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Analysis of the medicinal and aromatic plant sector in Beni Suef governorate, Egypt

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List of Abbreviations

- *B2B* *Business-to-business*
- *B2C* *Business-to-customers*
- *CBI* *The Center for the Promotion of Imports from Developing Countries*
- *FAO* *United Nations Food and Agriculture Organization*
- *GHS* *The Globally Harmonized System of Classification and Labelling of Chemicals*
- *GoE* *The Government of Egypt*
- *GVCs* *Global value chains*
- *ITC* *International trade center*
- *MAP* *Medicinal and aromatic plants*
- *MOIIC* *Ministry of Investment and International Cooperation*
- *MSMEDA* *Micro, Small and Medium Enterprises Development Agency*
- *NGOs* *Non-governmental organizations*
- *UN* *United Nations*
- *UNIDO* *United Nations Industrial Development Organization*
- *VC* *Value chain*

1. Introduction

This study was developed by MASTECH for Agribusiness Development under a contract with the United Nations Industrial Development Organization (UNIDO) in 2021. UNIDO is implementing a project on women's economic empowerment for inclusive and sustainable growth which aims at increasing women's economic participation in Egypt's private sector as entrepreneurs, employees and agents of change. This project adopts a multi-sectoral approach and combines interventions at policy, institutional and individual levels with a focus on four main target value chains: palm dates, medicinal and aromatic plants, handicrafts, and information and communication services. The expected results of the project are increased female venture creation and productivity, profitability improvements in women-led enterprises, and an increase in the number of new jobs in women-led enterprises.

The purpose of this assignment is to acquire a clear and up-to-date overview of the current structure of the medicinal and aromatic plant (MAP) sector in Beni Suef governorate and related sub-value chains/clusters. This includes identifying the degree of women's integration in the various segments of the MAP sector and the current involvement of key stakeholders at governorate and national levels in the sector. The study provides information and analytical foundations on promising sub-value chains in the MAP sector in terms of growth potential and women's advancement. This will support the groundwork for the project strategy in the MAP sector in Beni Suef.

UNIDO is stepping up its efforts to strengthen agricultural value chains, extend developing nations' food supplies, and improve their access to markets, technology, and investment in response to global challenges. UNIDO has been supporting Egypt for several years to achieve social and economic growth through the promotion of industrial development for employment generation and environmental sustainability.[1] Focusing on the agribusiness sector, UNIDO has implemented several projects in the agriculture sector aimed at supporting rapid growth, building trade capacities and developing the private sector's potential to generate income and sustainable growth.[2] Such interventions include:

- An Egyptian cotton project with the objective to revitalize Egypt's renowned cotton industry while also creating new jobs and business prospects.
- A food-packaging industry project supporting safer food and increasing market access. UNIDO provided preparatory assistance to the packaging industry by upgrading agricultural and food producers through value addition and increased awareness about packaging trends.
- The United Nations' Human Security through Inclusive Socio-Economic Development in Upper Egypt (HAYAT) project: Its goal was to create equitable and sustainable livelihoods while also helping to address economic, environmental, health, and food issues.

[1] UNIDO Open Data Platform https://open.unido.org/projects/EG/projects/
[2] "UNIDO Activities in Egypt" (annual reports 2014, 2015-2016, 2017-2018)

- The Arab food safety initiative for trade facilitation (SAFE): The SAFE project is part of a long-term programme to promote coordination amongst Arab countries toward a synchronized food safety system.
- Inclusive and sustainable development of the tomato value chain: The project aims to support agro-value chains in Egypt by increasing local value addition for – and enhancing the technical capacities of – operators, thereby enhancing their employability and increasing job and business opportunities.
- Youth employability and entrepreneurship in Upper Egypt (Imkan): The project's goal was to help diversify the local economy and increase the employability of young women and men in the Luxor governorate.
- In collaboration with UN Women, UNIDO is implementing an initiative responding to the needs of Egypt during the transition period with a focus on economic growth and social justice – with the objective of increasing women's effective economic participation and empowerment within the context of sustainable development.

Focusing on MAPs, UNIDO ran a successful project titled Upgrading the medicinal and aromatic plants value Chain: Access to export markets. This project was funded by the Government of Switzerland and aimed at increasing the quality compliance of MAPs with international standards as well as increasing access to international markets. The project targeted four main governorates in Egypt: Fayoum, Beni Suef, Minya and Assuit. UNIDO's previous projects in the agriculture sector had indicators toward challenges and bottlenecks impeding the sector's development, including the gap between primary production and further processing, low value addition, high post-harvest losses, and the lack of technical knowledge and market information.[3]

In close collaboration with several international agencies, the Egyptian Government paid great attention to women's economic empowerment and financial inclusion. There are several national initiatives to promote women's financial inclusion and entrepreneurship. Among these initiatives, MSMEDA is one of the leading institutions for the development of small enterprises through the extension of financial and non-financial services.

The MASTOURA lending project is one of the examples of the governmental interventions to support the women economy. It was launched by Nasser Social Bank, in collaboration with Tahya Masr Fund, at the end of 2017. It aimed at fighting unemployment and economically empowering women through the provision of revolving soft loans for the establishment of microenterprises. This initiative has helped women establish over 18,000 projects using more than 301 million Egyptian pounds; the project included household production, livestock and small and micro projects in many Egyptian governorates.

Besides facilitating access for women entrepreneurs, the government of Egypt has also worked to remove obstacles related to establishment of a business in the country. One of the latest initiatives is the formation of a modern investor service center by the Ministry of

[3] "UNIDO Activities in Egypt", Annual report, 2014

Investment and International Cooperation (MOIIC), which aims at reducing bureaucratic measures and providing electronic services to investors.[4]

The contribution of investment to GDP has declined since 1980 despite the progressive opening of the Egyptian economy to the private sector, initiated in the 1970s. The investment to GDP ratio in 2017 was 15% which remains lower than other developing economies.. This is the result of limited contribution on the part of the private sector, as compared to public investment, to filling the gap –showing that private investment and public investment are not perfect substitutes for each other. Between 2006 and 2009, investment in electricity, health and education dropped by 23%, 5% and 21%, respectively, mainly due to the reduction in public investment (OECD, 2018). Currently, the financial strategies of the Egyptian government are enabling and supporting investments in the country where many initiatives are focusing on small and medium enterprises and economic empowerment of vulnerable families to contribute to economic development.

The World Bank in 2021 stated that Egypt's macroeconomic stabilization efforts had improved economic outcomes. Real GDP growth has accelerated, and drivers of growth have recently started to shift toward investment and net exports. The natural gas and tourism sectors have become the largest contributors to growth since 2018 after being a drag on growth in the years before that. These two sectors remain vulnerable to external shocks, as demonstrated by the early economic implications of the COVID-19 outbreak (WB, 2021).

In recent years, the development initiatives have shifted from farming systems to agricultural value chains, to improve smallholder production and participation in markets. The focus of value chains consists of the linked set of activities and actors that bring a product from conception to consumers, and on to disposal. The value chain analysis for this report involved collecting information about different value chain players such as farmers, traders, processors and exporters to identify strengths or weaknesses in the coordination of their activities and to examine the power and position of firms in relationship to other actors in the chain. In this study, the consultants focused on the MAP sector value chain, highlighted the current role of women, and proposed interventions to enhance their role. The participation of women in the value chain is vital for an improved economy and the entire upgrading of the value chain, however gender inequality occurs in the value chain, where the labor force of women is much thinner than that of men. The determinants of this inequality include: lack of mobility, lack of access to markets (and thus an inability to connect to other value chain actors), limited access to resources, and most importantly social norms and restrictions that cause lack of control over decisions taken (NSCE, 2015).

According to the State Information Service report,[5] women in Egypt participate in major agricultural activities and at all levels of production representing an important and significant

[4] "Women Economic Empowerment Study", The World Bank, 2018

[5] "Economic Empowerment of Egyptian Women",2014-2019, SIS published report

role in agricultural value chains. Among rural women the unemployment rate reached 18.8% in 2017 compared to 7.1% for men in the same year. Thus, the Egyptian government is prioritizing the importance of rural women development as it represents the main pillar of agriculture sector development.

2. Overview of the global MAP market

In this section, a description of the global medicinal and aromatic plant market addresses the key markets and profile of MAP sector demand.. The information presented was collected from recent publications and reports of international organizations in the field of trade and export analysis.

2.1. MAP sector profile

Medicinal and aromatic plants are used in many industries and services including food additives, herbal tea, the pharmaceutical industry, and other businesses. The sector is not the largest sector in comparison with other agribusinesses, but it has a significant presence in global markets even if the market size is not big. Total annual Egyptian MAP exports run at around 130 million USD, which has prompted policymakers to focus on them and try to develop the market system in order to enable contribution to national economies.

The figure below illustrates countries with the potential to export MAPs according to the ITC Export Potential Map. China, India and Germany occupy the first three places followed by Egypt. This reflects the importance of the MAP sector for the Egyptian economy.

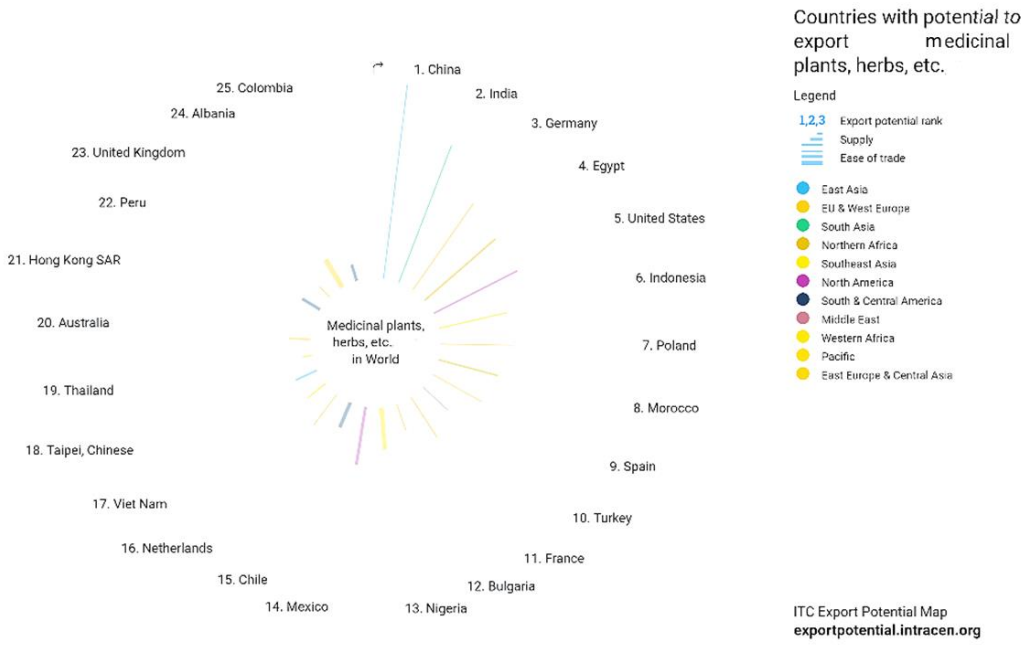


Figure 1 - Medicinal plants and herbs in the world

The following figure shows that the major suppliers with the greatest potential to export essential oils to the world are China, the United States and France. China has the highest supply capacity in essential oils. Egypt comes in 11th, with additional efforts needed to improve its global export rate.

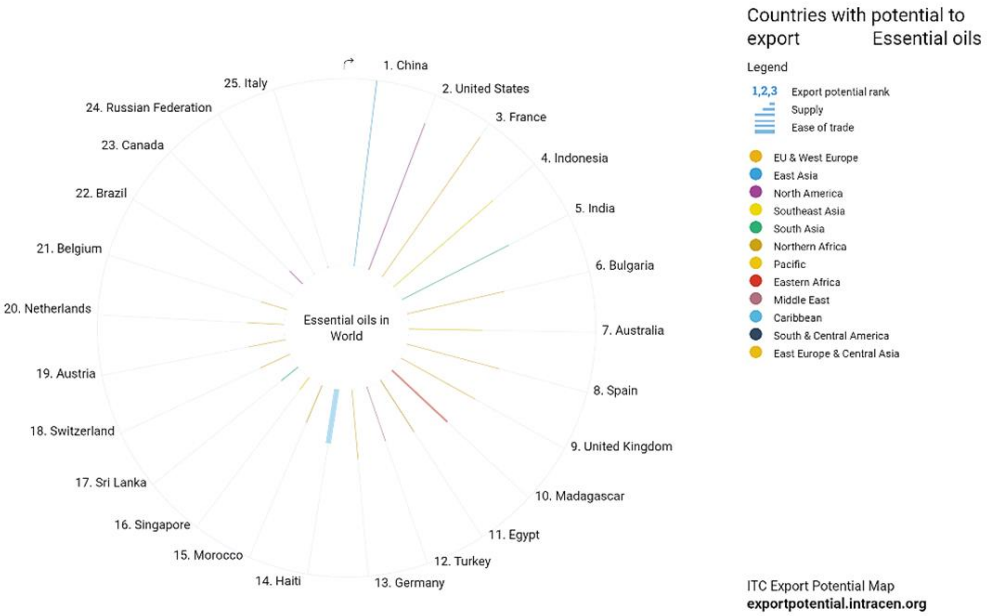


Figure 2 - Essential oils in the world

A study by Bhaskara Rao & Murugan (2021) notes that naturally and artificially produced medicines are consumed to cure short- and long-term diseases. Direct and indirect usage of medicinal herbs require special conditioning and drying. In this study the focus was on solar drying and the effect it has on increasing the quality of dried materials – some of the quality issues of MAPs are related to the oil content in the dried herbs, and microbiological analysis of it. The MAP sector needs solutions in the field of drying techniques especially since the volume of raw materials is enormous and drying them requires large amounts of energy.

Another factor related to the MAP sector profile is activities pertaining to the utilization of MAP residues from distillation and non-utilized parts of medicinal plants. These residual biomasses should not be considered waste; they can be recycled and converted into value-added products. Saha and Basak have studied the potential uses of these residual biomasses as valuable products, including discussion of the technology developed at laboratory scale and their application in industry. Effective recycling of residual bio-mass from MAPs delivers not only economic gain, but is also a practical solution for its disposal. Thus, dual utilization of the residual biomass is of great interest and will open windows of opportunity in the MAP sector (Saha & Basak, 2020). In Egypt, there are current uses of the residual biomasses in the essential oils industry but there is a limitation on such uses and there is a need for studies to identify opportunities.

Spices can be consumed or traded fresh, dried, or crushed/ground. In some cases, spices are transformed into paste form, dipped in brine, or processed into candy, cookies, flakes, beer,

wine, juice, and so forth. Some specialized industries focus on extracting the active ingredients from the spice, such as curcumin from turmeric, capsaicin from chili, oleoresins from ginger, or oils, among others, which are then applied in industrial uses or packaged as dietary or herbal supplements. Demand from this growing consumer segment, along with the growing demand for cosmetics and pharmaceutical products made from natural ingredients, is driving the demand for high-quality spices. The spice industry has developed sophisticated systems for granular testing and traceability to meet the quality requirements of discerning consumers and the increasingly stringent product standards required by food legislation (Kathuria & Mathur, 2020).

2.2. Global supply/demand key features and trends

Global MAP trade features have been analyzed from previous research and are discussed in this section of the report. In the medicinal and aromatic plant sector the most important exporters to the US are India, China, Mexico, Egypt, Germany, and Turkey. These countries account for about 78.2% percent of total imports in the US market and Egypt is well positioned for price competitiveness among all countries exporting medical and aromatic plants to the US. Egypt is the fourth biggest exporter to America with about 9.6% of total US imports., The market share of Egypt fluctuated between increasing and decreaing during the period from 1994 to 2017 as highlighted by Shaimaa M.N.G. El-Shafey, et. al. (2018).

The power of buyers in Europe has traditionally been strong, but with increasing global scarcity and high prices, the power balance is slowly shifting to suppliers in countries of origin. High prices and growing scarcity will attract new suppliers over time. The expectation is that the European market for most spices and herbs will continue to grow. The European market will continue to provide opportunities for suppliers able to meet the high requirements for quality and food safety as highlighted by the CBI (2015).

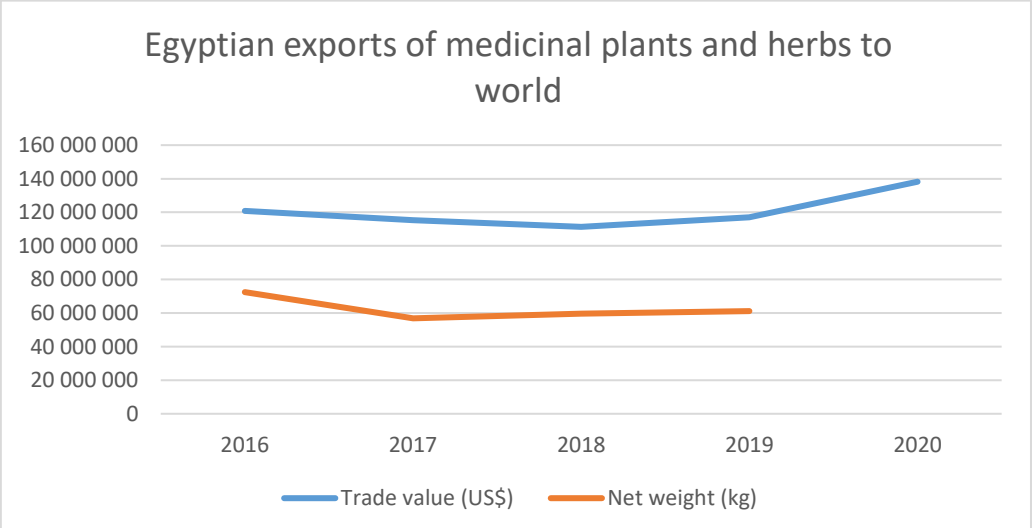


Figure 3 - Egyptian exports of medicinal plants and herbs to the world (UN Comtrade Database)[6]

[6] https://comtrade.un.org/data

Figure 3 shows that the exports of Egypt increased between 2016 and 2020, from 120 million US$ to 140 million US$. However, the quantity of exported materials decreased from 75,000 tons to around 60,000 tons. The increase resulted from price changes while the decreases were caused by difficulties in the supply chain that affected the ability to find good-quality materials complying with international markets.

In order to improve the market position for Egyptian essential oils it is necessary to meet market requirements and any other additional requirements on the part of buyers and niche markets. The global market is marked by strong competition from countries and companies. One of the major destinations for Egyptian commodities is the European Union. According to the Centre for the Promotion of Imports from Developing Countries (CBI),[7] producers and exporters must comply with EU mandatory requirements which include:

- Cosmetic Regulation (EC 1223/2009)
- Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)
- EU Commission Regulation (EU) No 655/2013
- The Globally Harmonised System of Classification and Labelling of Chemicals (GHS)
- Regulation (EC) 1272/2008

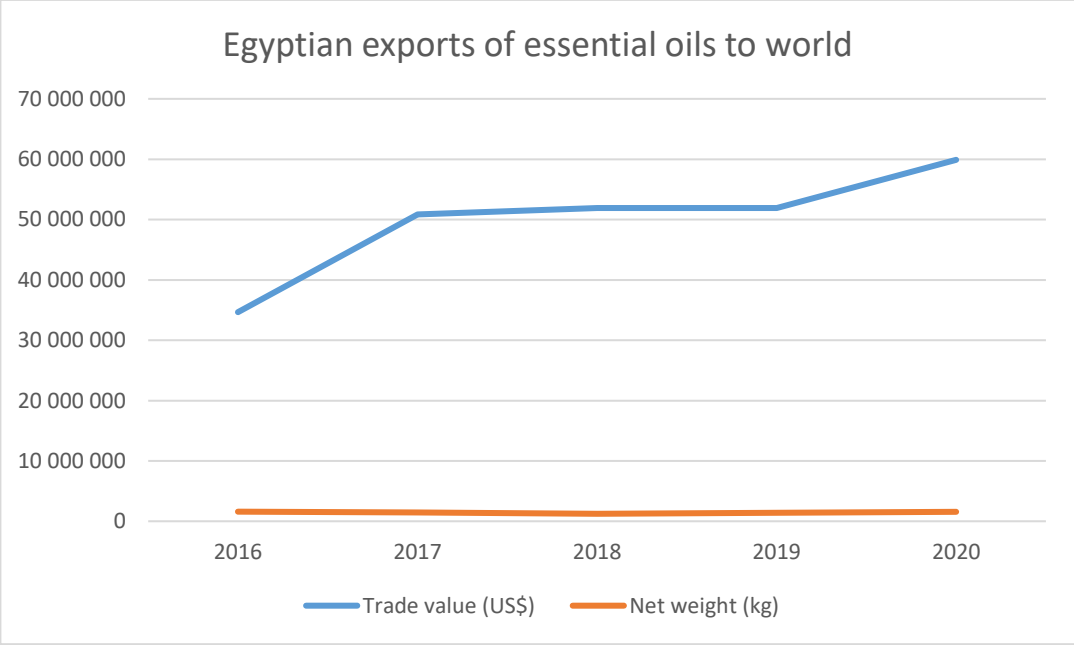


Figure 4 - Egyptian exports of essential oils to the world (UN Comtrade Database)[8]

As illustrated in Figure 4, the trade value of Egyptian exported essential oils increased from 33 million US$ in 2016 to around 60 million US$ in 2020. The essential oil value chain has potential growth that can be achieved through increasing the production and productivity in Egypt.

The participation of Egypt in global value chains (GVCs) is is one of the lowest among its peers, due to the low variation in the composition of its export basket – containing mainly primary

[7] https://www.cbi.eu/market-information/natural-ingredients-cosmetics/buyer-requirements
[8] https://comtrade.un.org/data

commodities and less sophisticated products – whereas GVC growth is concentrated in machinery, electronics, and transportation. Between 2009 and 2018, more than half of Egypt's goods exports consisted of primary and resource-based products, and about a quarter consisted of medium- and high -technology exports. By comparison, in Turkey and Malaysia, medium- and high-technology exports accounted for 42 percent and 58 percent, respectively (WB, 2020).

3. MAP sector in Egypt

3.1. Overview of the MAP sector in Egypt

The UNIDO annual report (2014) highlighted that about 85% of Egypt's MAP production was exported at that time. The MAP sector employs more than 140,000 workers and about 80% of Egypt's MAP production areas are located in Upper Egypt[9].

Medicinal and aromatic plants are of economic importance and a rewarding export return with their multiple uses, including medicine, food industries, cosmetics and perfumes. Despite this, the field of production and export of medicinal and aromatic plants in Egypt has not received sufficient attention at the local level because of crises, local changes, and competition for limited agricultural resources in Egypt. The area of medicinal and aromatic plant cultivation in Egypt increases annually by about 1704 acres, representing about 2.2% of the annual average of about 77,622.79 acres, of which 69.96% are old land and 30.04% are new land. Medicinal and aromatic plant cultivation in Egypt is concentrated in the governorates of Fayoum, Beni Suef, Minya and Assuit, which together account for 57.11% of total cultivation. The governorates of Qena, Luxor and Aswan account for about 26.05%, and the governorates of Behaira and Gharbia about 12.83%, as highlighted in the study of El-Sayed (2020).

Medicinal and aromatic plants are non-traditional, multi-use crops, both in their direct form and in their indirect form, through the extraction and use of active substances in the pharmaceutical industry, the food industry, perfumery, cosmetics and soap, either in the form of pills, plants or medicinal and aromatic herbs. The study examined the productive and economic indicators of the most important medicinal and aromatic plants in Egypt. The cultivated areas of the crops studied declined by 5,1%, with an average area between 3,616 and 3,651 feddans. At the same time, the average cultivated area for basil constitutes about 10,685 feddans, with the average value of exports amounted to about EGP 41.6 million. For quail, this value constitutes approximately EGP 29.1 million. During the period of study, the export value of these crops continued to rise, and increased by 10.6% and 15.4% respectively. The quantity and the value of cumin exported increased as well by 11.8% (Abdel-Hamid, 2019).

[9] "UNIDO Activities in Egypt" (Annual Report, 2014)

Egypt is one of the oldest producers of medicinal and aromatic plants in the world. MAPs produced in Egypt include coriander, fennel, anise, cumin, caraway, geranium, jasmine, mint, marjoram, rose, caraway, chamomile, etc. The major challenges in the MAP sector in Egypt are the fluctuation and instability of the cultivated area, total production and the quantity of exported medicinal plants (Mosallam, 2014).

Demand for medicinal and aromatic plants is notably increasing due to their economic importance in the pharmaceutical and cosmetic industries. Therefore, medicinal and aromatic plants have a significant share in agricultural exports. Nevertheless, chamomile crops require greater attention by farmers and policymakers with regard to fluctuation and instability in the harvested area, production and productivity, and consequently instability in exports, an imbalance in maintaining the sustainability of exports, and thus an imbalance in the Egyptian agricultural trade balance. The average cultivated area reached about 9.68 thousand feddans during the period 2000-2017 while average productivity and total production amounted to about 0.84 tons and 8.36 thousand tons, respectively. Average total costs, farm prices, total revenue, and net return of the chamomile crop amounted to about 3.40, 5.12, 4.48 and 1.003 thousand pounds, respectively. The cultivated area of chamomile is concentrated in on new land in Fayoum, Beni Suef and Assiut governorates, averaging about 933 feddans, representing about 8.27% of total cultivated area in the old and new lands, amounting to 11.28 thousand feddans as the average of the period 2015-2017. The cultivated areas in the new lands in the governorates of Fayoum, Beni Suef, and Assiut represented 80.21%, 4.64%, and 15.15%, respectively, of the total cultivated area in the new lands. Production and marketing costs for a ton of chamomile flowers prepared for export amounted to 9.75 thousand pounds, representing about 72.92% of production costs. The growth rate of exports of chamomile crops during the period 2000-2017 reached 5.11%, and the rate of growth in quantity was about 2.70%, while the rate of growth in price was estimated at 1.86% as highlighted by Hussein Hassan Aly Adam (2020).

The value of Egyptian exports of medicinal and aromatic plants under HS1992 code 0909 (anise seeds, badian, fennel, coriander, cumin or caraway) increased from about 7.78 million dollars in 2000 to about 27.49 million dollars in 2018 with an average of about 15.28 million dollars. Algeria, Germany, Bangladesh, the United States, Morocco and Saudi Arabia are the main markets for Egyptian medicinal and aromatic plants (in the spice seeds group), with 51.183% of the total imports of Egyptian medicinal and aromatic plants (in the spice seeds group), as noted in a study by O. A. Darwish (2019).

One of the processing methods of essential oils is distillation and extraction. The distillation and extraction industry in Africa is relatively small and localized outside of the North African centers of Egypt and Morocco, and Southern Africa (South Africa, Swaziland). New entrants to the industry can find it hard to identify suppliers of equipment in stainless steel, steam boilers, and other necessary materials. The development of the industry in Africa would

benefit greatly if there was greater sharing of information on the location of suppliers (ITC, 2016).

According to the ITC- Export Potential Map,[10] there are some major markets with high potential for Egyptian exports of medicinal plants and herbs. These markets, as shown below in Figure 5, are the United States, Germany and Italy. Although Egypt has strong export links with Jordan, the United States remains the market with the highest potential demand for medicinal plants and herbs.

The major markets with the greatest potential for Egyptian exports of essential oils are the United States, France and the United Kingdom. Although Egypt has strong export bonds with Sudan, the United States remains the market with the highest potential demand for essential oils.[11]

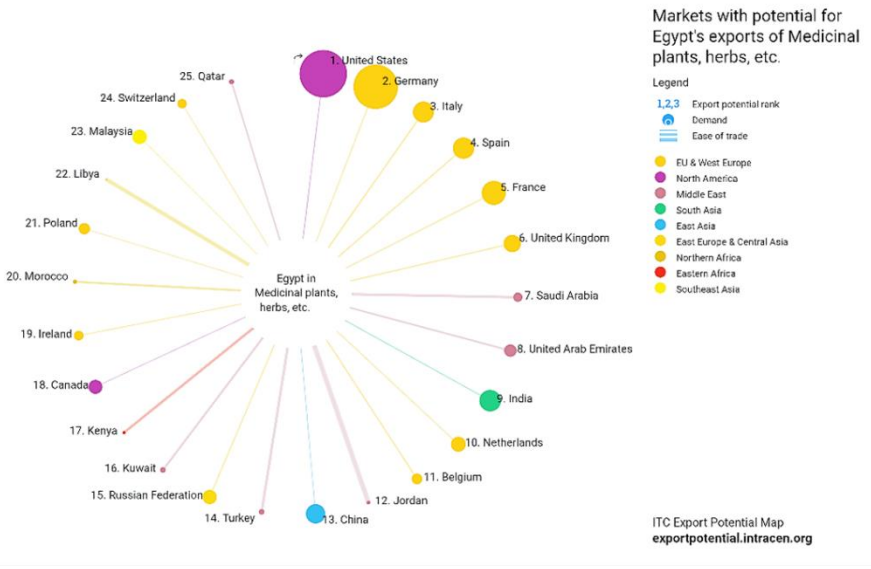


Figure 5 - Markets with potential for Egyptian exports of essential oils

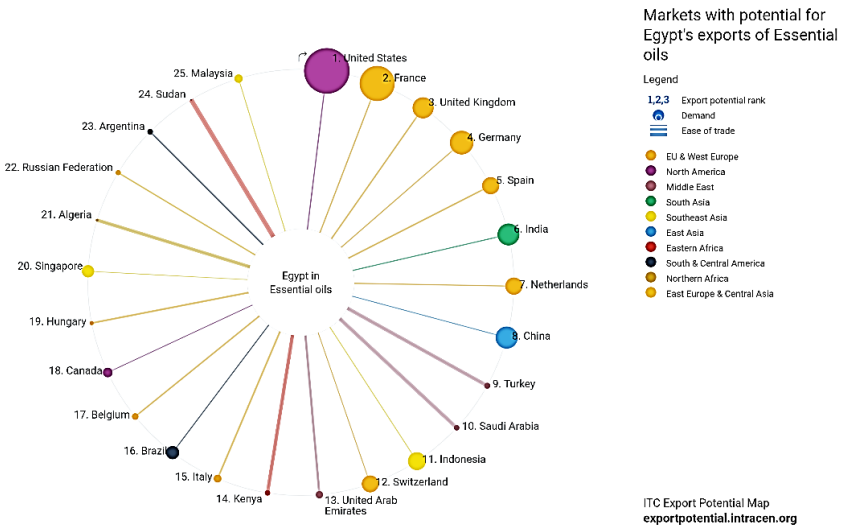


Figure 6 - Markets with potential for Egypt's exports of Medicinal plants and herbs

[10] https://exportpotential.intracen.org/en/markets/analyze?whatMarker=k&what=1211XX&fromMarker=i&exporter=818&toMarker=j

[11] https://exportpotential.intracen.org/en/markets/analyze?whatMarker=k&what=330129&fromMarker=i&exporter=818&toMarker=j

3.2. Overview of the MAP sector in Beni Suef

Beni Suef is considered one of the major governorates producing MAPs and essential oils not only in Upper Egypt but also on the national level. In a recent agricultural census, the cultivated area for MAPs reached 13330 feddan (2020). About 37% of these areas are concentrated in Somosta District, followed by Bebba with 18% and Alwasta with 17%. Geranium is the most cultivated MAP in Beni Suef with an estimated cultivated area of nearly 5,000 feddans, mainly in Alwasta, Naser and Ehnasia Districts. Next come basil (3274 feddan), parsley (1674 feddan), peppermint (1284 feddan) and chamomile (1140 feddan). There are several processing units concentrated in Naser, Somosta, Bebba and Alwasta Districts, including drying facilities (natural and industrial) and essential oil extraction facilities.[12]

A study of a sample of 20 processing units in Beni Suef for distilling medicinal and aromatic oils in the governorate found a net return for the production of essential oils estimated at 40,000pounds for geranium and 33,000 pounds for chamomile (Elsantresy, 2020).

3.3. MAP sector in neighboring governorates

Beni Suef is located between two other major MAP-producing governorates in Upper Egypt, Fayoum and Minya. The two governorates depend on processing facilities in Beni Suef to produce essential oils. The cultivated MAP area in the summer season of 2020 was estimated at 8,228 feddan in Fayoum with major crops (caraway, chamomile, peppermint, fennel). In Minya, the cultivated MAP area was estimated at 17,217 feddan in 2020 with major crops of anise, marjoram, coriander, cumin, and basil.[12]

3.4. Global overview of industrial parks

To address the pollution accompanying rapid industrial growth in China, a National Eco-industrial Park Demonstration Program was launched in 2000. A case study of the Tianjin Economic-Technological Development Area (TEDA) was conducted by Shi et. al. in 2010 where the emergence of an environmental institution in TEDA was used as a backdrop to assess how TEDA had transformed itself into one of the top three national eco-industrial parks in China (Shi, Chertow, & Song, 2010).

The establishment of dedicated industrial estates started in the southern states of India during the 1980s. An exclusive industrial estate for pharmaceutical industries was established in Tamil Nadu State and included the construction of sheds, a common effluent plant, a power plant and other facilities normally required of industrial production as highlighted by Rao (2006).

A mixed-use industrial park is a modern industrial park innovative development approach. In line with this trend, the land use planning of the Sino-Singapore Guangzhou Knowledge City

[12] Beni Suef Governorate, Economic Development Unit, Technical report on the MAP sector in the governorate of Beni Suef, 2020, unpublished report

(SSGKC) provides land relevance, non-interference, and proportion control principles, as well as a discussion of alternative mixing-use modes of commercial service land, residential land, and industrial land. It also proposes a new type of cluster-employing layout to improve mixed land use and finally shape up a new industrial park that well integrates city with industrial park and industry with dwelling as noted Wu & Zheng (2012).

The United Nations Industrial Development Organization (UNIDO) has evaluated 50 parks in eight developing and transition countries against 51 precondition and performance indicators established in the International Framework for Eco-Industrial Parks over the previous two years (International EIP Framework). Colombia, Egypt, Indonesia, Nigeria, Peru, South Africa, Ukraine, and Vietnam are the eight countries that have been covered. The industrial parks evaluated have a wide range of performance. Colombia (68 percent), Indonesia (67 percent), and Vietnam (68 percent) display a higher average current performance against the International Framework (63 percent). Ukraine and South Africa have the most room for improvement (27 percent and 25 percent , respectively). Environmental and social performance categories had lower compliance (34 percent and 44 percent, respectively) than economic performance (72 percent current compliance) and park management (55 percent compliance) across all eight countries, as emphasized by the report (van Beers, et. al., 2020).

South Korea's rapid industrial development over the last few decades has been aided by special economic zones, which have provided major economic and social benefits to the country. This rapid development, however, has resulted in considerable environmental degradation and resulting threats to public health (Kim, 2017).

The Government of Ethiopia (GoE) expects the industrial sector to play an important role in GDP growth, job creation, foreign exchange earnings, and small and medium-sized enterprise (SME) development over the coming years. The development of agro-industries presents Ethiopia with an opportunity to accelerate economic development and achieve its industrial development goals. If addressed correctly, agro-industries can help fulfill the potential of agriculture and advance industrialization in the country (UNIDO, 2018).

4. Methodology

This section of the report describes the research approach to analyze the medicinal and aromatic plant value chain and identify the current challenges affecting its development as well as address the key interventions to be implemented by the project.

4.1. Methodological approach

The consultants conducted a desk review to collect secondary data on the MAP sector and its growth worldwide. The process included a literature review and report collection from major research institutions, UN agencies and development organizations that have worked in the MAP sector and provided support to agribusinesses. The secondary data collection covered trends and indicators that were integrated in the value chain analysis and assisted in the development of a primary data collection plan (illustrated in the following table). The primary data collection tools were developed to collect responses from the interviewees on the current issues and challenges affecting the MAP sector in Beni Suef and their perception of the interventions needed to support the sector. Views included those from farmers, traders, governmental agencies, and other supporting institutions.

The research variables included current practices, understanding of the role of each entity in the value chain, the role of women in the value chain, challenges affecting the development of the sector and perceptions towards establishing an integrated agro-industrial park in Somosta district – a conceptual project under analysis and incorporated in studies by the governorate of Beni Suef.

Table 1 Primary data collection plan

Tool	Purpose	Target VC actors
Interview form	To guide the discussions with the interviewees met during the mission.	Governmental representatives, NGOs, exporters.
Focus group discussion tool	This tool is designed to gather data from groups of producers.	Farmers, and women groups.
Online questionnaire	This tool was communicated over social media and via direct linkages of the governorate, to gather responses on the VC.	Farmers, traders, aggregators, processors, exporters, service providers and others.

As illustrated in the previous table, the consultants developed three tools used in the primary data collection. There were three types of target respondents in the primary data collection:

- Interviewees: the consultants conducted interviews with experts in the MAP sector and governmental representatives as well as non-governmental organizations.
- Structured interviews and focus group discussions: this included meetings with value chain actors as well as groups of farmers and women producers in four districts of Beni-Suef: Somosta, Naser, Beba, and Alwasta.
- Core value chain actors: this segment included farmers, traders, exporters and service providers.

The following figure illustrates the different sources of data and the approach used by the consultants in conducting this study.

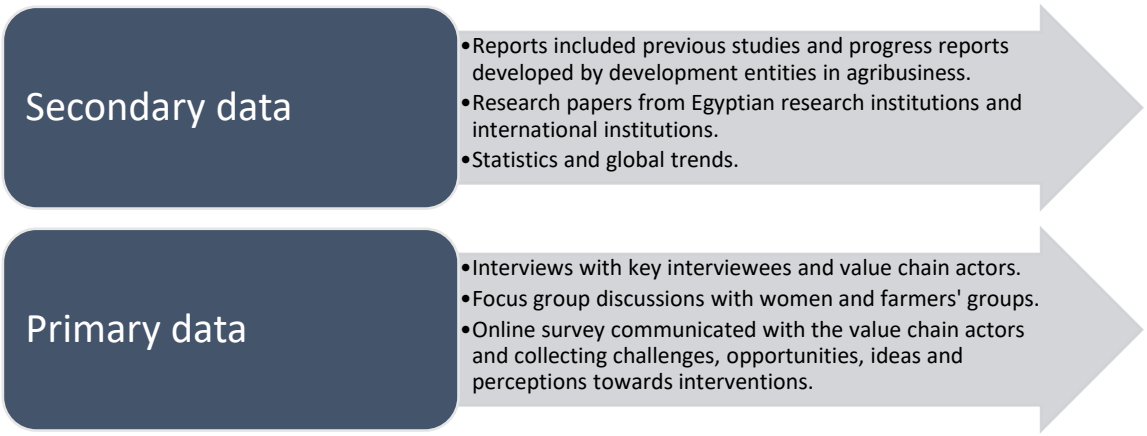


Figure 7: Sources of data

4.2. Desk review

A comprehensive secondary data review was conducted before the design of the primary data collection activities. This included a revision of the published studies related to the MAP sector in Egypt with a specific focus on the situation in Beni Suef. This activity was conducted in June 2021. The desk review provided background information on the medicinal and aromatic plant sector in Egypt and worldwide. This activity supported the development of the primary data collection tools which targeted the different segments of the value chain as discussed in the previous section of the report. The following table illustrates the classifications of secondary data which were used in the desk review.

Table 1 - Classifications of the secondary data

Source	Number	Description
Papers in journals	16	Scientific papers covering the MAP sector and the challenges affecting the development of this value chain.
Technical reports	20	Technical reports, progress reports and studies conducted by UN agencies and international institutions on the MAP sector.
Statistics	3	Yearbooks and published annual reports

4.3. Tools

The consultants developed three research tools as explained in the previous section of the report. The first tool was used during the individual structured interviews and respondents were asked to give an overview of the role of his/her institution in the medicinal and aromatic plant value chain. Feedback was collected from the respondents on the importance of the MAP sector in Beni-Suef governorate and the major challenges that are currently affecting the development of this sector. The respondents were asked to list the known supporting institutions that focus on the MAP sector in Beni Suef and the role of women in the MAP value chain and ways to improve this role. The last question of the structured interview tool was on

the perception towards establishing an integrated agro-industrial park in Somosta District and expected challenges that might affect the establishment of such a project.

The second tool targeted focus groups of producers and women in rural areas, via the support of local NGOs and companies in the production areas. The tool was designed to gather information related to the opinions of groups on the significance of the MAP sector, to assist in the development of the Beni Suef governorate. The group's opinions on the main challenges affecting the development of the MAP sector in Beni Suef were gathered. Key supporting organizations and institutions that are focusing on the MAP sector in Beni Suef and their services were identified. The tool also collected feedback on the role of women in the MAP value chain and how this role can be enhanced. The last part of the tool focused on identifying the groups' feedback on the governorate plan to establish an integrated agro-industrial park in the area of Somosta and the expected challenges that might affect the establishment of this project.

The third tool was designed using Google forms and addressed to all the value chain players in the MAPs sector in Egypt. The tool started with an introduction of the purpose of the tool and the type of respondents invited to participate in the data collection, followed by key personal detail questions stating organization, contacts, age, and gender. The tool was addressed to MAP value chain actors including farmers, traders, processors, exporters, and service providers (extension, research centers, input suppliers, consultation firms, development projects and others). The first section of the tool was designed to collect information on the current MAP situation and included questions about: production, productivity, and market size changes in the past 10 years; the effect of current regulations and supporting functions on the development of the MAP sector in Egypt; the challenges currently limiting the development of the sector. The second section of the tool was designed to gather information and feedback on gender aspects such as: ideas on women's contribution in the MAP sector; the common role in the value chain; known women-led businesses; difficulties to integrate women in the value chain; challenges affecting women's decisions in MAP businesses and other factors; common decision-making mechanisms that are followed in the MAP value chain and that reflect the rural community; the limiting factors affecting women's integration in the MAP sector and recommendations to improve this role. The last part of the third tool was designed to gather feedback on the integrated agro-industrial park establishment in the district of Somosta and the expected challenges that might affect this project.

4.4. Qualitative and quantitative data analysis

This study included primary and secondary data collected from different sources as stated in the previous sections of the report. The consultants depended on qualitative and quantitative data analysis that described the situation in the MAP sector and highlighted key interventions to improve the value chain. The primary data was collected from three main sources:

interviews with key informants, focus group discussions and an online questionnaire communicated over social media along with direct connections with the value chain players.

Table 2 - Description of the sample

Research tool	Number of units	Participants	Men	Women
Interviews with key interviewees	16	16	14	2
Focus group discussions	5	59	47	12
Online questionnaire	51	51	44	7
Total	**72**	**126**	**105**	**21**

As illustrated in Table 2, the total number of respondents was 126 – 105 of them men and 21 women. There were 16 interviews with key interviewees comprising respondents from governmental and nongovernmental entities in addition to other value chain players reached during the field mission to Beni Suef. The consultants conducted five focus group discussions with 59 participants, 47 of them men and 12 women. An online questionnaire was developed and reached 51 respondents, 44 of them men and seven women. As illustrated in Figure 9, the overall contribution of women in the sample represented only 17% and this included participation in focus group discussions and filling in the online questionnaire in addition to interviews with the women representatives at governmental and non-governmental bodies.

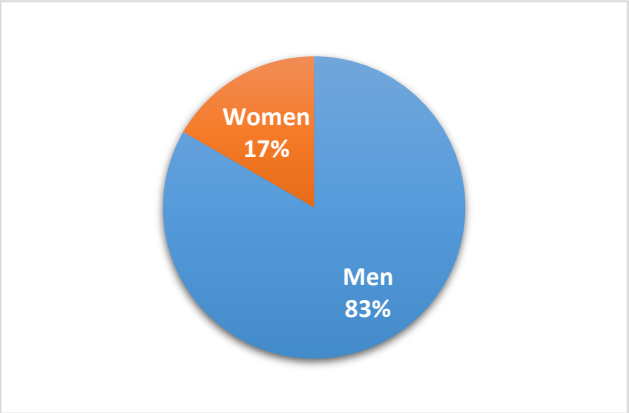


Figure 8 - Gender representation in the sample

4.4.1. Results of the interviews

The consultants conducted 16 interviews with different representatives of institutions and policymakers in Beni Suef. The interviews were facilitated by the economic development unit of the governorate and all interviews were conducted during the field mission to Beni Suef. The results are analyzed in the following points.

Picture 1 - Visit to a processing facility for herbs

Importance of the MAP sector: Most respondents believe that the MAP sector is important for improving the economic situation in Beni Suef. The main economic development factor is an increase in jobs, as the MAP sector is labor-intensive especially at the farming stage and for harvesting. There are no noteworthy

practices for value addition or mechanisms for job creation. All interviewees confirmed the expansion of cultivation in the new reclaimed areas – which creates room for investment and also increases the job offering in the governorate. The respondents confirmed that the sector has potential for development that can be enhanced by regulating the supply chain and support market access.

Challenges affecting the MAPs sector: The respondents felt that currently applied technologies were primitive, and they felt that the sector suffered from limited access to technologies specially in energy efficiency and process development. The local manufacturers in the field of processing machinery were not following proper engineering practices and in most cases they were offering solutions with issues in implementation. The second challenge was difficulties in transforming current business from informal to formal where production sites are established on agricultural land limiting the obtention of licenses. The third challenge is limited access to information along the value chain and this results from the absence of formal extension services. The fourth challenge is limited support from governmental entities in accessing markets (national and international) or regulating the chain which is affected by overlapping and control of middlemen, which in turn affects pricing strategies and distribution of benefits along the value chain. The fifth challenge is difficulties in attaining pesticide-free production, and the need to increase laboratory services – currently, only one place in Egypt is authorized to conduct pesticide residues analysis. The sixth challenge is the absence of contractual farming in most of the value chains in Egypt.

Picture 2 - Visit to a distillation unit

Role of women in the MAP value chain: The respondents emphasized that the role of women in the value chain is limited to waged workers in the cultivation, harvesting and sorting stages of production. There are potential roles for women such as working in laboratory services, export facilitation and management, and running small businesses.

Perception towards establishing the park in Somosta: The respondents had a positive perception towards establishment of an integrated agro-industrial park in Somosta. They said the project would change agribusiness in Beni Suef and would create jobs that might change the economic situation. However, they

Picture 3 - Meeting with MESMEDA

also expected some challenges in the park that might affect their ability to move their businesses to the new site.

The challenges included negative competition between producers, limited financial facilitation, a long wait until the park is operational, an increase in operational costs (especially transportation), an absence of skilled workers and fear of the dominance of big companies.

4.4.2. Results of the focus group discussions

The consultants conducted five focus group discussions attended by 59 participants, 47 men and 12 women. The focus group discussions were facilitated by the economic development unit of the governorate and all meetings were conducted during the field mission to Beni Suef. The results are analyzedbelow.

Picture 4 - Focus group discussion

Importance of the MAP sector: The respondents believe that the MAP sector is essential to improving the economic situation in Beni Suef where the production activities take place. This type of agricultural production is known all over the country and the production/processing of MAPs can be considered a cluster in Beni Suef. The sector has witnessed an increase in jobs, as it is labor-intensive. The respondents said the sector has the potential for development which can be enhanced by regulating the supply chain and supporting market access, which can in turn be achieved by supporting producer groups or assisting cluster leaders in integrating vertically along the chain. This kind of intervention is discussed in the recommendations of this study.

Challenges affecting the MAPs sector: The respondents said they faced four main challenges: limited availability of agricultural inputs, limited availability of machinery, squeezed prices resulting from the effect of middlemen on the value chain and price fluctuations.

Role of women in the MAP value chain: The respondents said the role of women in the value chain was limited to waged workers in the cultivation, harvesting and sorting stages of production.

Picture 5 - Focus group discussion

Perception towards establishing the park in Somosta: The respondents confirmed their positive perception towards establishing an integrated agro-industrial park in Somosta. They expected some challenges, though, that might affect their ability to benefit from it. The challenges included limited financial facilitation, an increase in operational costs (especially transportation), and the absence of the skilled workers.

4.4.3. Results of the online questionnaire

The online questionnaire was designed and communicated during the mission to Beni Suef and was used to gather responses from other value chain players. It reached 51 respondents from the MAP sector and as illustrated in Figure 10 only 13.7% of the sample were women, while 86.3% were men.

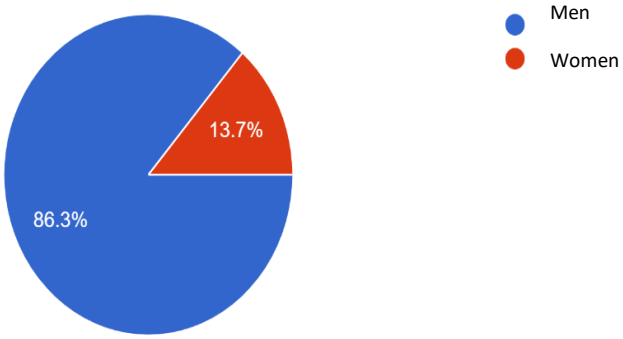


Figure 9 - Gender distribution of the online questionnaire sample

The representation of women in the sample was quite low because of the difficulty of reaching women among the value chain players. The opportunity to meet groups of women

workers was taken when the consultants visited one of the active civil community organizations at Somosta, which is one of the main areas of MAP production in Beni Suef.

Figure 10 - Value chain players in the sample

The sample included different types of value chain player such as farmers, traders, processors, exporters and input suppliers. As illustrated in the above figure, the representation of farmers in the sample was 27.5% while 13.7% of the sample were processors. The traders and exporters each represented the same percentage, 9.8%, and the highest percentage in the sample was 39.2% for the service providers, which included extensionists, consultants from private sector, input suppliers and other service providers for input or information.

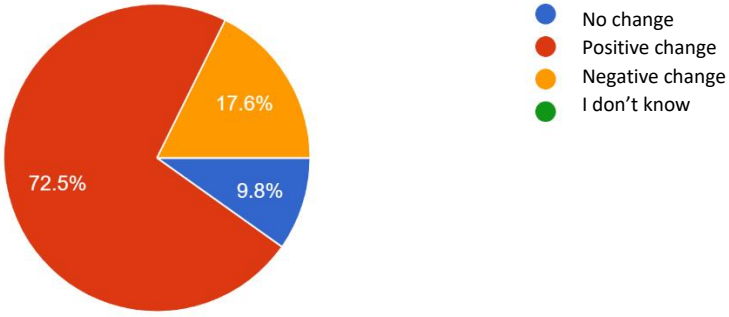


Figure 11 - Opinions on MAP productivity increase per feddan

In Figure 12, more than 72% of the sample said there had been positive changes in MAP productivity per feddan and that this had resulted from the accumulation of experience and availability of input. A total of 17.6% of the sample stated that productivity per feddan had been negatively affected and that this also resulted from the failure to follow crop rotation in the old areas of production.

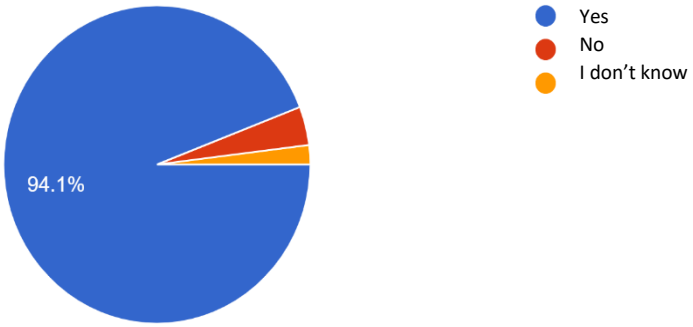


Figure 12 - Opinions on sector growth resulting from cultivation

In Figure 13, the respondents were asked about MAP sector growth resulting from the increase of land cultivation. Over the years, many of MAP producers shifted cultivation to the new reclaimed areas because of contamination of the old fields with pesticides. More than 94% of the sample said there had been a positive change in sector growth while only 3.7% of the sample disagreed.

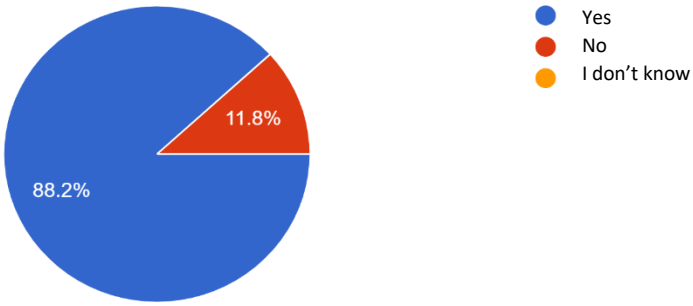


Figure 13 - Opinions on sector growth resulting from market demand

As illustrated in Figure 14, most respondents in the sample confirmed that the MAP sector had been growing because of the increase in market demand: 88.2% confirmed the increase while 11.8% disagreed.

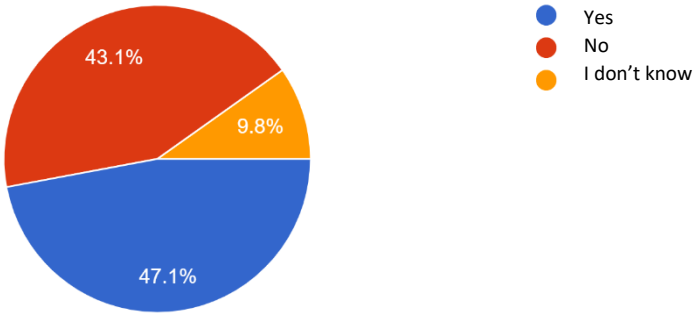


Figure 14 - Opinions on the effect of rules and regulations on the MAP sector

Figure 15 illustrates feedback from respondents on the effect of rules and regulations on MAP sector development. About half of the sample (47.1%) said the rules and regulations were

having an enabling effect on the MAP sector while 43.1% disagreed, saying the current rules and regulations did not support the sector.

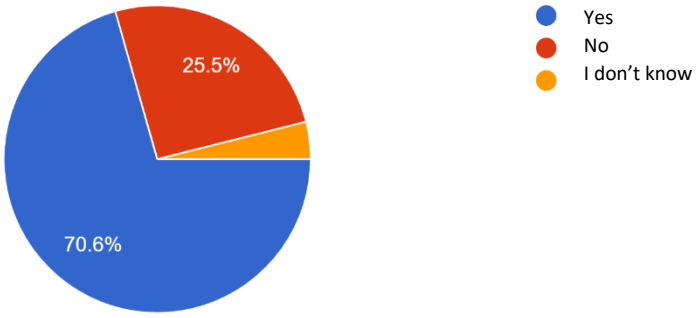


Figure 15 - Opinions on the effect of the development initiative effect on the MAP sector

As illustrated in Figure 16, 70.6% of sample respondents confirmed said the current developmental initiatives and supporting projects were enabling the development of the MAP sector while 25.5% of the sample disagreed, saying that the current developmental initiatives were not supportive of the MAP sector, and that this could be the either because of the absence of supporting services or limited outreach from the developmental programs.

The second section of the online tool focused on gender aspects and the status of women in the MAP value chain. The following figures represent the sample feedback.

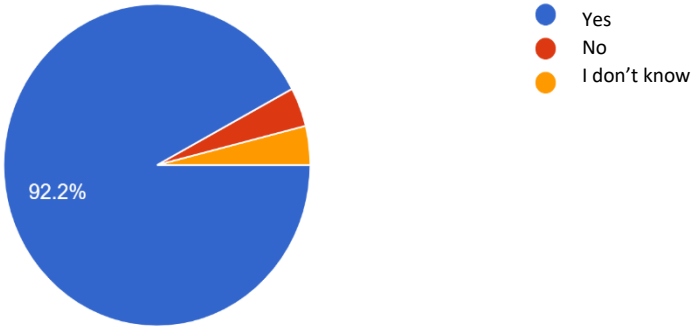


Figure 16 - Opinions on women's contribution to the MAP value chain

The respondents were asked about the contribution of women to the MAP value chain: 92.2% said the integration of women into the value chain would have a positive developmental effect.

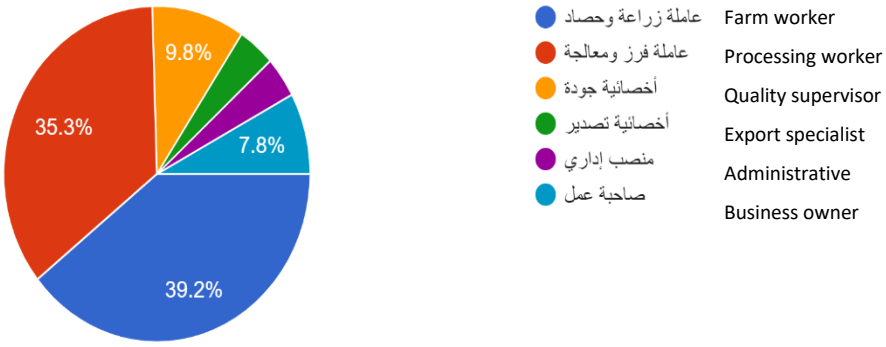


Figure 17 – Common roles of women in the MAP value chain

Respondents were asked about common roles for women in the MAP value chain. As illustrated in Figure 18, more than 39% said their roles were farm-level worker for cultivation and harvesting. About 35% said processing and sorting worker while 9.8% said quality specialists and 7.8% said business owner. The specific characteristics of the MAP sector have an effect on women's integration in the value chain: Some jobs are accepted only by businessmen and some businesses don't accept women at all. The role of women in the chain can be enhanced through market development activities, creating more jobs for women, to facilitate business communication with markets.

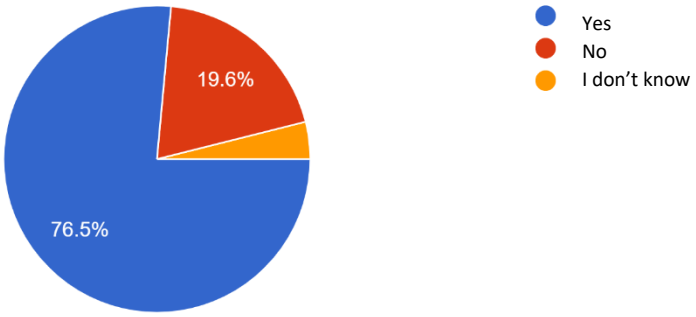


Figure 18 - Difficulties for women in establishing agribusinesses

As illustrated in Figure 19, more than 76% of sample respondents stated it is easy for women to establish businesses and that there are no difficulties in establishing women-headed businesses while 19.6% of the sample disagreed. The idea of establishing businesses doesn't vary between men and women but the social position and expected challenges differ based on each situation.

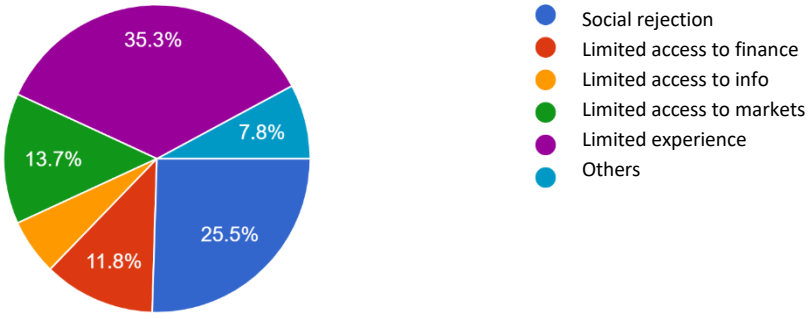


Figure 19 - Challenges affecting the decision of women to establish businesses

In Figure 20, 35.3% said limited experience was a challenge faced by women seeking to establish businesses, while 25.5% said social rejection. More than 13% of respondents said limited access to the market was a challenge while around 12% said limited access to finance was an issue.

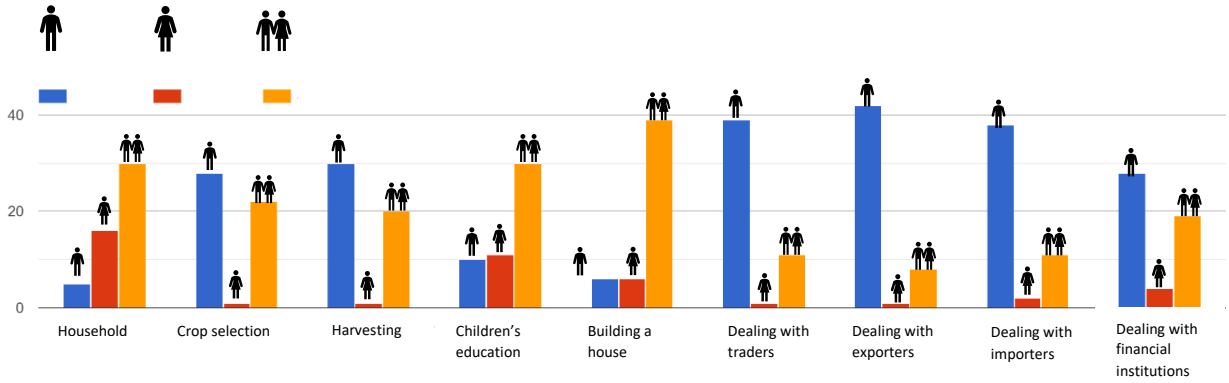


Figure 20 – Decision-making mechanisms

Figure 21 illustrates the different decision-making mechanisms followed by the value chain players with regard to different types of livelihood and business matters. Crop selection, harvesting, and dealing with traders, exporters, importers and financial institutions are dominated by men . Respondents said no decisions are taken only by women even on household-related matters and children's education; they said decisions are taken by both parents. This figure reflects the gender issues in the MAP value chain and maybe other value chains in rural areas where men dominate decisions and limit the role of women to a minimum.

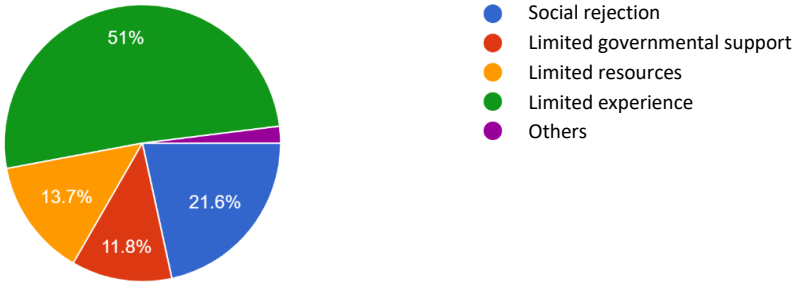


Figure 21 - Challenges affecting the contribution of women to the MAP value chain

As illustrated in Figure 22, more than half of respondents stated that the challenge affecting the contribution of women to the MAPs value chain was limited experience while 21.6% said social rejection, 13.7% said limited resources and inadequate infrastructure, and 11.8% said limited support from governmental institutions. The integration of women in the MAP value chain requires more support from development initiatives to increase social awareness towards gender equality and collaboration.

The third section of the online questionnaire focused on the governmental initiative to establish an integrated agro-industrial park in Somosta. The respondents were asked for their

opinions on the project and the expected challenges that might affect establishment of the project.

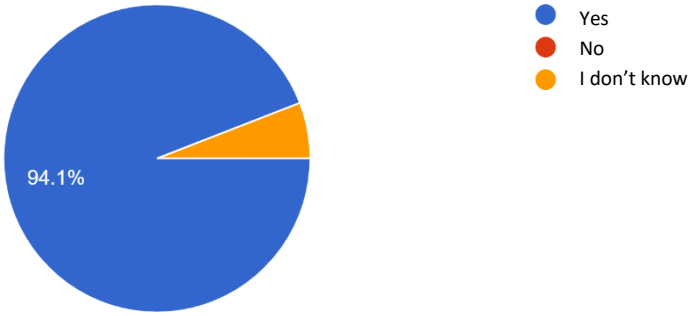


Figure 22 - Opinions on the establishment of an integrated agro-industrial park in Somosta

As illustrated in Figure 23, more than 94% of respondents agreed with the concept of establishing an integrated agro-industrial park in Somosta in a reflection of the importance of having such an area to gather producers and enable agribusiness investors to develop their enterprises. This view was based on an introduction of the project concept to respondents which did not offer a full picture of the project. The concept of establishing an integrated agro-industrial park in Somosta will be discussed in detail in Section 7of this report.

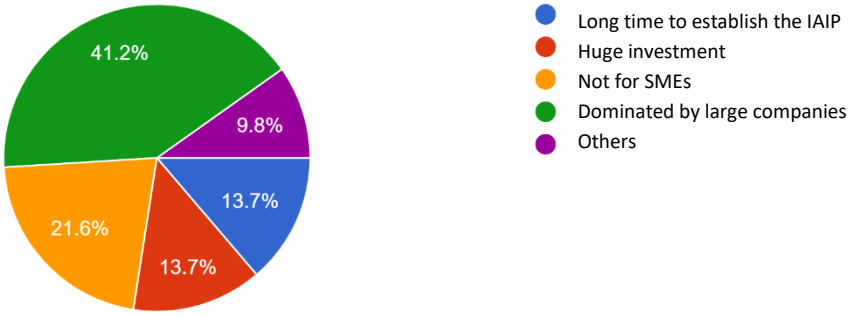


Figure 23 - Expected challenges that might affect the establishment of Somosta IAIP

As illustrated in Figure 24, some challenges were identified from the interviews. A total of 41.2% of respondents were concerned about potential monopolies and dominance of big companies in the IAIP; 21.6% expected that the park would not be open to small businesses. A total of 13.7% said the challenge would be the size of the investment and the length of time till the project is open for investors, respectively

4.5. Gender lens

As highlighted in the previous section of the report, gender issues are visible along the value chain as there are some positions that cannot be filled by women, especially in the dehydration facilities and distillation plants. This is because of the working conditions which include being exposed to high-temperature equipment and heavy-duty work. For some positions women are preferred, e.g. harvesting, sorting, manual cleaning and packaging,

laboratory work and export facilitation – which are discussed more in the recommendations of this study.

5. MAP VC map and main actors

The consultants conducted a full value chain analysis of the medicinal and aromatic sector in Egypt with a focus on the value chains in Beni Suef. This section of the report describes the value chains and their maps in addition to a description of the current roles and women's contribution at all levels of the chains. The study depended on market system analysis which focused on the core value chains and assessed the supporting functions as well as the rules and regulations, to get a full picture of the MAP sector.

5.1. Most promising VCs within the MAP sector in Beni Suef

Based on desk research and secondary, it may be observed that there are two main value chains in the medicinal and aromatic plant sector in Egypt. The first value chain is dried herbs, and this includes seeds, leaves and the flowers of herbs and spices under which the produced items in Egypt are categorized. The second value chain is essential oils, and this value chain includes oils, concentrate and pastes that are produced from medicinal and aromatic plants. Under the two value chains come the different types of herbs known in the international market such as chamomile, calendula, basil, marjoram, mint, coriander, parsley, anise, hibiscus, jasmine, and geranium. The production of MAPs in Beni Suef comes under the two value chains and the production of essential oils in the governorate can be considered a cluster of production in Upper Egypt where most of the distillation units are in the district of Naser, Beni Suef. Each of the mentioned MAPs can be studied separately using the value chain analysis but the idea of grouping all dried herbs and essential oils together was based on the similarities between production activities along the value chains. The dried herbs are usually cultivated, then harvested and dried either naturally or dehydrated with drying machines – a common practice for all dried herbs (flowers, seeds, leaves and roots). The similarities are also apparent in essential oils production, which is based on raw materials that are cultivated and then collected at production facilities.

Picture 6 - Processing facility for herbs

5.2. Herbs

The herb value chain covers a range of production from pre-cultivation of herbs to packaging and exporting to importers. The production of herbs can be classified as bulk production, while business communication with the market is business-to-business (B2B), not business-to-customer (B2C).Production is

mainly centered in Upper Egypt especially in the Minya, Fayoum, Assuit, Beni Suef governorates in addition to some clusters in the Gharbiya, Behaira, Aswan, Qena, South Sinai and Matrouh governorates.

5.2.1. VC map for herbs

The following value chain map illustrates the production activities linked to the value chain players and ends with the marketing channels. The left side of the map shows the production steps starting from pre-cultivation, to marketing, and value chain players are positioned from

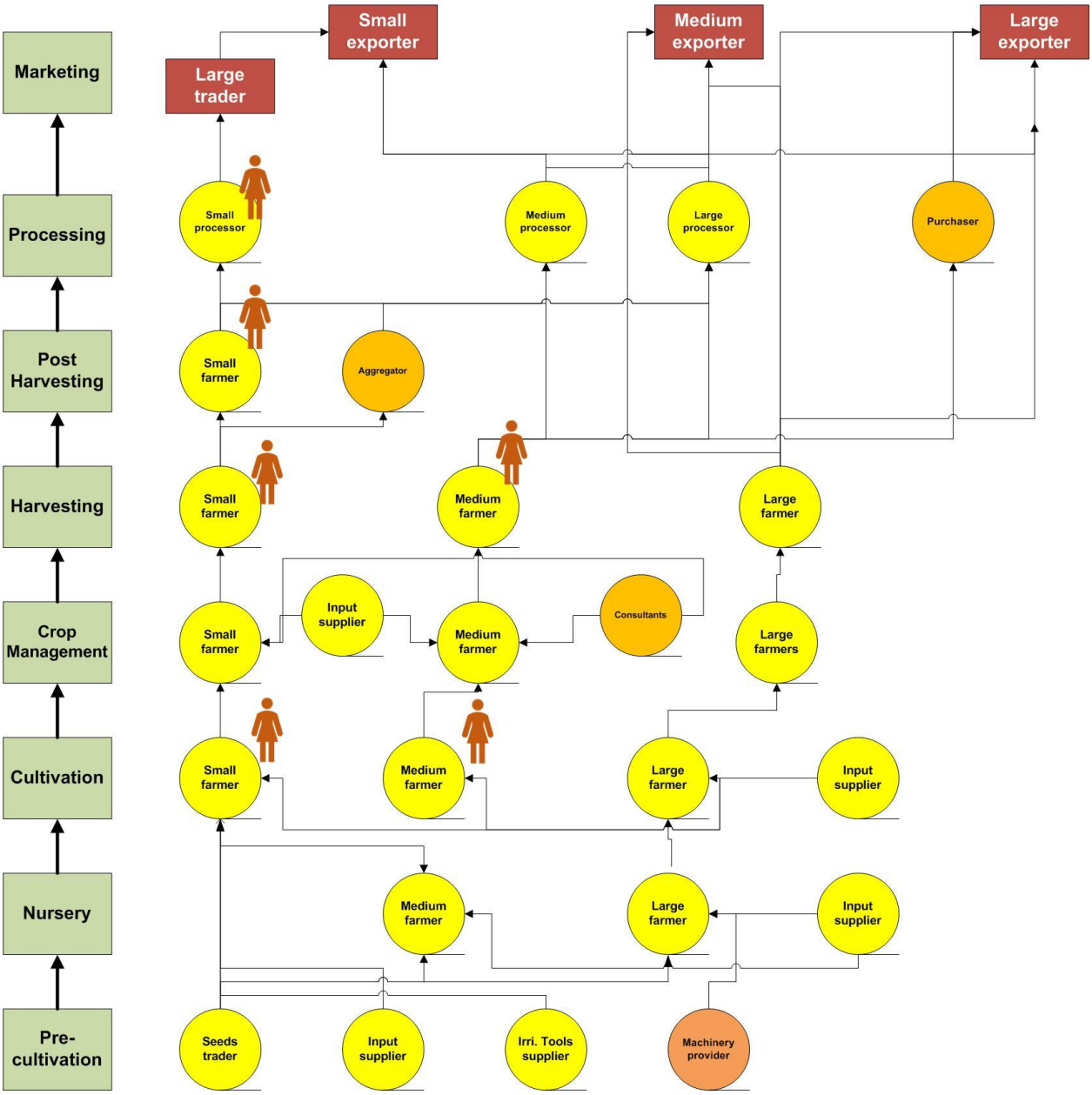


Figure 24 - Herb value chain map

left to right based on their size in the business. The channels are highlighted to show the communication paths and type of markets for each value chain player in addition to the gender icons that represent the position of women in the value chain.

As illustrated in Figure 25, the herb value chain in Beni Suef is complex and has many layers of production levels that include different players along the chain. The chain has three main channels which end with the export market; this is because of the type of plants produced in Beni Suef which are export-driven products. The small-size farmers are those cultivating between 1 to 5 acres, medium-size farmers are those cultivating from 5 to 50 acres, and large-size farmers are those cultivating more than 50 acres. There are mega-projects where farmers produce hundreds of acres, but this type of production is more linked to large companies that have decided to apply vertical integration along the value chain and produce their own raw materials.

5.2.2. Profile of main actors

The herb value chain in Beni Suef has many players at all production levels, as illustrated in the previous section of the report. The players and their role in the value chain is explained in the following table.

Table 3 - Value chain players in the herb VC

Stage	Value Chain Player	Role in the VC
Pre-cultivation	Seed trader	Provides seeds of herbs and transplants or seedlings based on the common cultivation method followed in the area.
	Input supplier	Local trader or agent distributing fertilizers, pesticides and other materials that are used in the soil preparation.
	Irrigation tools supplier	This is mainly in the new reclaimed areas where most of the farmers depend on modern irrigation methods.
	Machinery provider	This role is linked with big farmers and the machinery provider helps the farmers obtain machines that are used in soil preparation and cultivation.
Nursery	Medium/large farmer	Usually farmers with medium and large areas for cultivation where they have room for transplanting plants and producing seedlings to be cultivated in the field.
	Input supplier	This can be a representative of agents and in most cases is linked to large-size farmers who can afford the cost of purchasing inputs for producing transplants.
Cultivation	Small/medium/large farmer	Cultivation of herbs either by direct seeding or using seedlings.
Crop management	Small/medium/large farmer	Day-to-day activities related to crop management such as irrigation, pest control, field surveying, weeding and other activities.
	Input supplier	The input traders and agents selling fertilizers, pesticides, and other inputs.
	Consultants	Consultants are either experts or extensionists affiliated with universities, research centers or extension services. Their role is to provide

Stage	Value Chain Player	Role in the VC
		technical support activities and their number is limited in the sector.
Harvesting	Small/medium/large farmer	Harvesting of the produced herbs.
Post-harvesting	Small/medium/large farmer	Natural drying using wooden cages or sand drying method for some herbs, and dehydration via open dryers (depending on electricity or fuel) for vegetative herbs such as parsley, dill, and coriander.
	Aggregator	Collecting raw materials from farmers and selling them to processors. In some cases, the aggregator adds value to the raw material e.g. via drying or sorting, to increase the quality of products and comply with the quality requirements of the buyers.
Processing	Small/medium/large processor	Cleaning and sorting of raw materials and processing to accepted form for the market.
	Purchaser	A person affiliated with large-size companies and buying raw materials or processed materials from farmers.
Exporting	Small/medium/large exporter	Export materials in bulk containers based on the demand of importing companies.
	Large trader	Traders' own production facilities; they sell final materials to be shipped to importers via small exporters. The small exporters in most cases are not processors and depend on large traders in preparing the shipments.

5.2.3. Constraints and capacity-needs assessment

The herb value chain in Beni Suef faces many challenges addressed through primary and secondary data collection activities. The consultants discussed all the addressed challenges with value chain players and the following table summarizes the constraints and capacity-needs assessment that could be considered by the UNIDO project along with other development initiatives targeting the MAP value chain in Beni Suef.

Table 4 - Constraints and capacity needs in the herb VC

Stage	Constraint	Capacity-needs Assessment
Pre-cultivation	Limited availability of certified seeds.	Supporting the registration of seeds through collaboration with private sector and research institutions.
Nurseries	Absence of certified nurseries.	Supporting the establishment of a nursery certification scheme in Egypt and assisting nurseries with certification.
Cultivation	Limited availability of fertilizers.	Assisting farmer groups such as cooperatives and civil society organizations in their communication with governmental bodies and input providers through a group ordering system.

Stage	Constraint	Capacity-needs Assessment
	Absence of specialized machinery in the market.	There is a need to build the capacity of local manufacturers in the field of machinery to produce small-scale machines that can be used in the MAP value chain.
Harvesting	Harvesting cost and quality issues.	The use of small-scale harvesting tools will assist in cost reduction and will increase the quality of raw materials.
Post-harvesting	Absence of new technologies in drying and extraction.	Find new appropriate technologies that can be introduced to the MAP value chain such as drying techniques and modern extraction systems.
Processing	Limited capacities with regard to local machinery.	Build capacities of local manufacturers to enhance machinery services. Assist young entrepreneurs willing to establish businesses in the field of machinery. This includes cultivation machinery, harvesting machinery, small-scale drying facilities, processing machinery and packing tools and equipment.
Exporting	Negative competition between exporters.	Awareness activities to support the cluster through creation of a regulatory body or support for export institutions in Egypt.
	Limited laboratory services especially for pesticides.	Assist in the establishment of new laboratories in Beni Suef as a logistical hub. The laboratory services needed are mainly for pesticide residue tests which are currently only provided by the Central Laboratory of Residue Analysis of Pesticides and Heavy Metals in Food.

The herb value chain can be supported and developed by the current UNIDO project through implementation of some of the interventions listed under project activities. The following figure illustrates gender constraints and capacity needs to be developed.

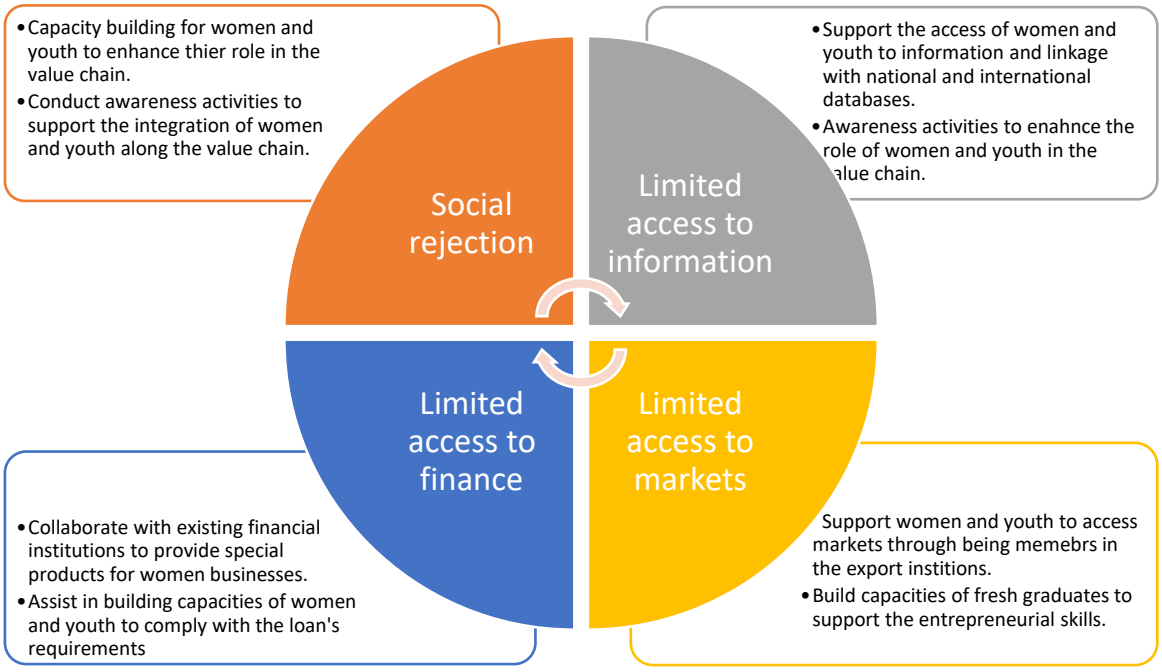


Figure 25 - Gender constraints and interventions

Figure 26 illustrates the main constraints affecting the ability of women and youth to integrate in the herb value chain and proposed support for capacity-building and assist in the development of this value chain.

The project should focus on capacity-building and awareness-raising activities related to entrepreneurship and they should be provided to women and youth in Beni Suef. There are many modules that could support entrepreneurial activities in the governorate such as start-your-business or innovation challenges. The project should target fresh graduates from technical schools as well as universities; the majors could include agriculture, science, pharmaceuticals, engineering, and business administration. The target graduates could establish business services related to market access facilitation, quality certification and other services based on current needs – each type of business would have to be supported with its own training packages. The project could help through collaboration with financial institutions to create special products for women's businesses that comply with the type and scale of their projects and decrease the collateral required to access finance.

5.3. Essential oils

The essential oil value chain is similar to the herb value chain as it ranges from pre-cultivation of herbs, to exporting to importers. The production of essential oils in Beni Suef is primary and the produced materials can be classified as crude oils that can be transformed into other products based on a series of industrial steps. The main production area of essential oils in Egypt is Beni Suef while there are other clusters in Gharbia and Behaira governorates. The common production technologies are distillation systems and solvents extraction. Modernization of production technologies is still not apparent in this value chain in

Picture 7 - Processing facility for essential oils

comparison with international developments in extraction techniques and energy consumption practices.

5.3.1. VC map for essential oils

The following value chain map illustrates the production activities in the essential oils value chain, linked to VC players, and ending with the marketing channels. As explained before, for the herb value chain map, the left side of the map is the list of production steps starting with pre-cultivation, all the way to marketing, and the value chain players are positioned from left to right based on their size in the business. The channels are highlighted to show the communication paths and type of markets for each value chain player in addition to the gender icons which represent the position of women in the value chain.

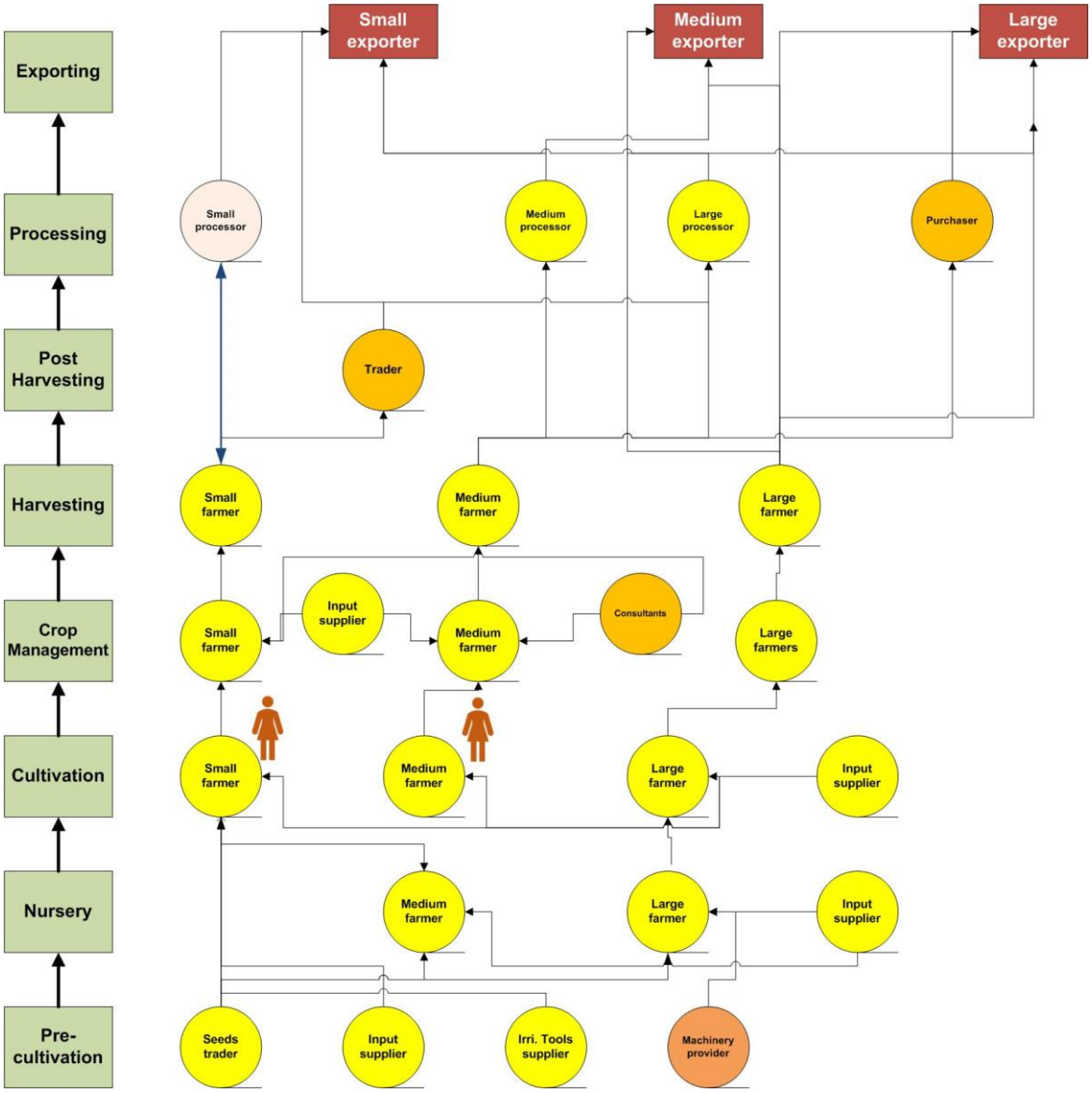


Figure 26 - Essential Oil VC map

As illustrated in Figure 26, the essential oil value chain in Beni Suef is complex and has many layers of production levels that include different players along the chain, but it is less complicated than the herb value chain discussed in the previous section of the report. The

chain has three main channels, ending with the export market, which can be considered as cluster leaders. The small-size farmers are those cultivating between 1 to 5 acres, medium-size farmers are those cultivating from 5 to 50 acres, and the large-size farmers are those cultivating more than 50 acres. There are no mega-projects where farmers cultivate hundreds of acre in the essential oil value chain and there is a limited number of companies specialized in essential oils that have applied vertical integration along the chain.

5.3.2. Profile of main actors

The essential oil value chain in Beni Suef has many players at all production levels as illustrated in the previous section of the report. The players and their role in the value chain are explained in the following table.

Table 5 - Value chain players in the essential oil VC

Stage	Value Chain Player	Role in the VC
Pre-cultivation	Seeds trader	Provides seeds of herbs and transplants or seedlings based on the common cultivation method followed in the area. The production of essential oils might require certain type of seeds such as French basil, which is in greater demand than ordinary basil.
	Input supplier	Local trader or agent distributing fertilizers, pesticides and other materials used in soil preparation.
	Irrigation tool supplier	This is mainly in the new reclaimed areas where most of the farmers depend on modern irrigation methods. Still, this role is limited in the essential oil value chain where most of the production is located on the old lands.
	Machinery provider	This role is linked with large-size farmers and the machinery provider helps the farmers get machines that are used in soil preparation and cultivation.
Nursery	Medium/large farmer	Produces seedlings to be cultivated in the field.
	Input supplier	A representative of agents, in most cases linked to large-size farmers.
Cultivation	Small/edium/large farmer	Cultivation of herbs either by direct seeding or using seedlings.
Crop management	Small/medium/large farmer	Day-to-day activities related to crop management such as irrigation, pest control, field surveying, weeding and other activities.
	Input supplier	The input traders and agents selling fertilizers, pesticides, and other inputs.
	Consultants	Their role is to provide technical support activities and their number is limited in the sector.
Harvesting	Small/medium/large farmer	Harvesting of the produced herbs.
Post-harvesting	Aggregator	Collecting raw materials from farmers and selling them to processors.

Stage	Value Chain Player	Role in the VC
Processing	Small/medium/large processor	Distillation, extraction, and transformation of raw materials into crude essential oils. In some cases, farmers pay for the extraction process and keep the crude oil to sell it on their own.
	Purchaser	A person affiliated with a large-sized company and buying raw materials or crude essential oils from farmers/processors.
Exporting	Small/medium/large exporter	Exports crude oils or extracts based on the production systems owned by exporters. The production of extracts or high-end products is limited to the large-size companies.

5.3.3. Constraints and capacity-needs assessment

The essential oil value chain in Beni Suef faces many challenges addressed through primary and secondary data collection activities. The consultants discussed all the addressed challenges with the value chain players and the following table summarizes the constraints and capacity-needs assessment that could be considered by the UNIDO project and other development initiatives targeting the MAP value chain in Beni Suef.

Table 6 - Constraints and capacity needs in the essential oil VC

Stage	Constraint	Capacity-Needs Assessment
Pre-cultivation	Limited availability of certified seeds.	Supporting the registration of seeds.
Nurseries	Absence of certified nurseries.	Supporting the establishment of a nursery certification scheme in Egypt and assisting nurseries with certification.
Cultivation	Limited availability of fertilizers.	Assisting farmer groups such as cooperatives and civil society organizations with communication with governmental bodies and input providers through a group ordering system.
	Absence of specialized machinery in the market.	There is a need to build the capacity of local manufacturers in the field of machinery to produce small-scale machines that can be used in the MAP value chain.
Harvesting	Harvesting cost.	The use of small-scale harvesting tools will assist in cost reduction.
Post-harvesting	Absence of new technologies in extraction.	Find new appropriate technologies that can be introduced to the MAP value chain such as modern extraction systems.
Processing	Limited capacities of local machinery.	Assist young entrepreneurs willing to establish businesses in the field of machinery.
Exporting	Negative competition between exporters.	Awareness activities to support the cluster through creation of a regulatory body or support for export institutions in Egypt.

The essential oil value chain can be supported and developed by the current UNIDO project through implementation of some of the interventions listed under the project activities. It is

not recommended as the top priority, sincethe value chain has limited room for women and the role of women is only in the cultivation of herbs.

5.4. Support services for the MAP sector

The medicinal and aromatic plant sector in Beni Suef is well-defined and known by most of the supporting institutions which include governmental, non-governmental and development agencies that targeting the sector. The following figure illustrates the support services present in the MAP value chain.

As illustrated in Figure 27, there are many institutions targeting the development of the sector and the following section discusses the services and support offered.

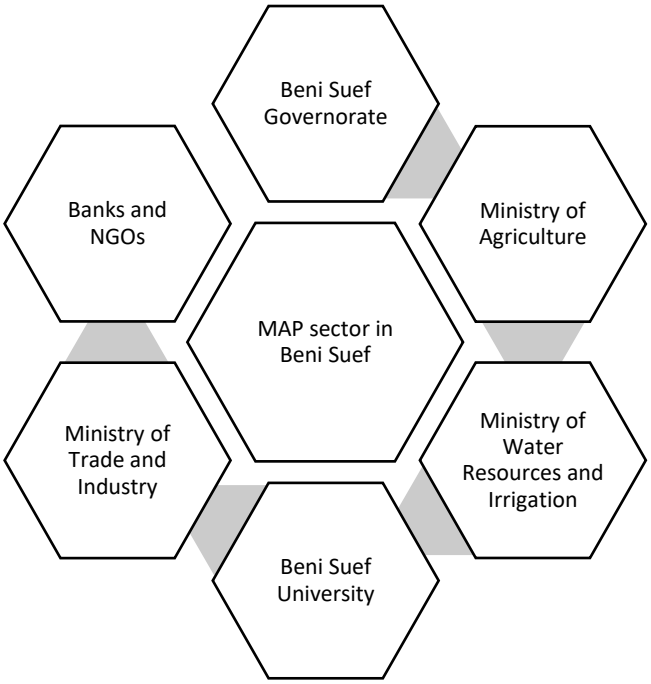


Figure 27 - Supporting services for the MAP sector in Beni Suef

Beni Suef governorate: The Governor's office and all affiliated units consider the MAP sector as one of the most important sectors in Beni Suef. They have conducted many activities that serve the MAPs sector such as offering land for investment, solving electricity problems, and offering industrial plants to those interested in establishing businesses. In addition, the governorate communicates with all the relevant governmental representatives to assist in solving issues and facilitating procedures related to the MAP sector. One of the facilities identified in Beni Suef governorate is the Economic Development Unit which was established as part of a USAID-funded project and conducts studies and assessments that support the governorate in the planning and implementation of projects. There are also other units for investment support and foreign affairs and the governorate is the best partner for implementing developmental interventions.

Ministry of Agriculture and Land Reclamation: A directorate in the Ministry of Agriculture manages agriculture-related activities within the governorate of Beni Suef. The directorate has many facilities that are used to provide technical support, extension services and

distribution of agricultural inputs. One of the facilities in Beni Suef is the Agricultural Research Station in Sids, Beba which has many researchers specialized in the field of MAPs and they can provide support to the MAP sector. This research station is a partner in the implementation of developmental interventions but there is a need to build the capacity of the institute and create a proper business model so the services can be offered in a systemic approach.

Ministry of Water Resources and Irrigation: The ministry has a directorate in Beni Suef and their role is to manage the water sources in the governorate. This includes maintenance of irrigation canals and pumping stations in addition to supporting the water users' associations.

University of Beni Suef: One of Egypt's well-known educational institutions, the University of Beni Suef has many faculties including agriculture, engineering, science, pharmaceuticals and other fields related to the MAP sector. It also has a specialized institute for medicinal and aromatic plants which is well-established and equipped with laboratories and tools. The MAP institute is a potential partner for implementing interventions under the UNIDO project and it has a significant role in the development of products and the conducting of research to assist in the development of the MAP sector.

Picture 8 - Laboratories at the MAP institute

Ministry of Trade and Industry: There is an important role for the ministry and its affiliated units and authorities in the development of the MAP sector in Beni Suef. One of the important arms of the ministry is the Micro, Small and Medium Enterprises Development Agency (MSMEDA) as they have a branch in Beni Suef offering services to agribusiness. The agency is a potential partner, and their services can help the MAP sector achieve target development.

Banks and NGOs: There are many governmental and private banks in Beni Suef offering products that can support the MAP sector but the issue in most cases is compliance with lending collateral – the main challenge affecting access to finance in this sector. The UNIDO

project can identify patterns of collaboration with banking institutions to increase awareness of MAP value chain players about eligibility for access to financing. NGOs in Beni Suef are plentiful and can be potential partners in implementing the interventions to support the MAP sector. One of the NGOs is Misr Elkhair, which implements many economic development initiatives such as providing animals for women, small projects for food processing, food distribution, educational programs, poor family support and marriage support programs for orphans – and they too could be a potential partner with the UNIDO project.

5.5. Institutional framework and regulations in Beni Suef and Egypt

The governorate of Beni Suef follows national regulations and has an array of institutions representing governmental ministries and local authorities. The medicinal and aromatic plant sector is supported by many organizations, institutions and developmental initiatives, as stated in the previous section of the report, but the licensing regulation situation still does not enable development of the sector. Most of the production sites of the MAP sector are in rural areas and established on agricultural land, which is not in conformance with Egyptian regulations. Therefore, many production facilities are not considered industrial areas and are not eligible for support from financial institutions or export incentives. In the district of Nasser, there are many essential oil production facilities, and they depend on diesel for the boilers, but they can't buy subsidized diesel because their facilities have no industrial license. The economic returns don't incentivize producers to move from the rural areas to industrial areas where the cost of transportation is high. Essential oil production starts with the arrival of raw materials and moving from rural areas to industrial areas will affect yield.

The Beni Suef Governorate has supported the MAP sector through facilitation with representing undersecretaries of the relevant ministries. Still, registration and industrial licensing are the key challenges that need to be solved with tailored regulation that considers industry patterns and the economic feasibility of the business.

In Beni Suef there are two main industrial areas that have been established in the past decades: Koum Abou Radi and Bayad Elarab but it's noticeable that the number of MAP processing facilities in the two areas does not account for more than 5% of the number of processing facilities in the governorate. The regulations and cost of operations are a counterincentive to formalization of the sector; most of the production facilities have not been formalized.

6. Recommended interventions

The following points summarize the recommended interventions to be followed by the UNIDO project to develop the MAP sector in Beni Suef and enhance the role of women in it. The consultants have listed key activities to engage women in the MAP value chain.

6.1. Interventions to support the MAP sector

Support for MAP value chain players is needed along the value chain and UNIDO can provide capacity-building activities in the modernization of production practices such as extraction techniques, processing, sieving, environmental practices and other areas. The MAP sector needs technologies to increase productivity and decrease costs where appropriate technologies can be introduced.

UNIDO can conduct awareness activities on business development such as market access, producing for markets, supplier development programs and compliance with quality measures such as ISO, HACCAP, and organic certifications to improve the position of Egyptian MAPs in the international sector. Food safety measures need to be present along the value chain which can be achieved through training activities that target farmers, traders, processing facilities and other players.

Collaboration with educational institutions such as the University of Beni Suef and the Medicinal and Aromatic Plants Research Institute can fill the knowledge gap of the MAP sector through development of educational programs. These programs can be professional and academic to serve the MAP sector properly. Some of the programs can focus on laboratory management which includes chemical, physical and microbiological analysis to increase quality control measures at production sites. The laboratory management programs can support technicians to work as lab employees at the exporting companies. This will also create a room for convincing the companies to invest in establishing internal units for quality control. Other programs can be on farm management and how to maximize the productivity of MAPs and decrease cost. The programs can be developed in consultation with the private sector and integrated with farmer and processor needs to build the capacity of graduates from agricultural, science, pharmaceutical and engineering schools and match them with those needs. Support for researchers in the field of product development can also be achieved through support for educational and research institutions.

UNIDO can provide technical support activities to enhance current MAP practices such as good agricultural practices which can be implemented in the MAP fields. There can also be support for processing facilities to promote good manufacturing practices with a focus on drying and extraction processing sites. Energy consumption capacities will be needed to support the MAP sector where most of the adopted technical practices do not follow proper engineering concepts or use outdated technologies.

6.2. Most attractive segments for women's advancement

The medicinal and aromatic plant sector in Beni Suef has some key roles for women that have not expanded in recent years. Most of the contribution of women in the value chain comes under the waged worker patterns. The following points are based on the consultants' views on how to attract women and improve their role in the VC – an approach that can be supported by the UNIDO project.

The first segment is export where there is a need for qualified export specialists in the MAP sector in Beni Suef and this is a challenge affecting companies' access to markets. A focus on qualified export specialists can be one of the programs supported by UNIDO to attract women from faculties of languages, business, agriculture, pharmaceuticals and other majors to work in the MAP sector. This kind of job is preferred for women as they can work from home and do not need to be present on the production sites where the environment is more male-oriented. In addition, women are more stable in this position, and they tend to continue as export specialists for longer than men.

The second segment is doing business in the field of input and services: women can play a role in the value chain by establishing input supply shops in the production areas. These inputs shops will offer good-quality fertilizers, pesticides, and other agricultural materials to farmers in nearby locations. Registration and licensing are not difficult but there are requirements that must be fulfilled to get the licenses.

Establishing certified nurseries to provide transplants and seedlings to MAP producers in Beni Suef can also be considered an attractive segment in the value chain. There is no certification scheme for nurseries which can be designed and enhanced by the UNIDO project. The certified nurseries would be a good business opportunity for women along the value chain.

Consultation services are supporting, among others, technology development in the MAP value chain, so this has been identified as an attractive segment for women. The UNIDO project can build the capacity of graduates with a focus on women and increase their technical skills so they can offer consultation services along the chain. This can be also achieved by establishing technical programs responding to technical needs requiring specialized crop consultants, processing experts, drying experts, quality consultants, and product development consultants with expertise in the changing of product form and type. The introduction of new products in the MAP value chain is necessary but there must also be a focus on the main segments of the chain which are related more to herbs and essential oils.

6.3. Interventions to support female engagement and advancement in the most promising segments

The consultants identified the following interventions to support female engagement in the promising segments. These tracks can be followed by the project and can be merged with other implementation activities based on the views of project management.

Establishment of an export-specialized women's program: This will be a certification program that will target graduates from faculties and build their capacities with regard to export management. The program will be associated with technical courses to familiarize participants with key concepts about the products and ways to develop businesses.

Establishment of a women's entrepreneurship program: This training program will be designed to attract women who have graduated from technical schools and faculties and

want to establish businesses. The program will focus on how to develop a project idea, and access information, financing and markets.

Support consultation services: This will involve technical programs to qualify female graduates to work as consultants, potentially linked to the entrepreneurship program, so they can offer services via businesses they run. The program will be designed to cover the current needs of the MAP sector in Beni Suef and will include technical support at a farming level, quality management, drying, processing and product development.

Women in laboratory services: This will support MAP companies willing to improve their laboratory services which include microbiological, physical, and chemical labs. In most of companies, there are quality management units, and they can be supported by female graduates after they have received proper training to increase their skills and ensure they match the company's needs.

Skilled labor program: This program will target women waged workers along the value chain and increase their skills through technical trainings to improve their position in the value chain. The program can be associated with a professional licensing system that can be developed by UNIDO.

7. Governmental initiatives

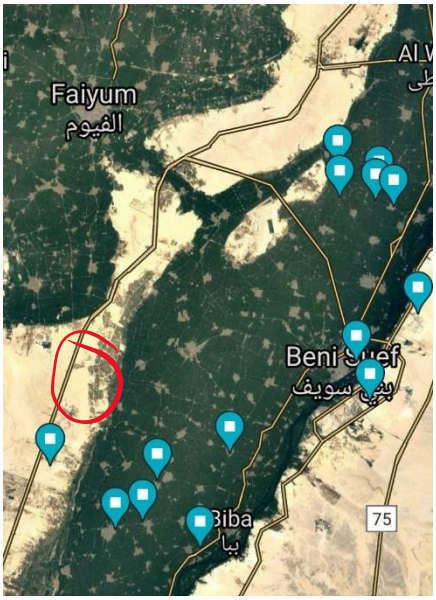
The government of Egypt is seeking to improve the socioeconomic situation in Egypt through economic empowerment of youth, investor support programs, social protection networks, decent life initiatives and other initiatives. The Governor of Beni Suef and his team have promoted an initiative to establish an integrated agro-industrial park in the area of Somosta and this has been shared with UNIDO in Egypt with a view to obtaining technical guidance.

7.1. Governorate proposal for an agro-industrial park in Samosta

The Governor of Beni Suef is studying a proposal to establish an agro-industrial park in Somosta District on a plot of about 300 acres. The place is accessible and located on the western desert road that links Cairo and Aswan. The location is good and can attract investors in projects related to the food and agro industries. The proposal holds potential for successful planning and implementation since there is the possibility of expansion in the area surrounding the site. There are also logistical advantages in the fact that the location is also near production areas in three governorates and regional roads linking to the main ports of Egypt.

Picture 9 - Visit to the proposed site of the IAIP

There was a historical move in the governorate of Beni Suef by the former governor to establish a specialized city for medicinal and aromatic plants, but the project was ambitious and required investments beyond the capacity of the MAP sector itself. Therefore, there is a real need to study the proposal to establish the integrated agro-industrial park in Somosta and not focus only on MAPs.



Picture 10 - Location of the IAIP and production locations

During this assignment, the consultants received full support from the Governor's office and especially the Deputy Governor and the economic development unit of the governorate. Several visits were arranged by the governorate team and the mission was facilitated. The consultants found that the governorate is equipped with the proper capacities to achieve this project and they are willing to provide the necessary institutional support to plan and implement the project following best practices.

Establishment of an integrated agro-industrial park in Bani Suef is feasible and the project can be a model to support agro-industrial businesses in Egypt. The project will require more support from UNIDO as well as other developmental agencies that would work together.

7.2. Situational analysis

During this assignment, the consultants conducted a situational analysis to understand the current features and drivers that might affect the MAP sector. The following table summarizes the results of this analysis which covered six main areas: political, economic, sociocultural, technological, ecological, and legal.

Table 7 - PESTEL analysis

Political	• Political stability in Egypt and Beni Suef with enabling ecosystem for business development. • Stability in the national regulations. • Progressive performance of the government and control of all factors.
Economic	• Progressive performance of the macroeconomic indicators. • Huge investments in the field of agriculture. • Mega-projects under the government supporting the agricultural sector.
Sociocultural	• Positive changes in society and more harmonization between all parties. • Cultural change resulting from a decrease in unemployment. • More room for women's integration resulting from education and social acceptance. • Many projects that are women-oriented and provide support to women-headed businesses. • Social protection networks and decent-life initiatives.
Technological	• Development on the technological side of the sector. • Presence of multinational companies in the field of MAPs, such as Olam. • Presence of many agents and representatives of high-tech machinery in the field of MAPs.
Ecological	• Very good climate to produce MAPs and process them. • Diversified weather that enables production of many types of herb across country. • Need for ecological awareness regarding energy efficiency and suppression of contamination.
Legal	• National regulation and business incentive system in Egypt. • Establishment of business support hubs under the GAFI and other institutions. • Easy to establish companies but hard to attract informal businesses that must be formalized.

The overall recommendation is to support the establishment of an integrated agro-industrial park in Somosta, and this reflects the perception analysis conducted with the value chain players in addition to expert judgements.

The project will require further studies to be conducted by international and national experts who will design the industrial plan, including assessment of energy needs and capacities, waste management, certification, and business models to be followed.

7.3. Road map for establishing agro-industrial parks and outline of a business model

The consultants propose the following roadmap to be considered during implementation of the integrated agro-industrial park in Somosta. The plan has four main stages to ensure the project is sustainable.

Stage one – Establishment of the Project Management Unit: The unit will be formed from current facilities under the governorate of Beni Suef and will be assisted by other institutions such as the university and research centers. The role of the project management unit will be to set the foundations for establishing the integrated agro-industrial park in Somosta and plan the implementation and expansion based on best practices and drawing from international experiences. The following figure illustrates the functions of this unit.

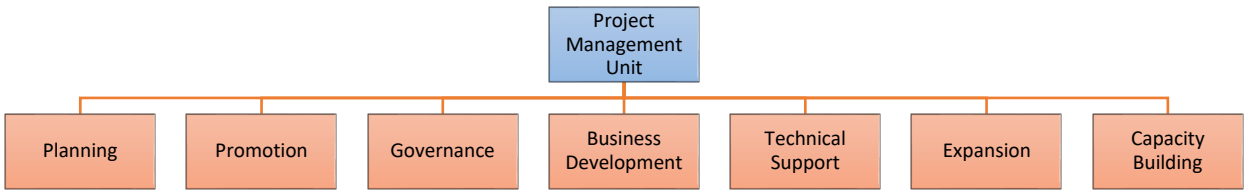


Figure 28 - IAIP Project management unit

The unit composition will include the following functions:

Planning office: Responsible for planning of all activities of the unit including supervision of the other functions and development of project documents.

Promotion office: Build the brand of the integrated agro-industrial park and promote it through available resources to attract investors and industrial developers.

Governance office: Set up the guiding roles for management of the unit and study national laws for industrial cities to support the planning and implementation of the park. The governance functions will include developing a conceptual management scheme of the park itself and mechanisms of decisions to be followed.

Business development office: Responsible for developing proposals for funds and communication with international/national financing institutions to support the

establishment of the park. In addition, this office will be responsible for investor management issues and dealing with companies asking for land or services.

Technical support office: This office will be responsible for all technical matters such as industrial planning, classifications, energy requirements, water supplies, waste management, environmental requirements, and quality certifications.

Expansion office: Responsible for expansion of the park and building replicable industrial areas in the future. The expansion office will support in the initial phase through liaising with relevant institutions to protect the surrounding areas of the park for future expansion.

Capacity-building office: Responsible for training activities and individual development planning. Identification of international/national consultants to be contracted and manage the technology transfer processes.

The project management unit will be responsible only for the planning of the park and is expected to be operational for a duration not less than one year to set up all the pillars of the integrated agro-industrial park establishment, management, and expansion.

Stage 2 – Support for the project management unit: This can be achieved through the support of UNIDO and other developmental agencies. The support will be in the form of international experience and assistance for the project management unit so that it operates following best practices. UNIDO can also link the between its projects and organize visits to integrated agro-industrial parks that have been established in other countries. UNIDO will also support the communication between the Egyptian government and international donors and financing institutions that might be interested in the establishment of the park.

Stage 3 – Management of the park: This will be started after completion of the planning phase and accumulation of the necessary resources for the park. The management stage will begin with the preparations and infrastructure and end up with the management of services inside the park. The integrated agro-industrial park in Somosta must be designed and planned properly to ensure it is a success and contributes to the development of the agribusiness sector in Egypt.

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Annexes

Annex I

Interview Form

Date	
Time	

Meeting with:

Name	
Gender	Male – Female
Title	
Organization	
Mobile no.	
Email	

1. Please give us an overview of your work in the medicinal and aromatic plant VC. (5 minutes)
2. From your experience, why do you think that the MAP sector is significant and can support the development of the governorate? (5 minutes)
3. What are the main challenges affecting the development of the MAP sector in Beni Suef? (5 minutes)
4. Please list the known supporting institutions that focus on the MAP sector in Beni Suef? (5 minutes)
5. What is the role of women along the MAP value chain? (5 minutes)
6. How can we improve this role in the MAP value chain? (5 minutes)
7. The governorate of Beni Suef is studying a concept of establishing the first integrated agro-industrial park in Somosta and this area will be supported with up-to-date technologies and production resources to attract investors and business entities. Considering this initiative, what are the key positive results that might change the community of Beni Suef? (10 minutes)
8. What are the challenges that might affect the establishment of the integrated agro-industrial park of Somosta? (10 minutes)

Annex II

Focus Group Discussions

Date	
Time	

Meeting with:

No. of participants	**Males**	**Females**	**Total**
Location			
Focal point			
Mobile no.			

1. Why do you think that the MAP sector is significant and can support the development of the governorate?
2. What are the main challenges affecting the development of the MAP sector in Beni Suef?
3. What are the supporting institutions that focus on the MAP sector in Beni Suef?
4. What is the role of women along the MAP value chain?
5. How can we improve this role in the MAP value chain?
6. The governorate of Beni Suef is studying a concept of establishing the first integrated agro-industrial park in Somosta and this area will be supported with up-to-date technologies and production resources to attract investors and business entities. Considering this initiative, what are the key positive results that might change the community of Beni Suef?
7. What are the challenges that might affect the establishment of the integrated agro-industrial park of Somosta?

Annex III

Online Questionnaire

This tool was developed by MASTECH for Agribusiness Development to study the medicinal and aromatic plant value chain in Beni Suef Governorate. All information is used for research purposes and will not be exposed to any entity or person. The study objective is to analyze the current situation of the MAP value chain and assess the role of women along the production stages to support an initiative for women's empowerment.

For any further details or information, please contact us at info@mastechagri.com.

Personal Details:

Name	
Gender	Male – Female
Title	
Organization	
Mobile no.	
Email	
Location	

Role in the value chain:

- Please select the most convenient option from among the following which represents your role in the MAP VC:

Farmer – Trader – Collector – Processor – Exporter – Service Provider

Current situation:

- In the medicinal and aromatic plant sector, did the productivity per feddan change in the past 10 years?

No changes – changed positively – changed negatively – I don't know

- Did the cultivated MAP areas increase in the past 10 years?

Yes – No – I don't know

- Did the market for MAPs increase in the past 10 years?

Yes – No – I don't know

- Do you the think the current regulations enable the growth and development of the MAP sector in Egypt?

Yes – No – I don't know

- Do you think that the current supporting entities are enabling the development of the MAP sector in Egypt?

Yes – No – I don't know

- What are the current challenges affecting your work?

Gender aspects:

- Based on your experience, do you think that the contribution of women in the MAP value chain shall lead to developing the sector?

Yes – No – I don't know

- Which of the following describe the current role of women at your business?

Farming and harvesting worker – Sorting and processing worker – Quality specialist – Exporting specialist – Managerial position – Business owner

- Do you know any businesses that are women-led?

Yes – No – I don't know

- Is it easy for women to establish businesses?

Yes – No – I don't know

- In your opinion, which of the following challenges affects the decision by women to establish businesses?

Social acceptance – Limited access to finance – Limited access to information – Limited access to markets – Limited experience – Others

- If others, please describe?
- In your opinion, which of the following decision-making mechanisms are the most common along the value chain:

<u>Household-related decisions:</u> Men only – Women only – Mixed decision
<u>Cultivation of crops:</u> Men only – Women only – Mixed decision
<u>Harvesting of crops:</u> Men only – Women only – Mixed decision
<u>Children's education:</u> Men only – Women only – Mixed decision
<u>Building houses:</u> Men only – Women only – Mixed decision
<u>Dealing with traders:</u> Men only – Women only – Mixed decision
<u>Dealing with exporters:</u> Men only – Women only – Mixed decision
<u>Dealing with importers:</u> Men only – Women only – Mixed decision
<u>Dealing with financial institutions:</u> Men only – Women only – Mixed decision

- In your opinion, which of the following challenges currently affect the contribution of women in the MAP VC:

Social acceptance – Institutional limitations – Infrastructure limitations – Organizational factors

- Which of the following ideas would you recommend to improve the role of women in the VC:

Awareness companies – On-the-job training – Vocational training – Entrepreneurship support – Others

The integrated agro-industrial park

- The governorate of Beni Suef is studying a concept of establishing the first integrated agro-industrial park in Somosta and this area will be supported with up-to-date technologies and production resources to attract investors and business entities. Considering this initiative, do you think this will assist in developing the MAP sector in Beni Suef?

Yes – no – I don't know

- Which of the following challenges do you think might affect the establishment of the integrated agro-industrial park of Somosta?

Long duration till the facilities are ready
Investment cost that may not be affordable
Not accessible for small-scale producers
Will be dominated by large companies
Others

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