging below). To overcome the aforementioned challenges, the following interventions are suggested to help the women entrepreneurs understand the importance of such environmental practices, acquire the necessary skills, and improve the feasibility of implementing the practices.

Figure 1: Egyptian dates packaged in wooden boxes

Figure 2: Egyptian dates packaged in cardboard boxes

1. Awareness-raising sessions

These are sessions that aim to improve women's sense of agency as promoters/adopters of environmentally sound solutions in their communities. The sessions are seen to be part of a local conference focusing on environmental impacts due to harmful practices within the different stages of the value chain, focusing on those stages that involve women. The social and economic cost of environmental hazards should be explained as well as the positive social and economic impact of preserving the environment and the opportunities it offers, in order to encourage the women entrepreneurs who are interested in entering the market to adopt the concept (examples include export opportunities in terms of increasing quantities and entering new markets with environmentally friendly/sustainable green products such as those described later in the products section).

2. Capacity building

This includes training and coaching regarding practices that can reduce the negative environmental impact of the specific project activities such as the sourcing of recycled packaging material, energy efficiency and the use of renewable energy, and the opportunity to recycle and reuse (directly or indirectly) some of the waste material, to enhance the bio-circular economy. This should also include assistance in the different stages of the business, including assistance in identification of suppliers and markets, and in deal negotiations when needed.

3. Supply chain linkages and development of green practices

a. Eco-friendly packaging: Support women entrepreneurs in identifying, negotiating, and sourcing eco-friendly packaging material at reasonable prices. This could also be enhanced by organizing the women entrepreneurs in clusters to use collective bargaining to reduce costs.

b. Waste recycling: This entails both agricultural and solid waste management.

c. Handicraft products: Promoting the usage of agricultural waste in developing value-added secondary products such as handbags, hats, baskets, and furniture. This is especially relevant to women in the local communities who learn the basic technical skills but lack the entrepreneurial and market skills.

4. Creating incentives for export promotion via certifications

A key element to promoting sustainable practices in the value chain is to support small producers and farmers in adopting requirements of different certifications as applicable to the sector. These environmental standards and certifications may be applicable to both agricultural production as well as post-harvest practices and may include ISO certifications (9001, 22000, 14001), Global Gap, IFS Food, Organic Products (Ecocert), and Fairtrade, amongst others. As a result, locally produced dates would meet quality and environmental standards possibly allowing access to European and other international markets.

5. REGULATORY & INSTITUTIONAL FRAMEWORK

5.1. Policy and regulatory framework

Given the specificities of the food sector, and after establishment of the National Food Safety Authority as the regulatory body for food handling as detailed below, certain regulations apply to food processors in particular and are broadly presented in this section.

5.1.1. Food-specific regulations

Food establishment registration

- All fruit packing facilities must have registered with the NFSA no later than 1 December 2019.[38]
- All food production facilities based in Greater Cairo[39] must have notified the NFSA of their facilities. Any facilities that have failed to register according to this rule, are not allowed to handle food as of 1 March 2020.[40].

Export regulations

- The NFSA issues export authorization certificates as requested by the importing country's pertinent authority or the importer. In such cases, the Egyptian exporter ensures compliance with the importers' requirements and submits a request to the NFSA along with the information and documents required and the fees. The NFSA has the right to ensure compliance of the shipment.[41]

Import regulations

- Importers of food must be licensed by the NFSA as of January 2021.[42] The license is valid for three years and is renewable. The process includes notifying the NFSA of all the food establishments and complying with food safety and quality measures. A whitelist of importers includes qualified importers subject to facilitated inspection and control procedures and time, including a less than 100% inspection sample.[43]
- As of May 2021, 1,968 companies had applied to receive an "importer license" from the NFSA.[44]

Inspection

- Food production facilities accredited by the NFSA (white list) are subject to inspection of only25% of their raw food material. Only 25% of final products subject to pre-shipment inspection need be inspected provided the producer has an accredited inspection certificate.[45]
- In May 2019, KSA issued regulations requiring fruit and vegetable exporters from Egypt to register at the Saudi Food and Drug Authority and to ensure that all their products are produced and packaged in establishments monitored by the pertinent authorities, applying food safety measures (HACCP or similar measures).[46] All vegetable and fruit product (processed, frozen, etc.) consignments from Egypt must be accompanied with health certificates.[47]

[38] NFSA Control Periodical No. 2 of 2019.
[39] Cairo, Giza and Kalyoubeya.
[40] NFSA Control Periodicals No. 1 and No. 2 of 2020.
[41] NFSA Decree No. 1 of 2020.
[42] NFSA BoD Decree No. 6 of 2020 and NFSA Control Periodical No. 1 of 2021.
[43] NFSA BoD Decree No. 6 of 2020.
[44] NFSA, List of companies applying to receive an import license, retrieved from https://www.nfsa.gov.eg/Images/App_PP/DeskTop/App_Web/1/MyWebMedia/PDF/list%2026%20may_Redacted.pdf.
[45] NFSA BoD Decree No. 3 of 2020.
[46] NFSA Control Periodical No. 2 of 2019.
[47] SFDA Food Consignment Certification Programme, Exporter and Importer Guidelines, Saudi Arabia.

5.1.2. Egypt's palm and dates sector promotion strategy[48]

In 2016, a National Strategy for Promotion of Dates and Palms in Egypt was prepared by the FAO for the Ministry of Agriculture and Land Reclamation and the Ministry of Trade and Industry, in cooperation with UNIDO and the Khalifa International Award for Date Palm and Agricultural Innovation (KIAAI). The strategy was developed in a participatory manner, took into consideration the obstacles that would impede implementation, included executive projects for the action plan and included a budget allocated by the FAO for small-scale implementation in Siwa.

The strategic framework

Vision: Achieving inclusive growth of the palm and date sectors in Egypt based on sustainable development of production, packing, processing, and exporting systems, and utilization of secondary products and waste, with a view to bringing about a positive impact for the state budget, investors, processors, traders and small farm-holders, and vulnerable groups.

The strategy identified the following set of **objectives**:

- Increasing exports by around 215% (from 38,000 to 120,000 tons) in five years.
- Increasing the average export price by 50% in five years (from USD 1,000 per ton to USD 1,500 per ton).
- Multiplying state budget foreign currency revenue by 3.5 (from USD 40 mn to USD 180 mn).
- Utilization of secondary products and waste, increasing value addition, and building an industrial base from palm date products (such as dibs, vinegar, alcohol and handicrafts).
- Employment creation in production, packing, processing and marketing.

The strategy includes a set of recommendations that tackle each part of the value chain. The following are the most **significant recommendations**:

- Encouraging cultivation of selective date varieties in demand in international markets, such as Siwi and Medjool, coupled with genetic banks of key varieties and quality males, building on MSME development and investment promotion in the sector as well.
- Implementing an integrated wide-scale pest control program that relies more on biological than on chemical methods, as well as promoting organic farming especially in the new large farms.
- Encouraging partnerships between farmers and packing houses, processors, and traders, and establishing date collection centers.
- Emphasis on compliance with Global-Gap, and on obtaining certifications for good agricultural practices to promote exports and developing standards in line with codex alimentarius.
- Encouraging the establishment of service companies specialized in palm agriculture activities such as pollination and harvesting.
- Promoting the establishment of refrigerating facilities.
- Using plastic baskets for packing dates. Even though using plastic is preferred to midrib baskets as per the strategy, because they can be used for several years and do not deform the date fruit, the use of plastic per se is not environment-friendly and alternative material should be considered or developed.
- Having accurate statistics.
- Branding Egyptian dates, including "halal" branding for Asian importers.
- Incentivizing formalization.
- Research and development on utilization of:

[48] FAO, 2016, Egypt's Palm and Dates Promotion Sector Strategy.

- soft dates (which represent most of Egypt's produce, have a low price at the time of harvest, are not suitable for processing and have to be transported and stored in freezing facilities.)[49]
- dates excluded at the sorting and grading stages.
- Varieties propagated using seeds.
- Other waste (from the date palm tree parts).

The **action plan** of the strategy is based on **five executive development programs**, with specific projects under each program:

- Date production
- Marketing
- Packing and processing
- Exporting
- A production model area for implementing the action plan – Siwa

5.1.3. Food sector strategy

As one of the priority sectors identified by the National Trade and Industry Strategy, the Ministry of Trade and Industry, in cooperation with the TDMEP Project, commissioned the development of a Food Sector Strategy. Although the main sub-sectoral focus of the strategy was not on dates, it was mentioned that the export prospects were estimated to be high-to-medium in certain export markets (ASEAN, and Eastern Europeean or Central Asian countries, respectively).

5.1.4. Handicraft strategy

There has been growing emphasis on the handicraft sector in Egypt during the last few years. Several exhibitions have been organized with increasing interest and media coverage. There are no accurate statistics on the number of enterprises in this sector and its sub-sectors due to the high informality rate. However, a cluster-mapping study conducted in 2015 by MSMEDA comprised 145 organic clusters, including 91 clusters (63%) in the handicrafts sector, eight directly related to date palm products including in Fayoum and Giza (Dahshur).[50] The main constraints facing the handicraft sector in Egypt are the outdated designs, lack of market information and weak market access, informality and the cost and sustainability of raw material, in addition to volatility since a large proportion of the market is related to tourism and competition with Chinese souvenir products.[51]

Box 1: Organic clusters in the date palm handicrafts sector

- **Fayoum**
  - Palm products in El Subehi
  - Plant fronds
  - Plant frond furniture
  - Wicker
- **Giza**
  - Palm leaves and podaxis in Dahshur
- Sharekya
  - Palm frond
- Damietta
  - Palm leaves/fronds in Kafr El Bateekh
- Matrouh
  - Palm leaves in Siwa

Source: IFPRI, 2018

Given the prevalence of enterprises in the handicrafts sector, **especially among women entrepreneurs**, a sector strategy was developed in 2018. The Handicraft Sector Strategy aims to "*establish a sustainable, institutional and productive ecosystem for the handicrafts sector leading to increased decent employment, especially for women, a growing contribution to Egypt's economic and social development, stronger presence in export markets and efficient and sustainable supply chains*". The strategy identified six strategic objectives as follows:[52]

[49] According to the meeting with Dr. Amgad El Kady.
[50] IFPRI, 2018, Clusters as drivers of local industrial development in Egypt.
[51] Ministry of Trade and Industry, 2018, The Handicrafts Sector: A Practical Implementation Strategy.
[52] Ministry of Trade and Industry, 2018, The Handicrafts Sector: A Practical Implementation Strategy.

- Increasing the total market volume of crafts.
- Attracting, training, and maintaining a skilled workforce to provide decent employment opportunities.
- Enhancing sustainable, responsible domestic supply chains building on local resources and adopting a cluster development approach.
- Increasing and improving formal businesses.
- Developing 12 handicraft clusters by implementing the National Clusters Strategy.
- Creating a sustainable enabling environment for the sector.

Although the strategy does not lay specific emphasis on handicrafts made of date palm products, the development of the sector as a whole and the generic activities undertaken do contribute to the development of the sector, especially where organic clusters are located, with Fayoum being a significant example of a palm product cluster.

5.2. Institutional framework

The main institutions supporting the date palm value chain are presented below. These cover both fruit and non-fruit-based products.

5.2.1. The Higher Council for Dates[53]

In May 2019, the Minister of Trade and Industry issued Ministerial Decree No. 527 of 2019 establishing the Higher Council for Dates. The Council is headed by the Ministers and its members include the Governors of the two governorates with the highest production (New Valley and Aswan), the National Food Safety Authority (NFSA), the Export Development Authority, the National Services Projects Organization, the Export Development Fund, the Industrial Council for Technology and Innovation (ICTI), the Ministry of Agriculture (MALR), the Chamber of Food Industries (CFI), the Food Export Council (FEC), the Agricultural Export Council (AEC), the Commercial Representative Offices Sector, the Internal Trade Development Authority, and MSMEDA, in addition to representatives of date associations, date palm farmers, processors, and exporters. The technical secretariat of the council is headed by the Food and Agro Industries Technology Center (FAITC), and includes members from the CFI, the Food and Agricultural Export Councils and the Central Laboratory for Date Palm Research and Development (CLDPRD). The Council should meet at least every three months or on ad hoc basis. However, the Council has not held its first meeting yet.

The Council's mandate is the development of the date palm sector on a national level across different stages of the value chain, such as production, processing, exporting, branding, food safety and quality, employment, cultivation, etc. The Council is also responsible for the implementation of the Sector Development Strategy. It is worth noting that its activities could include enhancing the use and added value of secondary products, new investment promotion in refrigerated storage and waste management facilities, and creating and managing an Egyptian dates logo. *Concerning women, there is no specific explicit mention or focus on women's entrepreneurship, leadership or employment in the sector.*

[53] Ministry of Trade and Industries Decrees No. 527 of 2019 and No. 734 of 2019 published in the Government Bulletin (Al Waqaee Al Masreya).

5.2.2. Food and Agro-Industries Technology Center[54] (FAITC)

The Food Technology Center (FTC) was established by the Ministry of Industry in 2001 to provide technical assistance to the food processing sector in Egypt. In 2013, it was merged with the Agro-Industries Technology Center and the new Food and Agro Industries Technology Center (FAITC) was established. FAITC's head office is in Greater Cairo, with specialized facilities in other governorates (Sharkeya and Menia for medicinal and aromatic plants and sugarcane, respectively). It aims to:

- Facilitate the provision of integrated technical solutions that respond to the needs of the food and agro industries supply chain.
- Enhance value addition.
- Support the development of the sector.

FAITC's mission is to:

- Utilize resources to improve, modernize, develop and upgrade the food industries sector by leading innovation and technological development, transferring technology and providing sustainable and integrated solutions to:
  - Meet technological needs.
  - Enhance productivity.
  - Improve quality.
  - Increase efficiency and reduce losses.
  - Build capacity.
  - Add value.
  - Facilitate access to markets, boost export potential and improve competitiveness.
- Bridge the gap between the industry's technological needs, market demands and available technical and economic resources.

FAITC provides a range of services including, but not limited to,

- Technical assistance and consultancy[55], including product development, design, prototyping and testing, and qualification for certification.
- Technology-related services such as technology transfer, on-the-job training, and linking the industry with sources of technology.
- Incubation and facilitating access to entrepreneurial skills.
- Sectoral services, including dates.
- Networking, including with local and international research institutions, and other relevant stakeholders.
- Facilitating access to funding.
- Awards for innovative entrepreneurs.
- Sensory food evaluation.
- Sterilization of herbs, spices, and medicinal and aromatic plants.

[54] El Kady, A., 2014, The role of Technological Centers in the Development of Dairy Sector in Egypt, 3rd Regional Training LACTIMED.

[55] Consulting and training services provided by FAITC are compliant with ISO 9001:2008 – Quality Management Systems.

5.2.3. Chamber of Food Industries (CFI)[56]

The Chamber of Food Industries (CFI) is one of the 19 sectoral chambers under the Federation of Egyptian Industries (FEI) representing enterprises operating in this sector.[57] The Chamber includes more than 3,000 enterprises in the food and beverage sector and is the main representative of the private sector before the Government. The CFI's role includes:

- Policy advocacy, representing the welfare of its members especially in developing relevant governmental policies and regulations.
- Improving access to technologies.
- Promoting food quality standards.
- Identification of constraints facing the sector and suggestion of solutions.
- Serving as a networking hub and organizing events.
- Provision of information on international trends.
- Skill development training programs for workers.
- Enhancing market access.
- Improving Egypt's processed foods industry reputation.

5.2.4. Food Export Council (FEC)[58]

The Food Export Council (FEC) is one of the sectoral export councils established by the Ministry of Trade and Industry to enhance Egyptian exports in these sectors.[59] The council was first established in 1999 as a Commodity Council and started serving its members in 2003. In 2005, the Ministerial Decree changing the Commodity Council to the Export Council was issued. The Food Export Council acts as the link between the private sector exporters and the government. It aims at improving the legislative and business environment for Egypt's processed food industry, by improving the competitive advantage of the sector as well as strengthening the industry's positive image in the world marketplace. The FEC provides services to match between policies and business interests, including hosting events in Egypt, participating in conferences, workshops, and fairs abroad to gain hands-on experience of export-related requirements across the world. The FEC promotes the Egyptian food processing industry as being a reliable and reputable business partner for domestic and international buyers, suppliers, government decisionmakers and other relevant players. The council's main activities include:

- Data collection and analysis, including sub-sector analyses.
- Advocacy services, such as export constraints and trade agreement application constraints.
- Preparing the national food export strategy.
- Dissemination of market information.
- Representing the sector at international fairs.

[56] http://fei.org.eg/index.php/en/food-chamber-services
[57] http://fei.org.eg/index.php/ar/chambers-ar/chambers-ar
[58] http://www.feceg.com/aboutus.php
[59] http://www.mti.gov.eg/Arabic/MediaCenter/News/Pages/%D9%88%D8%B2%D9%8A%D8%B1%D8%A9-%D8%A7%D9%84%D8%AA%D8%AC%D8%A7%D8%B1%D8%A9-%D9%88%D8%A7%D9%84%D8%B5%D9%86%D8%A7%D8%B9%D8%A9-%D8%AA%D8%B5%D8%AF%D8%B1-%D9%82%D8%B1%D8%A7%D8%B1%D9%8A%D9%86-%D8%A8%D8%A5%D8%B9%D8%A7%D8%AF%D8%A9-%D8%AA%D8%B4%D9%83%D9%8A%D9%84-%D8%A7%D9%84%D9%85%D8%AC%D8%A7%D9%84%D8%B3-%D8%A7%D9%84%D8%AA%D8%B5%D8%AF%D9%8A%D8%B1%D9%8A%D8%A9.aspx

5.2.5. The Agricultural Export Councill (AEC)[60]

One of the export councils established by the Ministry of Trade and Industry, the Agricultural Export Council (AEC) is the official representative of agro exporters with the GoE. It aims to increase Egyptian agro exports and penetrate new markets. Its areas of focus include policy advocacy, awareness-raising, elimination of constraints facing the export sector, organizing trade missions, and capacity development of member enterprises. The relevance of this council is mainly related to fresh date produce exports.

5.2.6. National Food Safety Authority (NFSA)

The National Food Safety Authority (NFSA) was established by Law No. 1 of 2017. The NFSA is a public entity that falls under the auspices of the President and is allocated funds from the State Budget. The Board of Trustees is headed by the Prime Minister with member Ministers and is concerned with the general policy, while the Board of Directors is headed by a specialized expert with members from relevant ministries and organizations and is concerned with governing the NFSA. The execution and operational roles are led by the Executive Director of NFSA.[61] The following is a summary of the NFSA mandate:[62]

- Issuing rules related to food safety in accordance with international standards and national requirements.
- Ensuring proper food handling, including control, licensing, monitoring, inspection, traceability, processing, packing, labelling, storage, transportation.
- Licensing food establishments (any organization involved in handling food).
- Acting as the sole entity responsible for food export and import control and inspection.
- Issuing rules related to authorization of food export.
- Issuing contracts with accredited testing labs.
- Control over imported and local food.
- Issuing rules for crises and emergency management.
- Participation in drafting relevant regulations.
- Planning for formalizing informal food producers.
- Awareness-raising on food safety.
- Cooperation and coordination with relevant national and international organizations.
- Conducting research and studies on food safety.

5.2.7. Businesswomen of Egypt 21 (BWE21)[63]

Businesswomen of Egypt 21 (BWE21) is a self-financed NGO that aims to economically empower businesswomen. It provides support in the form of policy advocacy, capacity development, business development services, networking, and awareness-raising. BWE21 focuses on long-term strategies and is concerned with acting as a national platform for the economic development of businesswomen and implementing national and international business initiatives in cooperation with partners and donors.[64] Of specific interest among BWE21's initiatives are the integration of women-owned businesses into new market

[60] https://www.aecegypt.com/WebPages/Common/ContentPage.aspx?CName=AboutUs.
[61] Law No. 1 of 2017 for Establishment of the National Food Safety Authority published in the Official Gazette dated 10/1/2017.
[62] Law No. 1 of 2017 for Establishment of the National Food Safety Authority published by the Official Gazette dated 10/1/2017 and Prime Minister's Decree No. 412 of 2019 published in the Official Gazette dated 18/2/2019.
[63] https://www.bwe21.com/about-us/.
[64] https://www.bwe21.com/about-us/.

opportunities through nomination of women entrepreneurs to be listed in the supply chains of strategic partners, and an e-commerce platform[65] which could serve as a convenient market channel for women entrepreneurs, especially in Fayoum and Wahat.

5.2.8. The Medium, Small and Micro Enterprises Development Agency (MSMEDA)[66]

MSMEDA was established in 2017, replacing the Social Fund for Development, established in 1991. MSMEDA is authorized by the MSME Law as the organization responsible for the development of MSMEs in Egypt. It has 33 branches in all governorates including Fayoum and Giza (but not in Wahat)[67] and has programs designed and implemented specifically for women. MSMEDA services include:

- Financing MSMEs, directly and through financial institutions.
- Financing incubators and accelerators.
- Dissemination of information on investment opportunities, production techniques, marketing, franchising, etc.
- Support on preliminary feasibility studies.
- Consulting related to sourcing equipment, machinery and supplies.
- Simplified guidelines for bookkeeping and dealing with public entities.
- Participation in exhibitions.
- Provision of training.
- Preserving heritage.

5.2.9. Egyptian Export Council for Handicrafts (EECH)[68]

The Egyptian Export Council for Handicrafts (EECH) is one of the export councils established by the Ministry of Trade and Industry. The Council was established in 2013, to promote, support, protect, maintain and increase exports of modern, well-finished and high-quality Egyptian handicrafts. As of March 2018, EECH had 170 members, including designers and exporters. The EECH is a key player in the implementation of the National Strategy for Handicrafts. One of the key issues that the council has been working on is the overlap of HS codes with other industries so that the sector's exports can be accounted for accurately.

5.2.10. Central Laboratory for Date Palm Research and Development (CLDPRD)[69]

The Central Laboratory for Date Palm Research and Development (CLDPRD) was established in 1993 to improve the quality of Egyptian palms nationally and regionally and enhance its economic, social, and environmental impact through research and training programs. It is located in Giza (Greater Cairo region). The CLDPRD conducts numerous activities to achieve its objectives including:

- Raising awareness on date palm farming.
- Training programs for the actors of various processes.
- Identification of pests and diseases, in addition to control and preventive measures.
- Contribution to the production of quality varieties that have a high commercial value.

[65] https://www.bwe21.com/initiatives-protocols-projects/.
[66] MSME Law No. 152 of 2020.
[67] http://www.msmeda.org.eg/branches.html.
[68] Ministry of Trade and Industry, 2018, The Handicrafts Sector: A Practical Implementation Strategy.
[69] http://www.arc.sci.eg/InstsLabs/Default.aspx?OrgID=22&TabId=0&NavId=1&&Lang=ar

- Research on innovative processing techniques and palm products (fruit and non-fruit products). This includes innovative products involving utilization of the date palm, such as date powder, sugar pollen grains for cancer medications, etc.
- Tissue-culture studies, including introduction of new varieties.
- Genetic research.
- Contribution to feasibility studies related to the cultivation of date palms.
- Production of secondary products including in pharmaceuticals.
- Data collection on commercial date varieties and their locations.
- Preparing an atlas of date palms.
- Studies on male palm evaluation to improve fruit quality.
- Improving the date industry and overcoming the constraints facing it.

5.2.11. Food Technology Research Institute (FTRI)[70]

The Food Technology Research Institute (FTRI) was established in 1991 under the Agricultural Research Center (ARC) – which falls under the auspices of the Ministry of Agriculture and Land Reclamation (MALR) and has stations/branches in Fayoum and Wahat. The Center is concerned with applied research in food processing and preservation. The research conducted by the Center includes production of date jam from unpollinated Siwi dates, and the use of palm fronds as animal feed, among other topics. The areas of focus of the FTRI can be summarized as follows:

- Food quality and safety.
- Food processing, packing and preservation.
- Technology transfer.
- Waste management.
- Value addition.
- Food processing feasibility studies, through a unit specialized in food processing economics founded in 1995.
- Studying food patterns across different governorates since 1994, as well as cooking techniques.
- Collaboration with the Industrial Modernization Centre (IMC) to solve food-processing and packing problems.
- Collaboration with the Ministry of Education on a project for school meal programs.
- Training services for university graduates in cooperation with MSMEDA and an NGO, in addition to training rural women on small food-processing enterprises/projects.

5.2.12. Horticultural Export Improvement Association (HEIA)

The Horticultural Export Improvement Association (HEIA) was established in 1996. The number of its members has been growing since its establishment, reaching more than 700 members in 2014[71], including producers, exporters, suppliers of horticultural products and companies working in the supply of agricultural equipment and packing material, as well as associated NGOs. HEIA aims to increase the exports of fresh produce through quality production, market development, access to information, policy advocacy, networking and matchmaking, training and management assistance.[72] It offers a range of services supporting new businesses and post-harvest and packing house management, including to non-members,[73] such as feasibility studies, and programs on food quality and safety, packing methods, waste management methods, irrigation and fertilization, pest control, and

[70] http://www.arc.sci.eg/instslabs/Default.aspx?OrgID=16&lang=en
[71] HEIA Brochure.
[72] https://heiaegypt.org/about/.
[73] https://heiaegypt.org/faqs/.

certification preparation.[74] As a result of the FAO Dates Value Chain project, a Date Palm Committee has been established under HEIA. In 2003, HEIA established a perishable terminal at Cairo airport, operated by Egypt Air Cargo, to serve as the main cool chain gate for fruit and vegetables headed to Europe and the Middle East. The total area of the terminal is 24,000 m^2, with a cooling area of 4,000 m^2 and a capacity of 320 tons per six hours (144 pallet positions).[75]

5.2.13. The Handicrafts Industry Chamber

The Handicrafts Industry Chamber was established in 2015 as one the chambers under the FEI. The Chamber aims to preserve national heritage through the development of handicrafts. It represents the enterprises in the sector and supports creating an enabling environment for its members through policy advocacy, capacity development, facilitating access to finance, support in formalization of the sector, etc.[76] As of March 2018, the Chamber had 200 members. Although it is required by law that its services be provided to formal enterprises only, and due to the high informality of the sector, the Chamber offers exceptional measures provided that the enterprises formalize their status within a certain time limit.[77]

5.2.14. Egyptian Businesswomen Association (BPW-EBWA)[78]

The Egyptian Businesswomen's Association (EBWA) was established in 1995 to serve as the primary organization for businesswomen. It aims to promote economic growth of MSMEs and women through economic empowerment of women, job creation and promoting entrepreneurship. EBWA's services include technical assistance, capacity development, policy advocacy, awareness-raising, networking, and facilitating access to finance, markets and technology.

5.2.15. Industrial Modernization Centre (IMC)

The Industrial Modernisation Centre was established in 2000 and started delivering services in 2002. It falls under the Ministry of Trade and Industry and aims to support industrial enterprises and create an enabling business environment for the industrial sector, through its 19 branches, on a demand-driven basis.[79] The significance of the IMC lies in the technical assistance and capacity development programs it provides to production facilities.

5.2.16. Previous/Other projects

The FAO-funded "Dates Value Chain Development in Egypt" project was implemented, in cooperation with MARL, from 2016 to 2019 in six geographical locations including El Wahat El Bahariya.[80] The project aimed to improve the capacity of multiple small- and medium-sized farmers, date collectors, traders, packers and processors to improve the quantity and quality of date production in Egypt.

[74] https://heiaegypt.org/services-2/.
[75] http://egyptair-cargo.com/CargoTerminals.htm.
[76] http://www.fei.org.eg/index.php/ar/hancraft-targets-ar.
[77] Ministry of Trade and Industry, 2018, The Handicrafts Sector: A Practical Implementation Strategy.
[78] https://ebwa.weebly.com/.
[79] http://www.imc-egypt.org/index.php/what-we-do.
[80] http://www.fao.org/egypt/programmes-and-projects/dates-palm/en/#:~:text=Date%20palm%20cultivation%20in%20Egypt,income%20generation%20in%20rural%20areas.&text=This%20project%20will%20also%20pave,date%20palm%20value%20chain%20improvement.

Among the activities undertaken by the project was creating a new revenue stream for women producing handicrafts from palm leaves and selling them. The project also conducted awareness- and capacity-building programmes that led to the ISO 22000[81] certification of five factories and Ecocert Certification[82] of 260 farms in Siwa; this is a success story to consider replicating in order to increase the export opportunities of El Wahat El Bahariya dates, and thus the opportunity for women actors in the later stages of the value chain in marketing and exporting.[83]

Kellog's project on strengthening smallholder date palm farmers

Kellogg's designed a partnership-driven approach to strengthening the sustainability of its local smallholder supply chains, adopting TechnoServe's approach to enhancing the commercial value and social impact of local sourcing in emerging markets. The project defined commercial and social objectives and analyzed priority supply chains in Egypt, and hence supported designed and tailored models to strengthen its local date supply chains in partnership with other ecosystem actors. The model was based on increasing quality at the farm and primary processing levels and developing direct sourcing relationships. Implementation of the models was projected to increase smallholder farmer income by 40%, while securing Kellogg's return on investment.[84] As part of the project interventions in Wahat, more than 20 field representatives were capacitated (including women), and they were responsible for around 300 farmers, via a field audit system.

[81] ISO 22000 is on Food Safety Management.

[82] Ecocert is a certification body on sustainable development, founded in France in 1991, that primarily certifies food and food products. The company inspects about 70% of the organic food industry in France and about 30% worldwide, retrieved from https://www.devex.com/organizations/ecocert-sa-126461.

[83] FAO, 2019, Palm Dates Value Chain Development in Egypt.

[84] TechnoServe, 2017, TechnoServe Initiative for Inclusive Agricultural Business Models. The Kellogg Company: Bolstering Emerging Markets Growth and Improving Livelihoods through Sustainable Local Sourcing.

6. SELECTION OF PRIORITY PRODUCTS AND MARKET POTENTIAL

6.1.1. Selection of priority products

In light of the research and analysis conducted and the project's objectives, it was agreed to focus on the post-harvest stage of the value chain, due to the absent-to-negligible role of women in Fayoum and Wahat in the planting and cultivation stages. Moreover, since handicrafts are being tackled through another component of the project, the relevant findings of this study will be conveyed to the other project component and this study's focus will be on innovative fruit-based products.

In order to select the priority fruit-based products, a list of criteria were identified and each product was assessed against these products. A final recommendation was then made as summarized in the table below, and a conclusion was reached that there should be a focus on a) stuffed and coated dates, b) date paste, c) date energy bars and balls and d) date syrup/dibs.

Products	Semi-dry dates	Innovative	Market Potential	Processes in Fayoum &/or Wahat	Role of women in Fayoum &/or Wahat	Investment Size	Potential interventions	Recommendation	Rationale
Packed date fruits that are washed, packed, and sold directly to the consumer without any further processing.	Yes	No	Yes	Yes	- Agri-stage: Tansheer (drying) & sorting - Processing stage: Sorting & packing	Suitable	- Food safety - OSH training - Packaging & branding	**No**	- Not innovative - Women are mainly workers - Interventions are poor

Products	Semi-dry dates	Innovative	Market Potential	Processes in Fayoum &/or Wahat	Role of women in Fayoum &/or Wahat	Investment Size	Potential interventions	Recommendation	Rationale
Stuffed & coated dates: The seeds are removed, and nuts are inserted in the place of the seed. Then the dates are coated with chocolate.	Yes	Yes	Yes	Yes	- Agri-stage: Tansheer (drying) & sorting - Processing stage: Sorting, deseeding, stuffing, packing & potentially adding of coating - Supplying to women entrepreneurs in other governorates - Potential entrepreneur-ship for Fayoum women	Suitable	- Food safety - Training for workers on the processes (technical) - OSH training - Product and market development + entrepreneur-ship + exporting for the potential women entrepreneurs	**Yes**	- Innovative - Local women workers - Potential women's entrepreneurship - Can be supplied to other women entrepreneurs in other governorates - Export potential for quality products
Date paste/agwa: Paste could be pressed with seeds, or dates are minced through mincers. The fineness of the grind can be adjusted by varying the diameter of the	Yes	Minimal	Yes	Yes	- Agri-stage: Tansheer (drying) & sorting - Processing stage: Sorting, deseeding, making the paste - Supplying to women entrepreneurs	Suitable	- Food safety - Training for workers on the processes (technical) - OSH training - Product and market development + entrepreneur-ship for the potential	**Yes**	- Slightly innovative - Local women workers - Can be supplied to other women entrepreneurs in other governorates - Opportunity for local women's entrepreneurship

Products	Semi-dry dates	Innovative	Market Potential	Processes in Fayoum &/or Wahat	Role of women in Fayoum &/or Wahat	Investment Size	Potential interventions	Recommendation	Rationale
dice holes.. Its most popular use is as a filling in bakery products.					in other governorates		women entrepreneurs		
Date spread: Dates are finely minced and used as smooth spread.	Yes	Yes	Yes	No	- Agri-stage: Tansheer (drying) & sorting - Processing stage: Sorting, deseeding - Supplying to women entrepreneurs in other governorates	High	- Food safety - Training for workers on the processes (technical) - OSH training - Product and market development + entrepreneur-ship for the potential women entrepreneurs	**No**	- Sophisticated process - High investment and special market niche
Date preserve: A popular use is date jam, marmalade and compote. There are also some attempts to use the less mature fruit (Kimri & Khalal) in pickling.	Not mainly	Minimal	Yes (for jam)	No	NA	Suitable	NA	**No**	- Not the main product of semi-dry fruits - No similar processes in Fayoum and Wahat

Products	Semi-dry dates	Innovative	Market Potential	Processes in Fayoum &/or Wahat	Role of women in Fayoum &/or Wahat	Investment Size	Potential interventions	Recommendation	Rationale
Date mixtures: Ground dates are added to other ingredients to produce products such as energy **bars** (mixed with nuts and other ingredients). Also includes dates covered in chocolate and date mixture balls (**bliss balls**) as well as date spread.	Yes	Yes	Yes	No	- Agri-stage: Tansheer (drying) & sorting - Processing stage: Sorting, deseeding, potentially mincing - Supplying to women entrepreneurs in other governorates - Potential entrepreneur-ship role for women in Fayoum	Suitable	- Food safety - Training for workers on the processes (technical) - OSH training - Product and market development + entrepreneur-ship for the potential women entrepreneurs in Fayoum and Wahat who can make the mixture and supply it to better developed entrepreneurs who in turn make the innovative products	**Yes**	- Innovative - Local women workers - Can be supplied to other women entrepreneurs in other governorates - Opportunity for local women's entrepreneurship from home
Date condiments: Used to give relish to food; e.g. date condiments	Not mainly	Yes	Not comer-cial enough	No	NA	NA	NA	**No**	Too sophisticated and not commercial

Products	Semi-dry dates	Innovative	Market Potential	Processes in Fayoum &/or Wahat	Role of women in Fayoum &/or Wahat	Investment Size	Potential interventions	Recommendation	Rationale
added to tomato ketchup.									
Date desserts and confectionary: Dates can be used in desserts, like ice cream and puddings. Some of these products now have commercial applications.	Yes	Yes	Not comer-cial enough	No	NA	NA	NA	**No**	Too sophisticated and not commercial
Dried powder: Used as an alternative to sugar and in dairy products, ice cream, drinks, etc.	No	Yes	Not comer-cial	No	NA	NA	NA	**No**	Not from semi-dry fruit and not commercial
Date pits/seeds: Used as alternative coffee, in cosmetics, animal feed, and pharmaceuticals.	Yes	Yes	Not comer-cial	No	NA	NA	NA	**No**	Too sophisticated and not commercial

Products	Semi-dry dates	Innovative	Market Potential	Processes in Fayoum &/or Wahat	Role of women in Fayoum &/or Wahat	Investment Size	Potential interventions	Recommendation	Rationale
Concentrate: The most popular version is **dibs**.	Yes	Yes	Yes	Yes	- Agri-stage: Tansheer (drying) & sorting - Processing stage: Sorting - Assess potential local women entrepreneur-ship opportunities - Supplying to women entrepreneurs in other governorates	Suitable	- Food safety - Training on sorting and using the tools and machines to produce dibs - OSH - Product and market development + entrepreneur-ship for the potential women entrepreneurs	**Yes**	- Innovative - Market potential - Available in local locations - Potential introduction of women's entrepreneurship
Date juice: Similar to fruit juice.	Not mainly	Yes	Not comer-cial enough	No	NA	NA	NA	**No**	Too sophisticated and not commercial
Vinegar: Made through anaerobic conversion of date juice to ethanol using baking yeast and aerobic oxidation of ethanol to acetic	Not mainly	Yes	Not comer-cial	No	NA	NA	NA	**No**	Too sophisticated and not commercial

Products	Semi-dry dates	Innovative	Market Potential	Processes in Fayoum &/or Wahat	Role of women in Fayoum &/or Wahat	Investment Size	Potential interventions	Recommendation	Rationale
acid at 30°C via old vinegar.									
Alcohol: Made by fermenting date juice.	Not mainly	Yes	Not comer-cial	No	NA	NA	NA	**No**	Too sophisticated and not commercial
Yeast	Not mainly	Yes	Not comer-cial	No	NA	NA	NA	**No**	Too sophisticated and not commercial
Citric and oxalic acids	Not mainly	Yes	Not comer-cial	No	NA	NA	NA	**No**	Too sophisticated and not commercial
Sugar: Sugar extracted from dates, similar to sugars extracted from sugarcane, beets and corn.	Not mainly	Yes	Not commer-cial	No	NA	NA	NA	**No**	Too sophisticated and not commercial
Caramel	Not mainly	Yes	Not commer-cial	No	NA	NA	NA	**No**	Too sophisticated and not commercial

6.1.2. Priority products markets

Coated and stuffed dates

Minimally processed date fruit can be innovative. It be pitted and stuffed with a variety of fillings: nuts, chocolate, dried fruits or any other creative filling. These can be sold as is or can be further processed via coating with chocolate or other creamy food material. There are limitless options for innovation in this kind of product. It is worth noting that both Siwi and Medjool (grown in Fayoum and in new farms in Wahat) are of the date varieties most suitable for this kind of product, thanks to the sweet taste of Siwi and the luxurious quality of Medjool.

These products are consumed largely in the GCC countries all year long, and consumption spikes in the Holy month of Ramadan in all markets (as for all other date products). In GCC culture, this high-end coated date is consumed regularly with Arabian coffee and is considered a sign of wealth and delicacy. Saudi and Emirati companies have very well-established brands and packaged innovative products.

Figure 3: A Dubai-based company producing creative well-packaged dates.

Figure 4: A Saudi company producing creative well-packaged dates.

On the international level, experts believe there is market potential for this kind of minimally processed date fruit product. According to one study, GCC and North African countries dominate the international dates market sector in general, and even the countries with the lowest performance are progressing and have market potential.[85] With proper marketing and coordinated efforts, it is believed that value-added, diversified premium date products have a prospective market, especially among health-conscious consumers and those preferring high-quality products.[86]

[85] Frija et al., Competitive Advantage of GCC Date Palm Sector in the International Market: Market Shares, Revealed Comparative Advantages, and Trade Balance Indexes, International Journal of Marketing Studies, 9 (6) 2017.
[86] Jamshed, Mohammed, Niche marketing of date palm-based food and beverages as health products, Journal of Economic Cooperation and Development, 39(2),2018, 49-68.

In Egypt, nut-stuffed dates were the main product of this variety, but more options have been introduced to the market in the past few years and their consumption has risen. Despite the fact that dates are not part of the regular Egyptian diet, the recent innovations have opened up the opportunity for expansion in these product lines especially with the huge size of the domestic market.[87] For example, stores like Zadna are gradually becoming more popular and products from the Biahmo facility in Fayoum are used in EgyptAir meals (see picture). Based on anecdotal evidence from experts and the interviews conducted, and with wellness awareness and demand for healthy food and nutritious snacks growing, combined with innovations in the adding of further nutritious ingredients, it is expected that the local market for this kind of product will continue to grow.

Figure 1: Biahmo dates from Fayoum, served in EgyptAir meals

From the field research conducted as part of this study, it can be concluded that local small processing facilities are producing the stuffed dates in Fayoum and Wahat but are yet to be more creative. However, there are examples in the market of businesses excelling: A woman entrepreneur (based in Cairo) established her business less than a year ago, specialized in luxurious date-gifting "Alyaa Dates" (see picture). She produces innovative stuffed and coated dates with customized recipes for the coating and stuffing (e.g. pistachio paste) relying on a hired chef. She sources and makes the date stuffing in Fayoum (Biahmo), does the coating in East Cairo and stores the product in Giza. Despite the relatively fragmented process and the challenges she faces in sourcing high-quality dates, this newly established business targeting a niche market has witnessed high demand during Ramadan and is sustaining demand levels outside Ramadan too. Current and potential distribution channels include online sales, hospitals in Giza (Sheikh Zayed), and duty-free shops. Export opportunities are being explored.


Figure 2: Alyaa Dates, a luxurious date-gifting business led by a Egyptian woman entrepreneur (Greater Cairo).

On a larger scale, stores like Abu Auf are producing nicely packed stuffed and coated dates and are making them available in their stores and outlets, which are already expanding, and are opening inside supermarkets and hypermarkets. On the multinational corporation level, the chocolate brand Galaxy has launched date-based products sold locally in convenience stores, supermarkets, and hypermarkets.

Figure 3: Coated and stuffed dates produced by local and international brands (Abu Auf and Galaxy).

[87] Gawad et al., Determinants of Competitive Advantages of Dates Exporting: An Applied Study on Saudi Arabia, International Journal of Economics and Finance, 6 (4), 2014.

For Egyptian companies to enter the market, they need to compete first with the imported brands locally, before going for exports. The main challenges of competing with international and regional brands are finding high- and consistent-quality fruit and being able to implement attractive branding and marketing strategies.

In order to penetrate international markets, proper marketing efforts are needed. This requires, for a start, having quality fruit (pre-and post-harvest controls on pests, infections and yeast), issuing standards and certification, innovative packaging, branding (especially to overcome the reputation of the typical low-grade Egyptian dates in Asian markets), and targeting higher segments in already-penetrated markets, and in new ones. Additionally, national-scale marketing efforts are essential in potential markets, through exhibitions, social media, supermarket tastings etc. These efforts would be mainly coordinated with the Food Export Council and other affiliates of the Ministry of Tarde and Industry and service providers.

Based on international market trends as well as market information gained from international events, communication and food exhibitions, it is recommended that brands seek to penetrate certain international markets such as the GCC and Asian countries (Malaysia and Indonesia).

Date paste/agwa

Date paste is widely used in bakery products and confectionary. Like other date products, date paste contains the same nutrients of the fruit and has the same functionalities, including the fiber content (which is not as high as in dibs for example which has a liquid texture). One of the advantages of date paste is that low-grade fruit[88] can be used in its manufacture, thus reducing the amount of waste.[89] Siwi dates, the main variety in Wahat and Fayoum, are one of the best varieties for making date paste.[90] Date paste can be considered one of the value-added date products, especially depending on the way it is commercialized.[91, 92] It can be sold directly to consumers or B2B to a range of processors of different types and sizes (from bakery shops in every street to large FMCGs).

Globally, date paste is widely used in the food industry, mainly in the form of filling for pastry and biscuits.[93] Demand for date paste is considered one of the drivers of projected high demand in the date palm market.[94] For example, according to a study on European market potential for dates, imports of date paste are expected to increase.[95]

In the local market, date paste is used in multiple ways, including in households for home-made bakery products, cakes and other food recipes, as well as commercially. The commercial use of agwa includes:

- Bakery filling sold in all small bakery shops, whose presence iswidespread in every neighborhood
- Confectionary
- Biscuit filling produced by facilities of all sizes, including for example Bisco Misr (a key market player acquired by Kellogg's) which sells its products in its stores, in convenience stores, at street kiosks, and in supermarkets and hypermarkets (see picture)
- Ingredient/filling for cookies, bakery products and cakes at dessert stores and chains.

Figure 4: Bisco Misr date biscuits.

[88] Low-grade means deformed in shape only but not infected.

[89] Najjar, Z., C. Stathopoulos, and S. Chockchaisawasdee, Utilization of Date By-Products in the Food Industry, Emirates Journal of Food and Agriculture, 32 (11), 2020, 808-15, doi: https://doi.org/10.9755/ejfa.2020.v32.i11.2192.

[90] https://www.agri2day.com/2021/07/18/%D8%AF-%D8%B9%D9%81%D8%AA-%D9%85%D9%87%D8%AF%D9%8A-%D9%8A%D9%83%D8%AA%D8%A8-%D9%83%D9%8A%D9%81-%D9%86%D8%B3%D8%AA%D9%81%D9%8A%D8%AF-%D9%85%D9%86-%D8%A7%D9%84%D8%AA%D9%85%D9%88%D8%B1%D8%A7%D9%84/.

[91] https://www.entrepreneurindia.co/project-and-profile-details/Date%20Syrup,%20Date%20Paste,%20Date%20Jam%20&%20Date%20Drink.

[92] Sami Ghnimi, Syed Umer, Azharul Karim, Afaf Kamal-Eldin, Date fruit (Phoenix dactylifera L.): An underutilized food seeking industrial valorization, NFS Journal, 6, 2017, 1-10, ISSN 2352-3646, https://doi.org/10.1016/j.nfs.2016.12.001.

[93] http://www.aseeldates.com/date-paste/.

[94] https://www.ktvn.com/story/44573741/date-palm-market-size-in-2021-top-countries-data-with-top-manufacturers-including-al-foah-barari-group-maghadi-datesbarakah-dates-factory-and.

[95] The European market potential for dates, 6/10/2020, CBI, retrieved from https://www.cbi.eu/market-information/processed-fruit-vegetables-edible-nuts/dates/market-potential.

Moreover, in 2017, the idea of having date products in school meals was emphasized.[96] One of the organizations that worked on date school meals was the Food Technology Research Institute (FTRI) under the Agricultural Research Center (ARC), which produced nutritious agwa products (see picture).[97] In 2021, it was stated that the components of school meals[98] would be decided based on the percentage of anemia prevalence, and would be classified into four categories – all of which included biscuits, some of which included dried fruits, and one of which explicitly included date biscuits as a main component of the meal.[99] It is worth noting that school meals are especially widespread in rural and low-income areas, which is convenient for the project's geographical focus.

Figure 5: School date meal produced in cooperation with FTRI.

The field research in Giza (Wahat) indicated that most of the paste (agwa) supplied to bakery shops is from Marazeek (a village in Badrasheen, Giza) and is mainly processed using primitive procedures.[100] On the other hand, women in Fayoum make agwa at home using primitive processes as well; one of the ways they sell it is through making agwa pops for school children.[101] *Thus, there is huge room to improve both the process and the quality of Egyptian agwa so that it can satisfy food-industry demand, which is currently satisfied via imported agwa. As far as international markets are concerned, it is recommended to target the European markets.*

[96] https://timesofegypt.com/2017/11/18/%D8%AA%D8%B4%D9%83%D9%8A%D9%84-%D9%84%D8%AC%D9%86%D8%A9-%D9%84%D8%AA%D9%88%D9%81%D9%8A%D8%B1-%D9%88%D8%AC%D8%A8%D8%A9-%D8%AA%D9%85%D8%B1-%D9%84%D8%B7%D9%84%D8%A7%D8%A8-%D8%A7%D9%84%D9%85/.
[97] https://www.elwatannews.com/news/details/4248966
[98] Allocated a budget of EGP 8 bn.
[99] https://www.msrjob.com/2021/08/0021.html?hl=ar.
[100] Interview with Joud facility, What.
[101] Interview with Biahmo CDA, Fayoum.

Dates energy bars/balls

Energy balls are protein-based mixtures of fruits, nuts, chocolate and/or other ingredients. They are recommended as a nutritious healthy snack for athletes as well as for the adult population at large.[102] Similarly, energy bars are produced through mixing proteins, cereals, fruits, nuts, chocolate and/or other healthy ingredients. Energy bars are convenient because they are ready-to-eat at any time without preparation, can be stored at room temperature, come in different sizes and shapes and can be used by people of all age groups. They thus have a higher added value than fresh fruit. Date energy bars are one example. In fruit-based energy bars, dates are a key ingredient. The sugar component (sucrose, fructose and glucose) accounts for two thirds of the fruit flesh, making it a natural source of energy; 100 gm of fresh dates contain around 157 calories, while dried dates include more than 300 calories per 100 gm. Dates are thus a rich-in-energy option for consumers. Dates' other nutrients (proteins, crude fiber, fats, antioxidants) make it a nutrient option for functional food too.[103] Fortunately, dates can fit under various trendy food categories/labels: vegan, gluten-free, wheat-free, dairy-free, all-natural, sports nutrition, healthy, among others. These labels have gained increasing significance, as consumers' behavior has changed, and health awareness has raised consciousness of choices and purchase decisions.[104]

Figure 6: Energy balls sold in Cairo's supermarkets, including date balls.

The global market for energy balls and bars has been growing rapidly and is expected to further grow in the coming four to six years at least. According to Allied Market Research, the value of the global energy bar market reached USD 645 mn in 2020, and will, it is estimated, reach USD 1 bn by 2028, registering a CAGR of 6.4%.[105]

The main driver of growth of the energy bar market is the booming wellness market. According to the Global Wellness Institute, the global wellness economy is growing rapidly and is expected to continue to grow. The size of the global wellness economy reached USD 4.5 trillion in 2018, that of healthy eating, nutrition and weight loss accounted for USD 702 bn, and the global physical activity economy accounted for USD 828 bn, of which USD 22.6 bn were in the MENA region, where Egypt accounted for USD 1.7 bn.[106]

[102] N V Prisukhina and L G Ermosh 2020 IOP Conf. Ser.: Earth Environ. Sci. 548 082019.
[103] Aljaloud, S., Colleran, H. and Ibrahim, S., Nutritional Value of Date Fruits and Potential Use in Nutritional Bars for Athletes. Food and Nutrition Sciences, 11, 2020, 463-480, doi: 10.4236/fns.2020.116034
[104] Vegan Protein Balls Market - Global Industry Analysis, Size, Share, Growth, Trends, and Forecast 2019 – 2027, https://www.transparencymarketresearch.com/vegan-protein-balls-market.html.
[105] Allied Market Research, Energy Bar Market, https://www.alliedmarketresearch.com/energy-bar-market.
[106] Move to be Well: The Global Economy of Physical Activity, Middle East-North Africa – October 2019, Global Wellness Institute.

While sports nutrition used to be mainly for bodybuilders and athletes, the portion of the global population practicing sports and living a healthy lifestyle is growing, especially among millennials.[107] Heathy and natural snacks on-the-go are witnessing increasing demand as a result of current busy lifestyles. Moreover, there is an increasing prevalence of dietary restrictions due to problems such as lactose intolerance and food allergies. Vegetarian and vegan diets are booming as well. In the US for example, there was a 600% increase in the number of vegans in three years. In terms of geographical market segmentation, North America (led by the US) is expected to be the lead market player, followed by Europe, thanks to their developed markets, while Asian countries (China, India and ASEAN) are expected to have a high growth rate, owing to growing health consciousness and income levels.[108]

"The first reason why I thought of starting my business in date products was people with lactose intolerance, which made me think of that market segment with an unmet demand for snacks and sweets." Anonymous, online interview with a woman entrepreneur in the date processing industry, Greater Cairo, Egypt, 8/8/2021.

However, it is to be noted that at a global scale, manufacturers face rising costs related to the production of energy bars and narrowing margins as competition increases, in addition to the lack of reliable, detailed market data. Manufacturers are trying to cater to global demand for tasty, healthy, nutrient-rich, natural, well-packaged snacks, while being innovative and managing costs.[109]

In the Middle East and Africa, one report estimated that the energy bars market would grow by a CAGR of 6.9% during the period 2020-2025, due to growing demand for healthy and nutritious snacks.[110]

In Egypt, energy and protein bars can be found in convenience stores, at sports specialty venues, in hypermarkets and supermarkets, and on online platforms (see pictures). This reflects booming health and fitness awareness in Egypt and the flourishing wellness market, especially among higher income groups.[111] The energy bar market in Egypt (protein- and cereal-based) witnessed a CAGR of 16.69% from 2014 to 2019, reaching a sales revenue of around EGP 340 mn in 2019.[112]

Figure 7: Energy bars sold in Cairo's supermarkets, including fruit bars.

[107] Energy Ball Market: Global Industry Trend Analysis 2012 to 2017 and Forecast 2017 – 2025, https://www.persistencemarketresearch.com/market-research/energy-ball-market.asp
[108] Vegan Protein Balls Market - Global Industry Analysis, Size, Share, Growth, Trends, and Forecast 2019 – 2027, https://www.transparencymarketresearch.com/vegan-protein-balls-market.html
[109] Energy Ball Market: Global Industry Trend Analysis 2012 to 2017 and Forecast 2017 – 2025, https://www.persistencemarketresearch.com/market-research/energy-ball-market.asp
[110] https://www.mordorintelligence.com/industry-reports/middle-east-and-africa-energy-bar-market
[111] https://english.ahram.org.eg/NewsContent/50/1209/346431/AlAhram-Weekly/Focus/Egypt%E2%80%99s-wellness-boom.aspx.
[112] Energy Bars (Bakery and Cereals) Market in Egypt - Outlook to 2024; Market Size, Growth and Forecast Analytics (updated with COVID-19 Impact), https://www.marketresearch.com/GlobalData-v3648/Energy-Bars-Bakery-Cereals-Egypt-13616244/

Locally, date balls can be made at home using traditional primitive processes. Women heat water in a cooking pot, with a colander on top of it, sealing the pot with dough, and then putting in the pitted dates to be steamed. Then they pack the dates as agwa or shape them into balls and mix them with their choice of nuts, and pack them into small foam plates sealed in cling film (see pictures from the Biahmo CDA in Fayoum). These processes are performed at home or at the CDA premises. Traditional agwa is made by women in Wahat too, but not packaged balls or bars.

Figure 8: Date balls produced by women in Fayoum.

Figure 9: Women of Fayoum making date balls.

Suggested solutions to enhance/automate include the utilization of specialized machines for date grinding and shaping (into balls or bars). This type of machine can be installed and operated at home or in small workshops, thus providing a suitable solution that enhances quality and hygiene. Along with the basic tools, and production and packing machinery, total investment can be reduced through joint investments by a group of women (similar to group loans in microfinance).

One of the women entrepreneurs interviewed during the study specializes in innovative date bars that include dates, hummus (chickpeas) or nuts and date syrup. The products are sold online (e.g. on Amazon, in social media, through market applications, and on her own site), and in convenience stores and supermarkets. Her business is small, and she is trying to fit into the market segment between market leaders with economies of scale and the niche-market healthy sustainable producers. She believes this type of business has a high potential for growth in Egypt, especially with the new food trends (snacks, healthy, vegan, dairy-free, etc.). *Accordingly, the local market for energy bars and balls represents an opportunity for women entrepreneurs who can be innovative in product development, yet not very sophisticated in terms of processing. In the meantime, using low-grade dates helps in the reduction of costs and solid waste.*

For international markets, it is recommended to focus on the US, Europe and Asian countries (China, India and ASEAN).

Figure 10: Local brand of date bars produced by an Egyptian woman entrepreneur (Greater Cairo).

Date Syrup/dibs

Date syrup contains all the benefits of the fruit and is even easier to digest. The syrup has a sweet taste and soft texture, making it a good honey substitute and healthy sugar substitute to eat alone or to add to recipes such as those for salads, marinades, glazes, bakery products, confectionary, dairy items, desserts or as a topping to ice cream and yogurt.[113] It is becoming one of the most used natural ingredients in the beverage industry worldwide. It is worth noting that date syrup is used in the market synonymously with date honey (although scientifically date honey is different), dibs, dhibs and molasses.

The date syrup market is considered at its infancy stage.[114] However, the global market size is currently estimated at USD 340 mn, 70% of which is dominated by the Middle East and Africa region, mainly GCC countries. From 2016 to 2020, the global market grew at a CAGR of 4.7%. Demand is predominantly in the food and beverage industry (with a market share of 58% in 2021), in addition to other subsectors such as retail/households, the food services industry, nutraceuticals, and cosmetics. [115]

The growth in market size can be attributed to health awareness and rising consumer demand for nutritious products, healthy products with labels like "organic" or "non-GMO", natural sweeteners in food and beverages, and nutraceutical/medicinal foods, as well as the surge in home-baking worldwide especially after the COVID-19 lockdowns, in addition to the syrup's high functionality, long shelf life and its compatibility with online retail, which is also growing. [116]

The global date syrup market is expected to double in volume from 2021 to 2031, to reach USD 630 mn, with a CAGR of around 6.5%, led by South Asia (at 8.8% CAGR) and East Asia (at 8.4% CAGR)[117]. In South Asia, India has high potential due to increasing disposable income, a high consumer base, urbanization and the impact of social media. It accounts for 30% of the region's market and is expected to reach a USD 25 mn market size in 2031. In the Middle East and Africa region, the GCC countries' market is expected to grow at a CAGR of 6.5%. In North America, the US is expected to account for 80% of demand, at a projected CAGR of 6.5% over the next 10 years, thanks to demand for nutraceuticals and the size of the food service industry. The food and beverage industry is still expected to dominate the global market share.[118]

Top 5 global manufacturers of date syrup, accounting for 15%-20% of the market :

- Al Barakah Dates Factory LLC
- Parsunday Symbol Co.
- Rapunzel Naturkost
- Ario Co
- Sun Seas Business Group

Source: Date Syrup Market, Persistence Market Research

[113] https://ratinkhosh.com/date-syrup-benefits-and-uses/.
[114] Transparency Market Research, Date Syrup Market - Global Industry Analysis, Size, Share, Growth, Trends, and Forecast 2017 – 2027, https://www.transparencymarketresearch.com/date-syrup-market.html
[115] Persistence Market Research, Date Syrup Market: Global Market Study on Date Syrup: Clean Label, Organic, and Non-GMO Trend Favoring Market Expansion, 2021, https://www.persistencemarketresearch.com/market-research/date-syrup-market.asp
[116] Persistence Market Research, Date Syrup Market: Global Market Study on Date Syrup: Clean Label, Organic, and Non-GMO Trend Favoring Market Expansion, 2021, https://www.persistencemarketresearch.com/market-research/date-syrup-market.asp
[117] Persistence Market Research, Date Syrup Market: Global Market Study on Date Syrup: Clean Label, Organic, and Non-GMO Trend Favoring Market Expansion, 2021, https://www.prnewswire.com/news-releases/demand-for-date-syrup-as-natural-sweetner-to-surge-nearly-6-5-through-2031--301350964.html
[118] Persistence Market Research, Date Syrup Market: Global Market Study on Date Syrup: Clean Label, Organic, and Non-GMO Trend Favoring Market Expansion, 2021, https://www.persistencemarketresearch.com/market-research/date-syrup-market.asp

Manufacturers worldwide are focusing on product development such as the use of organic ingredients (although conventional products constitute the higher market share by far, the organic share is growing at a higher pace), and developing distribution channels, but are challenged by the relatively high cost compared to other popular alternatives such as honey, molasses, maple syrup and corn syrup. The most common distribution channel is, and is expected to continue to be, B2B, followed by hypermarkets and supermarkets and specialty stores.[119, 120]

In Egypt, date syrup has gained in importance in recent years and is becoming more known. It is sold under various brand names in hypermarkets (international chains like Carrefour and Spinneys) and supermarkets, online, and in specialized stores such as Imtenan (specialized in heathy and organic products) and Abu Auf (specialized in nuts mainly and expanding to dates and other products). The field research found that it is currently being produced in Egypt in Siwa as well as in the focus governorates (at the Biahmo facility in Fayoum) and Wahat in Giza (production line installed but yet to operate). There is anecdotal evidence from the field research that the product has a high market potential.

Figure 11: Egyptian date brand product: date syrup (dibs).

In facilities, women workers would be doing the sorting of dates so that the high-grade dates can be packaged and sold in whole (or stuffed or coated), and low-grade fruit goes for processing. Most importantly, local women can be trained on making dibs (at home) as was the case in Siwa, using simple methods like safe heating.

Small local manufacturers can thus seize this untapped opportunity in the market as awareness of and demand for date syrup grows, and as the date fruit ingredient does not have to be of premium quality (low-grade dates can be used) nor is the process complicated.

For well-established processors who are ready to export, it is recommended to focus on India, GCC and USA.

[119] Allied Market Research, Date Syrup Market, 2021, https://www.alliedmarketresearch.com/date-syrup-market-A12955
[120] Persistence Market Research, Date Syrup Market: Global Market Study on Date Syrup: Clean Label, Organic, and Non-GMO Trend Favoring Market Expansion, 2021, https://www.prnewswire.com/news-releases/demand-for-date-syrup-as-natural-sweetner-to-surge-nearly-6-5-through-2031--301350964.html

7. STRATEGY AND ACTION PLAN

7.1.1. Scope and objectives

Given the scope of the project and the nature of the limited-to-negligible role of local women in the planting and cultivation stages of the value chain, the recommendations and action plan focus on the post-harvest stages. The objective of the recommendations is to strengthen and improve the role of women in entrepreneurship and job creation as well as their role as workers in existing enterprises or from home. Since handicrafts are tackled by another project component, they were not thoroughly included in the analysis and are not part of the recommendations. However, handicrafts represent a significant component in solid waste management and the environmental dimension of the value chain (bio-circular economy) as well as green jobs creation.

7.1.2. Main components of the recommended action plan

In light of the findings of the study, it can be said that the role of women entrepreneurs in the date palm sector in Wahat and Fayoum is limited. Their work from home, reliance on basic processes and the lack of leadership roles indicate that interventions must start at an elementary level. Existing support institutions are willing to take part in the implementation process, with varying readiness levels. Hence, the action plan is built on the following key components:

- **Building partnerships** with support institutions in the field at the central and local level. This stage is when the objectives are aligned, plans are endorsed by all parties and responsibilities are assigned.
- **Building the capacity of existing support institutions** to enable them to better perform their roles and to undertake the interventions during and beyond the project timeframe. See Annex VIII for the preliminary assessment of the support institutions' needs.
- **Awareness**-raising interventions that target the community at large as well as women in order to create a large base of potential women entrepreneurs who would be able to run their businesses sustainably.
- An **incubation** program that would provide its services to the entrepreneurs at different stages of business development as well as their workers. These services include:
  - **Training** on the various stages from ideation and start-up to business growth. Due to the cultural norms that have led to limitations on an active well-established entrepreneurial role for women in the date palm value chain in Fayoum and Wahat, the action plan does not include a training needs assessment stage. Likewise, most of the training topics suggested are standard and only a few are customized (designed especially for this project), only where technical specificities should apply. Otherwise, it is recommended that all women start their training at the basic knowledge and skills level . Even though the presence of the local University of Fayoum would help create entrepreneurship among educated young women, the absence of established women-led businesses in the date palm sector indicates a need to start from scratch with all women. Upon implementation of the project interventions, only some of the established businesses will be better performing and will be scalable. Growth-stage training will target these enterprises (e.g. branding and export training). Additionally, the training component includes topics that will target women workers with the objective of improving the work conditions of women, and ensuring they have decent jobs and add value.

- Long-term **technical assistance** and **mentoring and coaching.** Continuing to provide hands-on technical advice to the trained women is believed to be of the utmost importance. Real-life application of the learnings gained during the training and support in problem-solving in the long-term (12-15 months) in relation to the technical and environmental aspects of the business are key. Furthermore, mentoring and coaching on technical and management-related issues are intended to contribute to the sustainability of the support interventions. The existing support institutions will have a key role in these long-term interventions, especially after building their own capacities.

7.1.3. Action Plan

The table below outlines the recommended action plan

#	Action	Potential partner(s)	Timeframe																										Comments
			2022											2023												2024			
			1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	
1.	**Outcome 1100: Increased productivity and job opportunities generated by women entrepreneurs**																												
2.	**Building Partnerships**																												
3.	Approach potential partner support institutions at the central level to discuss the intended actions and each partner's role	- MSMEDA - National Council for Women (NCW) - Food and Agro-Industries Technology Center (FAITC) - Food Export Council (FEC) - Chamber of Food Industries (CFI) - Rowad 2030 - NilePreneur -Independent experts and consultants																												- MSMEDA has extensive experience in the provision of financial and non-financial services to MSMEs, has its own trainers and network of trainers, has a strong local presence in Fayoum, and has experience in dealing with NGOs, and MSMEs. - NCW has access to local women and experience in awareness-raising and understanding the local context in Fayoum. - FAITC would provide information and technical assistance in relation to product innovation and processing. - FEC would provide market information,

#	Action	Potential partner(s)	Timeframe																										Comments
			2022											2023												2024			
			1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	
																													experts for export market training and services such as exhibitions. - CFI would provide local market information, product information and technical assistance, and a network of experts. - Rowad 2030 and NilePreneur would help in the incubation part of the action plan. - Independent experts and consultants would provide the services (awareness session, training, technical assistance and mentoring services).
4.	Approach potential local partner support institutions in Fayoum & Wahat	- Community development associations (mainly Wahet Dar El Salam and Biahmo CDAs) - MSMEDA - NCW - Agricultural Research Center (and affiliates) - Raedat Rifeyat - Fayoum University																											- CDAs will provide access to all local contacts (farmers, processors, workers contractors, and most importantly local women) as well as other resources such as venues for holding events. - ARC local offices would provide technical experts.

#	Action	Potential partner(s)	Timeframe																												Comments
			2022												2023												2024				
			1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3		
		- Entrepreneurship and Heritage Association for Handicrafts (جمعية الريادة والتراث للحرف اليدوية والتراثية)																													- Redat Rifeyat would provide access to local women. - Fayoum University would provide access to young women (students and graduates), researchers, and incubation services. - The Entrepreneurship and Heritage Association for Handicrafts would provide experience from a similar project in Badrashin.
5.	Final agreement with partner institutions at the central and local level	All partners																													
6.	**Capacity-building of support institutions**																														
7.	Identification of institutions	UNIDO																													
8.	Needs assessment	- UNIDO - Independent experts and consultants																													
9.	Design of capacity-building programs	- UNIDO - Independent experts and consultants																													
10.	Implementation of capacity-building programs	- UNIDO - Independent experts and consultants																													

#	Action	Potential partner(s)	Timeframe																												Comments
			2022												2023												2024				
			1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3		
11.	Active role for support institutions in the project interventions	Partner institutions																													
12.	**Awareness-raising**																														Three rounds of awareness sessions for each of the 2 topics
13.	Design awareness-raising workshops on the economic potential and role of women in Fayoum and Wahat	- NCW - MSMEDA - Local community development associations (CDAs)																													Targeting both men and women of the target local communities
14.	Identify and approach target participants of the awareness workshops	- Local CDAs - Raedat Rifeyat																													
15.	Implement awareness-raising workshops on the economic potential and role of women, in Wahat and Fayoum, featuring success stories	- NCW - MSMEDA - Local CDAs - Rowad 2030 -Successful women entrepreneurs																													Respecting cultural norms of Wahat and rural areas of Fayoum, holding workshops at a leading businesswoman's home or the CDA premises.
16.	Implement awareness-raising workshops for women working in the post-harvest stage before processing on proper handling of the date fruit – drying (tansheer), preliminary sorting and hygiene handling	- Raedat Rifeyat - Independent experts and consultants - Farm/workers contractors																													

#	Action	Potential partner(s)	Timeframe																										Comments
			2022											2023												2024			
			1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	
17.	Design awareness-raising workshops on the environmental aspects in the date palm sector	- Local CDAs - MSMEDA - Independent experts and consultants																											
18.	Implement the environmental awareness sessions	- Local CDAs - MSMEDA - Independent experts and consultants																											The targeted participants are those women who are interested in starting their business, in addition to the existing local processing and packing facilities where women work
19.	Implement awareness workshops on good pre- and post-harvest practices before processing (e.g. pruning, bagging, pest control, fumigation, storage)																												This is to make quality dates available for processors
20.	**Incubation**																												
21.	Preparation for launch of incubation programs in Fayoum and Wahat (agreement on the model, selection process, services, topics, areas of focus, etc.)	- MSMEDA - Fayoum University - Rowad 2030 - NilePreneur																											

#	Action	Potential partner(s)	Timeframe																												Comments
			2022												2023												2024				
			1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3		
22.	Launch and provision of services through BDS service providers and support institutions	- MSMEDA - Fayoum University - Rowad 2030 - NilePreneur																													UNIDO would be supporting and sponsoring the incubation program during the project timeframe
23.	**Training**																														Most of the training topics would be implemented with beneficiaries over several recurring rounds
24.	**For entrepreneurs at business ideation and start-up stages**																														
25.	Identify potential women entrepreneurs from the local community (those with the willingness and potential capacity to start a business)	- Local CDAs - Raedat Rifeyat - MSMEDA																													Use the participants of the awareness workshops as a pool to select from, in addition to the local partners' efforts
26.	Implement standard entrepreneurship skill courses for potential women entrepreneurs in Fayoum and Wahat, including basic information on business establishment in Egypt (e.g. MSMEDA's OSS)	- MSMEDA																													Respecting cultural norms of Wahat and rural areas of Fayoum, holding workshops at a leading businesswoman's home or the CDA premises
27.	Implement standard financial literacy training to enhance women entrepreneurs' access to	MSMEDA																													

#	Action	Potential partner(s)	Timeframe																										Comments
			2022											2023												2024			
			1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	
	finance (banking and non-banking)																												
28.	Implement interpersonal skills training (with special focus on communications and negotiations skills, strongly needed for women dealing with other market actors)	MSMEDA																											Target potential women entrepreneurs as well as women workers in existing facilities
29.	Design product and market development courses for fruit-based date products, specific to the short-listed products	- FAITC - FEC - CFI -Independent experts and consultants																											Scheduled following the entrepreneurship courses to take into consideration the expected level and specialty of target women. Topics would include: - The different innovative products that can be made, the processes involved, and skills needed (including basic hygiene and food safety issues relevant to these products) - Methods to generate, evaluate and test product ideas - Planning for production and monitoring success - Sources of market information and

#	Action	Potential partner(s)	Timeframe																										Comments
			2022											2023												2024			
			1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	
																													support institutions to reach out to - Relevant regulations (minimal acceptable compliance level) - Basic marketing mix (product, pricing, promotion and distribution) - Market segmentation - Basic marketing strategies
30.	Implement product and market development courses for fruit-based date products	-Independent experts and consultants - MSMEDA -Local CDAs																											Source participants from the graduates of the entrepreneurship course
31.	Implement standard food safety & hygiene training for entrepreneurs, key staff and/or workers in the fruit-based date processing facilities	-Independent experts and consultants - MSMEDA -Local CDAs																											Target potential women entrepreneurs as well as workers in existing facilities
32.	Implement standard occupational safety and health (OSH) training for entrepreneurs, key staff and/or workers in the fruit-based date processing facilities.	-Independent experts and consultants - MSMEDA -Local CDAs																											Target potential women entrepreneurs as well as workers in existing facilities

#	Action	Potential partner(s)	Timeframe																										Comments
			2022											2023												2024			
			1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	
33.	Implement standard training for women workers on technical topics (date sorting, stuffing and coating techniques, using machines, and packing)	-Independent experts and consultants - MSMEDA -Local CDAs																												
34.	Design courses on the environmental impact of, and good practices in, fruit-based date processing	-Independent experts and consultants - FAITC																												
35.	Implement training courses on environmental impact and good practices for entrepreneurs, key staff and/or workers in fruit-based date processing	-Independent experts and consultants - MSMEDA -Local CDAs																												
36.	Implement a standard training on innovation in the food industry with special focus on date products	-Independent experts and consultants - FAITC - CFI - FEC - Local CDAs																												
37.	**<u>For entrepreneurs at the business growth stage</u>**																													
38.	Implement standard training on branding for entrepreneurs with high potential	-Independent experts and consultants - FEC - MSMEDA - Local CDAs																												

#	Action	Potential partner(s)	Timeframe																										Comments
			2022												2023												2024			
			1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	
39.	Implement standard export training for entrepreneurs with high potential	- Independent experts and consultants - FEC - MSMEDA - Local CDAs																												
40.	**Technical assistance and mentoring**																													
41.	Provide hands-on technical assistance to women entrepreneurs	- MSMEDA - Food experts																												Includes the relevant environmental aspects
42.	Provide ongoing business mentoring and coaching to women entrepreneurs – existing ones and new ones who start their business	- MSMEDA - Food experts																												Includes the supply chain linkages related to environment-friendly sourcing
43.	Supporting established businesses in participating in local and international exhibitions	- FEC - MSMEDA																												

ANNEXES

List of Annexes:

1. Wahat field mission main findings
2. Fayoum field mission main findings
3. Approximate prices for main Egyptian dates according to 2020-2021 market
4. Estimation of the date palm yield and cost drivers
5. Key potential partner support service institutions

ANNEX I: WAHAT FIELD MISSION MAIN FINDINGS

Farming:

- The main variety in Wahat is the traditional Siwi date (mostly small farms), with new investments in large farms in Medjool and Barhi.
- Applying good agricultural practices is a major challenge in Wahat. Efforts to apply these practices (e.g. curving and bagging) are taking place and are yielding technical results but farmers are yet to grasp the financial benefit.
- Farms are owned by men. Even if a woman inherits part of a farm, the ownership and management are automatically transferred to her husband who provides for the family. If she does not have a husband, a male family member provides for her as per the traditional norms and social support system. It is noteworthy that most of the land ownership has not yet been legalized, and even if a woman inherits a legalized farm, she signs the legal paperwork, but the actual decision-making and management is performed by her husband.

Processing

- There are around 40 facilities operating in Wahat, most of them are informal. All of the facilities are basically packing houses, except for one (Joud, an Egyptian-Saudi-Tunisian venture) that has a dibs production line that is yet to start operating. The technology used is so primitive and is the same across all facilities. Local community members confirmed that all facilities are owned by men, as the culture implies men's leadership and limiting women's work to their homes.
- The majority of workers are from other governorates, mainly Menia, especially after a new Wahat-Menia road has been opened. They come in families, where the men find job opportunities, then women might find opportunities too. As far as dates are concerned, the role of women is mainly in traditional drying (*tansheer*, done at home), sorting and packing. As part of Wahat's culture and norms, Wahati women do not work outside of their homes.
- Drying is mostly done by women in homes relying on weather conditions to dry the fruits to the required moisture level (from 30% at harvest to reach 18-20%). Preliminary sorting is done in parallel at this stage, for ripeness stage and exclusion of infected fruits (that are used as animal feed). The traditional way of drying takes around 20 days and increases the possibility of insect/pest infection.
- In packing/processing facilities, women, mostly from Menia, work on sorting and packaging (manual work that requires accuracy). Men work on stages that require carrying heavy loads such as washing and drying.

Handicrafts

- Handicrafts made of date palm by-products are made by women in Wahat but are less developed and require capacity building.
- In handicrafts, local women come over to a woman leader as they gather and work together. The men in the family would allow unmarried girls or married women to do this kind of work as long as it is done at home and the lady is taking care of her children at the same time. All girls and women learn to do these handicrafts.

Summary of figures obtained during the field visit to Wahat, April 2021 (as per interviewees)

Pollen grain viability evaluation required level	70%-80%
Optimum number of palm trees per feddan (8x8)	64-65
Years for a new tree to start producing (bashayer)	3 years
Additional years for a tree to produce commercially (after bashayer)	3 years
Most productive age of a female palm tree	10-25 years
Productive years of a female palm tree	up to 50 years
Total annual cost of 1 palm tree excluding irrigation	EGP 100-150 a year
Total annual cost of 1 palm tree including irrigation, in new farms	EGP 300-400
Date price from the farm	EGP 10/kg
Attainable/optimum date production per palm tree a year in Wahat	150-200 kg
Water consumption per palm tree in a season, using drip vs. flood irrigation	7k:25k liter
Moisture level at harvest	30%
Moisture level at drying stage	18-20%
Number of days to traditionally dry harvested fruit (tansheer)	20 days
Number of days in the improved model for drying harvested fruit (greenhouse with thermal curtains)	around 10 days
Fruit infection rate without good practices (bagging)	up to 30%-40%
Accepted infection rate in exports	6% Grade I, 12% Grade II
Infection rate in good practices (bagging mainly)	Almost zero
Bunch bag price	EGP 10
Bunch bag expected life	4 years
Tree climber cost per tree for curving, bagging or harvest	EGP 35
Average number of bunches per tree	20
Export subsidy per ton (enjoyed by direct exporters)	around EGP 800
Plastic basket capacity	25 kg
Plastic basket expected life	up to 10 years
Plastic basket price	EGP 40
Midrib basket capacity	20 kg
Date selling price, early season, traditional practices	EGP 8/kg
Date selling price, bagged, to Orient (early season)	EGP 10/kg
Export price of bagged dates	EGP 16/kg
Other costs incurred by exporting co. (estimate)	EGP 3
Siwi export price, traditional quality	USD 900/ton
Date selling price, late season, traditional practices	up to EGP 12/kg
Packing house facility capacity	2 batches/day
Packing house facility batch quantity	5 tons
Working woman's packing capacity per day	40-50 packs

Drying process time at a traditional facility	4 hours per batch
Avg. number of workers in a packing house	15
% of women workers in a pack house	50%-60%
Avg. worker's daily wage, women	EGP 80
Avg. worker's daily wage, men	EGP 100
% of unlicensed facilities in Wahat	90%
Wahat refrigerator capacity	EGP 4,000 tons
Wahat refrigerator grant	EGP 17 mn
1 Kantar	45 kg

Note: Figures apply to Siwi date variety

ANNEX II: FAYOUM FIELD MISSION MAIN FINDINGS

SUMMARY OF KEY FINDINGS

Agriculture:

- Palm date agriculture is extremely scattered (only three known farms), with poor farming practices.
- Offshoot nurseries are a potential opportunity for women.

Fruit processing

- Very few packing/processing facilities. Biahmo facility is the only well-established one.
- The one facility that is woman-led, is actually owned by her husband (could not receive the visit because it was maintenance season).
- Women's roles in packing facilities are mainly in sorting and packaging.
- More awareness on the potential role of women's entrepreneurship in innovative date processing is needed.

Handicrafts:

- Midrib crates:
  - The craft is concentrated in Agameyeen village.
  - Almost all families in Agameyeen work in crate manufacturing.
  - It is a family income model where the man cuts midribs and makes the holes and women assemble the pieces. All the work is done at home.
  - Women support their husbands at home (no entrepreneurship or paid employment).
  - Families fall in the chain between suppliers of midribs and traders of crates, and they earn their margin per quantity delivered.
  - Little furniture work is done with the same concept.
  - Sourcing is from other governorates and sales go to almost all governorates.
- Handicrafts (mainly bags, hats, baskets, tissue boxes):
  - The craft is concentrated in Eelam village.
  - Women are highly engaged in the craft. Almost all women learn it from a very young age.
  - They work at home and are supported by their husbands. They spend their income on the family.
  - They source the fronds from suppliers and sell to traders who provide them with the orders. Their margin is per quantity delivered.
  - A relatively high potential/appetite for women's leadership roles as entrepreneurs & traders.
  - There are few role models like Ms. Kamla and Ms. Laila who are well-known traders.
- Suppliers and traders have high bargaining power over workers.
- There is a need for training on entrepreneurship, design, product development, marketing, communication and negotiation skills, in addition to support on access to finance and exhibitions (revenue percentage basis).

Status of women in general:

- Village women are engaged in activities mainly inside their homes but can commute and deal with men when needed.
- City women can be engaged more in activities outside their homes but close to them.

- Microfinance through CDAs is more suitable for women.
- Key role for *ra'edat rifeyatn* (pioneer rural women), CDAs and NCW Secretariat to identify women entrepreneurs, current and prospective.
- More awareness is needed on women entrepreneurship and the existing opportunities.
- Success stories are a key incentive for women to take more active and leadership roles.

Other programs:

- A project funded by Spain focusing on the date sector in Fayoum is planned, in cooperation with local organizations including MSMEDA and the Eelam CDA.
- It is important to coordinate with this project and to avoid duplication of efforts and ensure integration and complementarity of interventions.

HANDICRAFT VALUE CHAINS AS DESCRIBED BY INTERVIEWEES

The figure below describes the processes for making the various handicrafts as describes by the interviewees

Handictafts value chains									
Midribs	Sourcing	Drying	Taking Measuremtents	Cutting & Shaping by machine	Fine tuning the cut and shape by hand	Puncturing (Making Holes)	Glueing	Painting	**Arabisque**
Midribs	Sourcing	Drying	Taking Measuremtents	Cutting (manually or by machine)	Filing	Puncturing (Making Holes)	Glueing	**Furniture**	
Midribs	Sourcing	Drying	Taking Measuremtents	Cutting (manually or by machine)	Puncturing (Making Holes)	**Fruits and Vegtable Crates**			
						Chicken Hutch			
Leaflets	Sourcing	Drying	Sorting	Shredding	Braiding	Shaping & Sewing	**Hats**		
							Bags		
							Baskets		
							Mats		
							Home Accesories		
Leaflets	Sourcing	Drying	Sorting	Shredding	Shaping & Sewing around Rice Straws filling	**Baskets**			
						Bowls			
						Table heat protection mats			
Fibers	Sourcing	Dapening	Disentangling	Twirling	**Rope**				
Fibers	Sourcing	Dapening	Shaping	Sewing	**Broom**				
Empty Bunch	Sourcing	Taking Measuremtents	Cutting	Sewing & attaching to a stick	**Broom**				
							Men		
Whole leaves	Sourcing	Taking Measuremtents	Cutting	Binding with ropes	**Fence**		**Women**		
					Roof		**Both Men & Women**		
					Partitioner				
Trunk Body	Sourcing	Taking Measuremtents	Cutting	Binding with ropes	**Roof**				
					Light foot bridge		**Touristic Products**		
					Pillars		**Basic Products**		

ANNEX III: APPROXIMATE PRICES FOR MAIN EGYPTIAN DATES ACCORDING TO 2020-2021 MARKET

Varieties of dates	Grade	Average prices per kilogram in EGP		
		At producer	At wholesaler	At retailer
Soft varieties				
Barhi	Unified	15	20	25
Zaghloul	Unified	4	6	8
Hayani	Unified	4	6	10
Samani	Unified	3	5	7
Amhat	Unified	2	3	5
Semi-dry varieties				
Seidy	Large, medium	12	16	25
	Small	10	14	20
Siwi	Soft	15	20	25
	Large, medium	10	14	22
	Small	8	12	20
Medjool	Jumbo	60	75	120
	Large	45	60	90
	Medium	35	50	75
	Small	20	30	40
Melkabi Semi-dry	Large	40	60	75
	Medium	30	45	60
	Small	20	25	35
Dry varieties				
Dry Melkabi	Large, medium	25	30	40
	Small	15	20	30
Bertmoda	Large, medium	12	15	20
	Small	6	10	15
Sakuti	Large, medium	12	15	22
	Small	7	12	18
Unknown soft varieties	Unified	3	5	7
Unknown dry varieties	Unified	2	4	10

ANNEX IV: ESTIMATION OF DATE PALM YIELD AND COST DRIVERS

Siwi:

Years	Amount of production of dates	Price	Value of Dates	Number of offshoots	Price	Value of offshoots	Total annual revenue
1	-	-	-	-	-	-	-
2	-	-	-	-	-	-	-
3	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-
5	500	15	7,500	80	250	20,000	27,500
6	1,000	15	15,000	80	250	20,000	35,000
7	2,000	15	30,000	80	250	20,000	50,000
8	3,000	15	45,000	80	250	20,000	65,000
9	4,000	15	60,000	80	250	20,000	80,000
10	5,000	15	75,000	80	250	20,000	95,000
11	5,000	15	75,000	-	-	-	75,000

Total costs:

- Total annual orchard services costs/feddan = EGP 10,000
- Estimated annual depreciation / feddan = EGP 3,114
- Estimated annual general operating costs / feddan = EGP 8,400
- Total annual costs of Barhi = EGP 21,514

Medjool:

Years	Amount of production of dates	Price	Value of dates	Number of offshoots	Price	Value of offshoots	Total annual revenue
1	-	-	-	-	-	-	-
2	-	-	-	-	-	-	-
3	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-
5	500	30	15,000	80	600	48,000	63,000
6	750	30	22,500	80	600	48,000	70,000
7	1,000	30	30,000	80	600	48,000	78,000
8	1,500	30	45,000	80	600	48,000	93,000
9	2,000	30	60,000	80	600	48,000	108,000
10	2,500	30	75,000	80	600	48,000	123,000
11	2,500	30	75,000	-	-	-	75,000

Total costs:

- Total annual orchard service costs/feddan = EGP 20,000
- Estimated annual depreciation / feddan = EGP 4,114
- Estimated annual general operating costs / feddan = EGP 10,400
- Total annual costs of Medjool = EGP 34,514

Barhi:

Years	Amount of production of dates	Price	Value of dates	Number of offshoots	Price	Value of offshoots	Total annual revenues
1	-	-	-	-	-	-	-
2	-	-	-	-	-	-	-
3	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-
5	750	10	7,500	60	800	48,000	55,500
6	1,000	10	10,000	60	800	48,000	58,000
7	2,000	10	20,000	60	800	48,000	68,000
8	4,000	10	40,000	60	800	48,000	88,000
9	6,000	10	60,000	60	800	48,000	108,000
10	8,000	10	80,000	60	800	48,000	128,000
11	8,000	10	80,000	-	-	-	80,000

Total costs:

- Total annual orchard service costs/feddan = EGP 15,000
- Estimated annual depreciation/feddan = EGP 4,114
- Estimated annual general operating costs / feddan = EGP 10,400
- Total annual costs of the Barhi = EGP 29,514

Cultivation cost drivers

Orchard services, including:

- Pruning
- Pollination
- Curving
- Thinning
- Bagging (except for Barhi)
- Harvesting
- Post-harvest operations (Medjool only)
- Removing weeds
- Fertilization

Depreciation, including:

- The well
- Power supply equipment
- Machines
- Equipment
- Tools
- Construction

Annual general operating costs, including:

- Wages
- Energy sources
- Maintenance
- Spare parts
- Raw materials
- Unforeseen expenses
- Miscellaneous administrative expenses

ANNEX V: KEY POTENTIAL PARTNER SUPPORT SERVICE INSTITUTIONS

Name of institution	Key mandate/s	Key services offered to women entrepreneurs	% of women customers accessing services	% of women employees	Types of roles occupied by female employees	Preliminary assessment of gaps & needs
MSMEDA Public/ quasi-governmental Giza Office Established in 2017 and originally Social Fund for Development, established in 1991	The organization responsible for the development of MSMEs and entrepreneurship in Egypt	- Financing, directly and through financial institutions. - Support in preliminary feasibility studies. - Dissemination of information on investment opportunities, production techniques, marketing, franchising, etc. - Consulting related to sourcing equipment, machinery and supplies. - Supporting participation in exhibitions. - Provision of training. - Preserving heritage. - Simplified guidelines for bookkeeping and dealing with public entities. - Financing incubators and accelerators.	- 65% of entrepreneurship training. - 52% of awareness seminars. - 63% of entrepreneurship consultancy. - 50% in financial services. - 23% of OSS services. - 32% of marketing services. - 40-45% of exhibition services. - 45% of employability training. (2018 report)	Chaired by a woman (Minister of Trade and Industry). A huge quasi-governmental organization with a head office in Cairo and branches in all governorates, so women are present across the organization.	Expectation of having women in all departments and branches	- Better outreach to remote areas like Wahat. - Access to market information and trends. - Innovation and technology. - Skills to assess MSMEs' specific needs, not wants. - Skills to customize non-conventional capacity development programs. - Support to local incubation services.
Wahet Dar El Salam CDA NGO Giza (Wahat) Established in 2006	Community development association with social and economic services provided to the local community.	Services include: - Awareness brochures (e.g. on RPW) - Former projects on palm waste management.	Social services are available and accessible to women. Economic services are not that accessible for women due to the fact that women	Very low, if any.	If any, roles would be in social work.	- Awareness about women's potential and socio-economic role. - Awareness about cultural aspects and gender equality. - Access to market information and trends. - Innovation and technology. - Training & TOT especially on

Name of institution	Key mandate/s	Key services offered to women entrepreneurs	% of women customers accessing services	% of women employees	Types of roles occupied by female employees	Preliminary assessment of gaps & needs
			work at home in traditional crafts.			change management, and communication & negotiation skills
National Council for Women Public organization Fayoum & Giza Offices Established in 2000	Protecting women's rights, social justice, gender equality, equal opportunities, non-discrimination and empowerment. It covers all areas of focus, political and legal, economic, and social and cultural.	- Awareness sessions on entrepreneurship & SMEs. - Financial inclusion program (awareness for raedat rifeyat). - Handicraft program. - Awareness program targeting men (indirectly serving women by raising awareness on the part of the men in their lives). - Handling complaints.	100%	100% of members in Fayoum office. 92% of members in Giza office	All roles performed by the office.	- Better access to remote areas like Wahat. - Better hands-on knowledge of women entrepreneurship opportunities. - Better knowledge of and links with support service institutions.
Biahmo Community Development Association NGO Fayoum Established in 1967	To improve the social, environmental and health conditions of the local community.	- Date exhibitions. - Awareness and services for small businesses. - Development of a workshop for girls. - Awareness sessions for rural women.	Around 75%	Around 70%	Women are responsible for the loans management, field coordination, the library, and the nursery.	- Access to market information and needs. - Product development and innovation. - Awareness and training on the role of women and on women's entrepreneurship. - Good agricultural and processing practices. - Environmental impact and green business opportunities.
Food Export Council Quasi-governmental, non-profit representative Cairo	The Food Export Council acts as the link between the private sector exporters and the government. FEC aims to promote and assist the food export sector as well as to	- Advocacy services, such as export constraints and trade agreement application constraints. - Dissemination of market information. - Representing the sector at international fairs. - Hosting events in Egypt,	No more than 10% of entrepreneurs are women. And around 10% of export managers are women.	50%	The Executive Director, exhibitions and member services, and training.	- Sub-sectoral strategies and prioritization. - Enhanced market intelligence and access to detailed market information on the various products in the various markets. - Enhanced role in branding, certification and

Name of institution	Key mandate/s	Key services offered to women entrepreneurs	% of women customers accessing services	% of women employees	Types of roles occupied by female employees	Preliminary assessment of gaps & needs
Established in 1999 (as a Commodity Council back then), services started in 2003	internationally establish the brand "Foods from Egypt"as reputable products. It aims at improving the legislative and business environment for Egypt's processed food industry, by improving the competitive advantage of the sector, as well as strengthening the industry's positive image in the world marketplace.	participating in conferences, workshops, and fairs abroad to have hands-on experience of export requirements across the world. - Promoting the Egyptian food-processing industry as a reliable and reputable business partner for domestic and international buyers, suppliers, government decision-makers and other relevant players.				standardization. - Enhanced outreach to potential women entrepreneurs in remote areas.
Food and Agro-Industries Technology Center (FAITC) Public Research Center Cairo Established in 2001	- Facilitating the provision of integrated technical solutions that respond to the needs of the food and agro industries supply chain. - Enhancing value-addition. - Supporting the development of the sector.	- Technical assistance and consultancy , including product development, design, prototyping and testing, and qualification for certification. - Technology-related services such as technology transfer, on-the-job training, and linking the industry with sources of technology. - Incubation and facilitating access to entrepreneurial skills. - Sectoral services, including dates. - Networking, including with local and international research institutions, and other relevant	Around 30% of entrepreneurs are women, and around 60% of trained workers at factories are women.	40% in the main office, the others are productive units that include male laborers due to the nature of the work.	Technical assistance, labs, quality systems, and financial and administrative affairs	- Access to market information and needs. - Better local outreach. - Linking research to markets. - Understanding of financial feasibility of innovations. - Integration and having a unified sector vision coordinated with different stakeholders. - Better focus on ideas suitable for women entrepreneurs. - Better focus on environmental impacts and on green products.

Name of institution	Key mandate/s	Key services offered to women entrepreneurs	% of women customers accessing services	% of women employees	Types of roles occupied by female employees	Preliminary assessment of gaps & needs
		stakeholders. - Awards for innovative entrepreneurs. - Sensory food evaluation.				
Chamber of Food Industries Quasi-governmental, non-profit representative Cairo Established in 1958	CFI is the official representative of the Egyptian Food Industry, with a member base of more than 3,000 companies. CFI is the platform that represents the processed food & beverage industry before the GOE. Solving and developing every aspect of the business environment that may affect the industry's competitiveness domestically and globally.	- Improving access to technologies. - Promoting food quality standards. - Serving as a networking hub and organizing events. - Providing information on international trends. - Skill development training programs for workers. - Enhancing market access. - Improving Egypt's processed foods industry reputation.	7%	19%	Administrative and technical jobs	- Having an internal strategy and vision for sub-sectors. - Better access to informal enterprises. - Outreach to local women entrepreneurs. - More focus on environmental impact and green business.

Vienna International Centre
Wagramerstr. 5, P.O. Box 300,
A-1400 Vienna, Austria

+0-26026 1 43

www.unido.org

unido@unido.org

UNITED NATIONS
INDUSTRIAL DEVELOPMENT ORGANIZATION