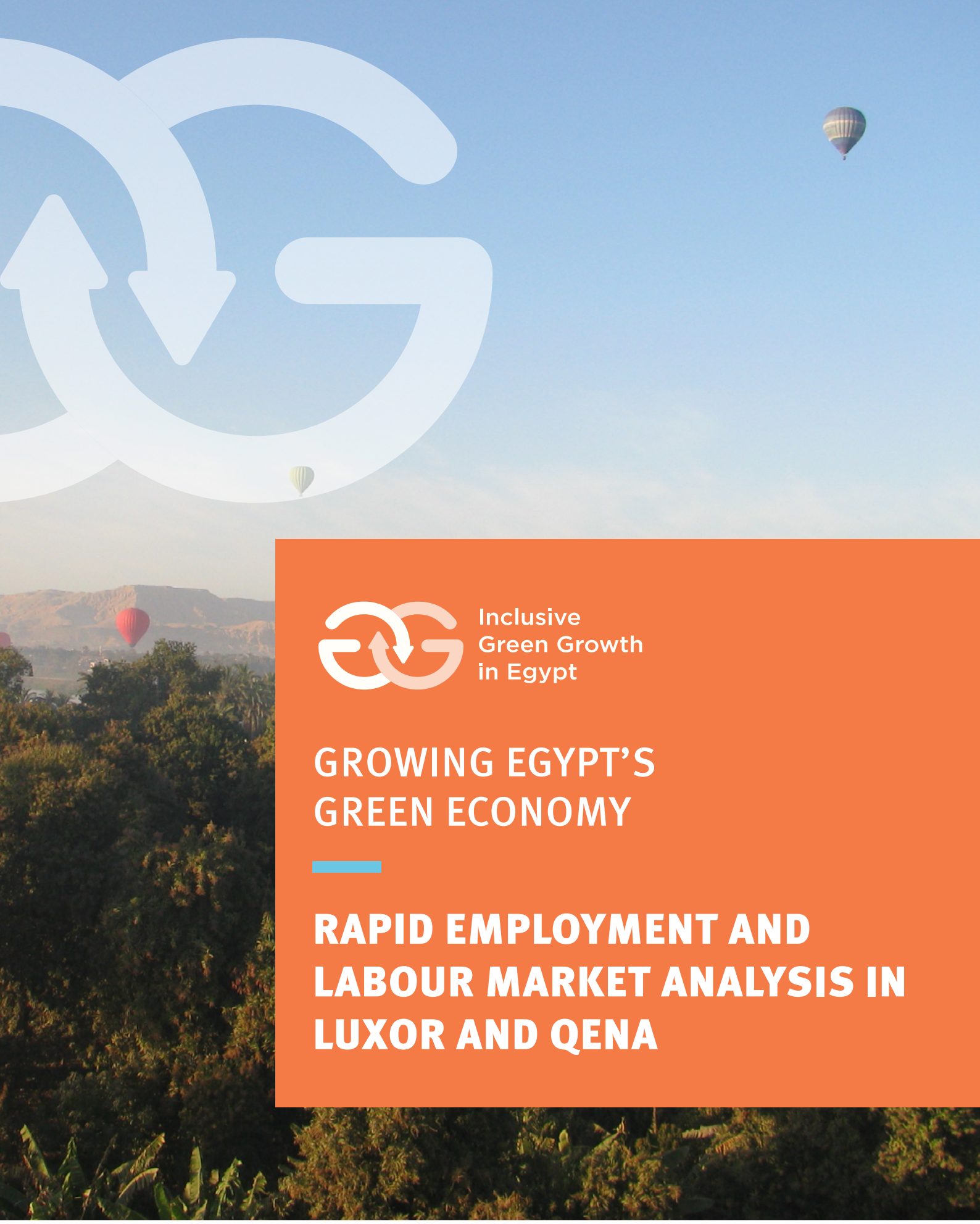

Inclusive
Green Growth
in Egypt

GROWING EGYPT'S GREEN ECONOMY

RAPID EMPLOYMENT AND LABOUR MARKET ANALYSIS IN LUXOR AND QENA

Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
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UNITED NATIONS
INDUSTRIAL DEVELOPMENT ORGANIZATION

Ministry of Trade & Industry
وزارة التجـــارة والصـــناعة

Acknowledgments

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Introduction

1.1 Background to the Inclusive Green Growth in Egypt (IGGE) project

The United Nations Industrial Development Organization (UNIDO) is implementing a project entitled **Inclusive Green Growth in Egypt (IGGE)**, with funding from the Government of Switzerland (Swiss Agency for Development and Cooperation). The main counterpart in the Egyptian Government is the Ministry of Trade and Industry. Collaborating partners include the Ministry of Environment, the Industry Modernization Center (IMC), the Micro, Small and Medium Enterprises Development Agency (MSMEDA), the Luxor and Qena Governorates, as well as private sector associations and civil society organizations. The geographical coverage is the Luxor and Qena Governorates in Upper Egypt.

IGGE aims to contribute to the efforts of the Government of Egypt to boost growth, productivity and job creation, while at the same time safeguarding the environment. The **green economy** has great potential in this area, with the private sector acting as a key driver of inclusive green growth. **Micro, small and medium-sized enterprises** (MSMEs) in the green economy play a crucial role in local economic development and make use of resources traditionally overlooked or wasted. As such, their development brings about both economic and environmental benefits. The project's ultimate aim is to support **market system changes** for a favorable environment to businesses and the workforce in the green economy. To this end, the IGGE project:

I. Supports green MSMEs, including those led or owned by women, to improve their productivity, innovation and competitiveness and strengthen their resilience;

II. Enhances the offerings from financial and non-financial support institutions to green MSMEs; their resilience;

III. Fosters the employability of youth and women in targeted green sectors;

IV. Mainstreams green growth approaches into government policies and strategies.

The project targets the green economy sectors of **sustainable agriculture and food production, waste management and sustainable energy**, with a particular focus on the valorization of biomass streams from the farming community and the agro-industrial sector, renewable energy applications in the agro-industrial sector (such as biogas and solar), as well as key clusters and value chains in Luxor and Qena, including sugarcane, tomato and date palms. The assessments conducted by the project during the mobilization phase identified additional clusters and value chains that could be considered, such as fruit and vegetable processing and packaging, as well as medicinal and aromatic plants and herbs.

Targets

10 financial and non-financial institutions promote green business and investment opportunities

150 MSMEs with improved management practices

10 training and employment service providers offer upgraded services in line with market demand

1,000 market actors gained knowledge and skills for employment

4 new /revised policies adopted by policy makers

1.2 What's in this report?

This rapid **Employment and Labour Market Analysis** (ELMA)[1] assesses the main challenges and opportunities in labour demand, labour supply and the matching process in IGGE's green economy sectors in Luxor and Qena governorates in order to inform interventions in the employment and labour market:

Supply: identify factors that affect the supply side in the labour market, including demographics, working age population, education and skills.

Demand: identify factors that affect job creation in the labour market, including economic growth, public and private sector, business development, and the formal and informal market.

Matching Process: the report also looks at mechanisms which can help to match labour supply with labour demand, for example through employment service providers.

1.3 Document structure

Section 1 Introduction

Introduction to UNIDO's IGGE project and the rapid employment and labour market analysis in Luxor and Qena.

Section 2 Overview: Upper Egypt's employment and labour market

An overview of the employment and labour market trends across Egypt, with particular reference to Upper Egypt's Luxor and Qena governorates.

Section 3 Key findings: labour demand, labour supply & matching process

Key findings from the fieldwork conducted and the primary data collected, for the private sector job requirements, with a specific focus on MSMEs in IGGE's green economy sectors in Luxor and Qena, as well as gaps in the education and training offer and the match-making process.

Section 4 Conclusion: A concluding summary of the rapid ELMA's findings and recommendations

A concluding summary of the rapid ELMA's findings and recommendations.

[1] *The methodology adopted is adapted from GIZ (2014). Guidelines for an Employment and Labour Market Analysis (ELMA).*

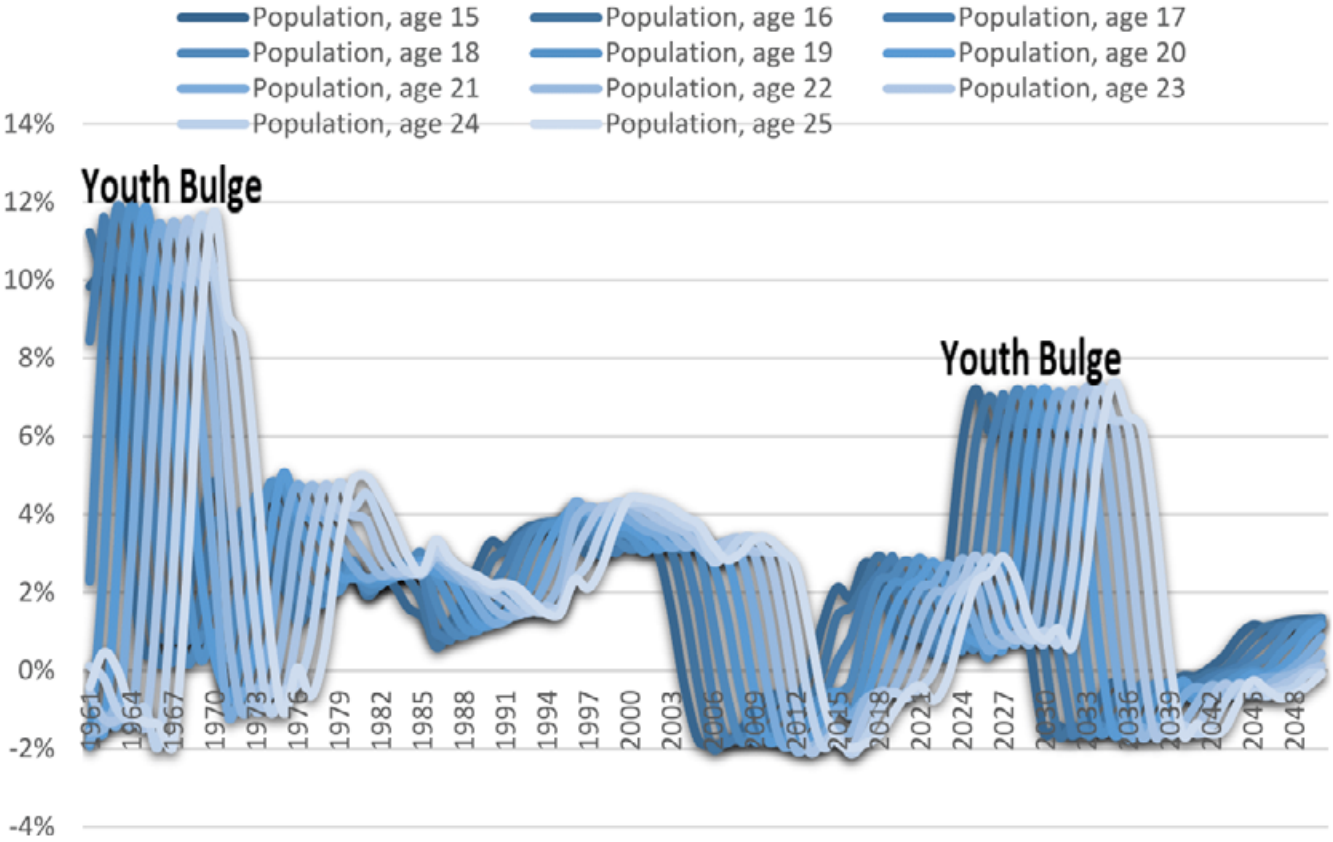
Overview: Upper Egypt's employment and labour market

2.1 Labour supply

2.1.1 Egypt's labour force

Egypt is witnessing an annual increase in its total population and with it a change in demographics. In July 2021, according to CAPMAS the population in Egypt reached 102 million. At the beginning of 2021, the female population reached 49 million and the male population 52 million. The number of people of working age reached 61 million in 2019, with the labour force increasing from around 27 million in 2014 to 28.4 million in 2020, with a 92.1% employment rate and unemployment rate of 7.9% of the total workforce.[2] This increase in the labour force is a central challenge to initiatives to create job opportunities and absorb new workers into the labour market.

Figure 1
Population growth rate in Egypt



(Source: United Nations – Populations Projections Database)

Both the public and private sectors have **failed to provide sufficient job opportunities** to absorb the workforce in the Egyptian labour market. This has caused the informal labour market to increase in recent years. According to ESCWA, the informal sector in Egypt now accounts for 63% of total employment, rising in agricultural sector to 98%.[3] Despite improvements in access to education and an increase in the number of educational institutions, there is still a **mismatch in the labour market** between supply (workers/job seekers) and demand (employers), which can be largely attributed to the lack of required skills in the labour market and, in turn, the limited capacity of the education system of providing adequately qualified workers.

[2] United Nations Development Programme, Ministry of Planning and Economic Development, Egypt (2021). Egypt Human Development Report 2021.
[3] Economic Research Forum, Egypt Labor Market Panel Survey (ELMPS) (2018)

This affects the **female labour force participation** even more significantly than its male counterpart. The shrinking of the public sector and the inability of the private sector to create job opportunities to offset this decline might be a direct reason behind this, due to broad female preferences to join the public sector rather than the private sector. This preference is primarily related to working conditions, annual leave, job security and marital status.[4] This dynamic was underlined by field visits conducted during the ELMA, in which women primarily opted for public sector jobs, due to entitlements around flexible working hours, flexible leave, availability of secured transportation and social security.

More broadly, Egypt's female labour force has been at a persistently low level since the 1990s. The female labour force participation rate reached 23.7% in 2020.[5] There are several reasons behind this stagnant female labour force participation rate, including a lack of skills, limited job opportunities, higher likelihood of women encountering employer discrimination related to employment, wages and career progression in the private sector, as well as higher incidences of workplace sexual harassment in the private sector relative to the public sector. [6]

[4] AlAzzawi and Hlasny, "Vulnerable Employment Outcomes of Youth in Egypt and Jordan: Trends and Determinants." Economic Research Forum (30 November 2018)
[5] Assaad, R. and C. Kraft, "The Structure and Evolution of Employment in Egypt: 1988-2012." The Egyptian Labour Market in an Era of Revolution, R. Assaad & C. Kraft (eds.). Oxford, UK: Oxford University Press (2015) World Bank, Women Economic Empowerment Study (2020)
[6] AlAzzawi and Hlasny (2018)

2.1.2 Luxor's and Qena's labour force

This subsection provides an overview on the **employed population in Luxor and Qena,** along with estimates on the rest of the governorates in Upper Egypt, to have a clear comparative analysis. As shown in the table below, Minya has the largest share of employment in Upper Egypt, followed by Sohag, Assiut and Fayoum. Qena's employed population represents only 9% of the total employed population in Upper Egypt, of which 93.4% are male and only 6.6% are female. Luxor has one of the lowest shares of employed population (4%) compared to the other governorates in Upper Egypt, consistent with the population size of Luxor, with a gender split of 90.5% men to 9.5% women. It is worth highlighting that these percentages, and others presented herein, represent only formal employment, unless otherwise specified.

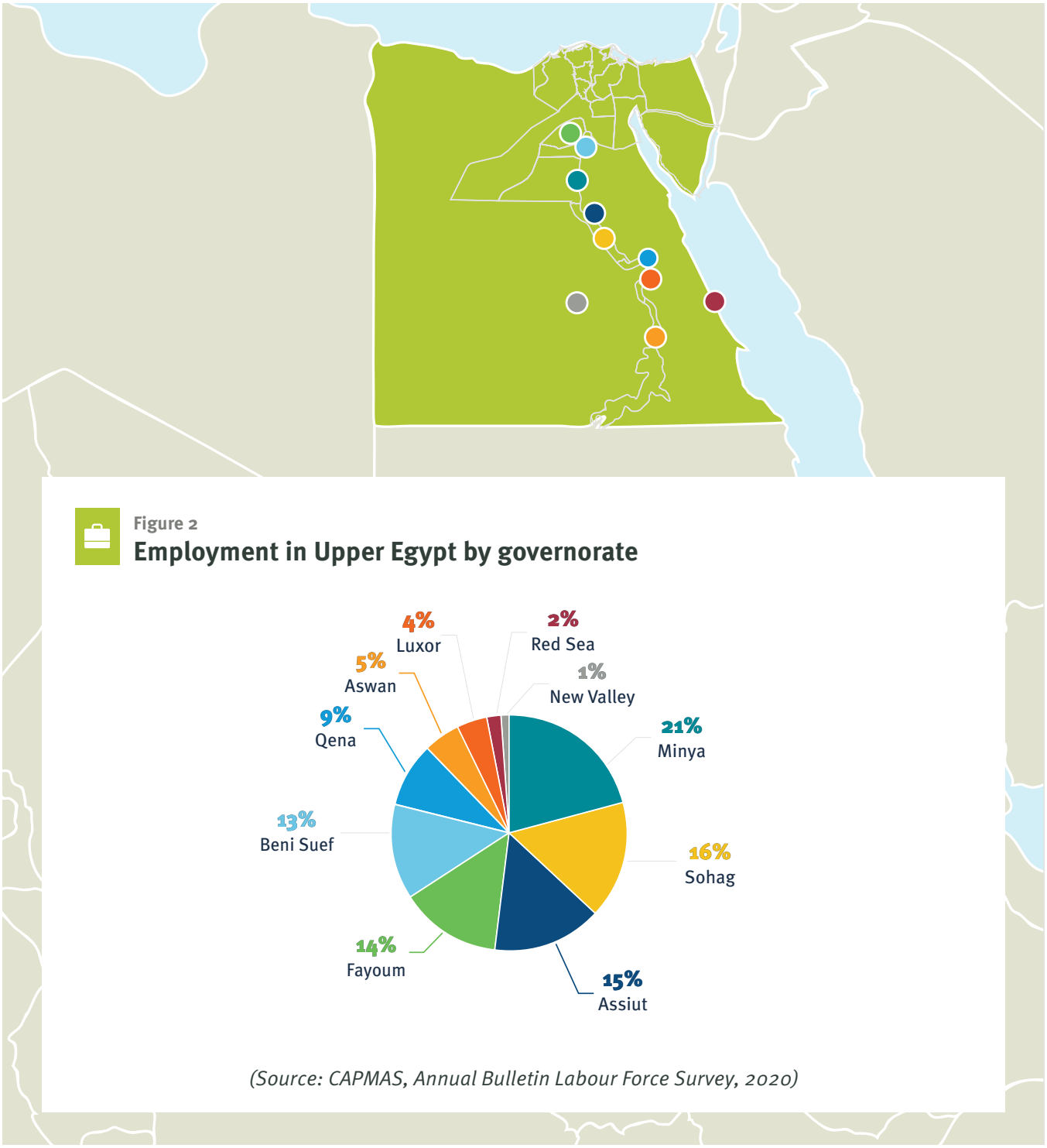


Figure 2

Employment in Upper Egypt by governorate

(Source: CAPMAS, Annual Bulletin Labour Force Survey, 2020)

The Upper Egypt region has around 27.7% of Egypt's total employed population. Qena and Luxor account for 2.6% and 1.2% of Egypt's total employed population respectively, among the lowest in Upper Egypt. Men dominate Upper Egypt's employed population, representing an 88.8% share compared to 11.2% for women. This reflects a gender gap and low female employment representation in Upper Egypt. This is particularly the case for Qena and Luxor, as shown in the table below.

Table 1 *Estimates of Employed in Upper Egypt (Hundreds)*

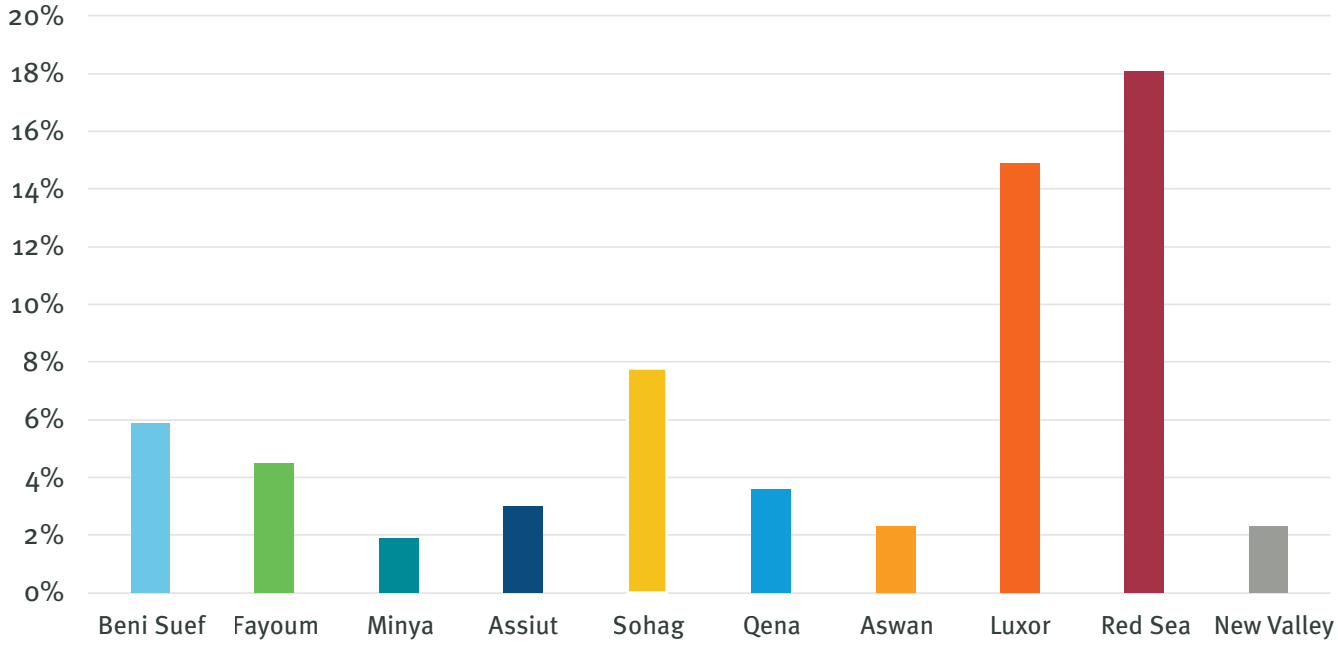
Governorate	Female			Male			Total Population			Percentage of Upper Egypt
	Rural	Urban	Total	Rural	Urban	Total	Rural	Urban	Total	
Beni Suef	1,384	463	1,846	5,978	1,717	7,695	7,362	2,179	9,542	13%
Fayoum	702	375	1,077	7,279	1,702	8,980	7,981	2,077	10,057	14%
Minya	1,674	462	2,136	10,790	2,116	12,906	12,464	2,577	15,042	21%
Assiut	517	439	955	7,296	2,417	9,712	7,812	2,855	10,668	15%
Sohag	342	324	666	8,856	2,257	11,112	9,198	2,581	11,779	16%
Qena	255	196	451	5,284	1,072	6,356	5,539	1,268	6,807	9%
Aswan	144	189	333	2,076	1,167	3,243	2,220	1,356	3,576	5%
Luxor	109	159	299	1,863	1,002	2,865	1,972	1,192	3,164	4%
Red Sea	NA	159	159	NA	954	954	NA	1,113	1,113	2%
New Valley	65	105	169	293	274	567	358	379	736	1%
Total Upper Egypt	5,192	2,871	8,091	49,715	14,678	64,390	54,906	17,577	72,484	100%
Total Egypt	20,595	18,688	39,283	130,725	91,983	222,708	151,319	110,671	261,990	

(Source: CAPMAS, Annual Bulletin Labour Force Survey, 2020)

The chart below illustrates how, as of 2020, **unemployment rates in Qena** (3.6%) are among the lowest in Upper Egypt, while **Luxor** (14.9%) and Red Sea followed by Sohag have the highest unemployment rates in Upper Egypt.

Figure 3

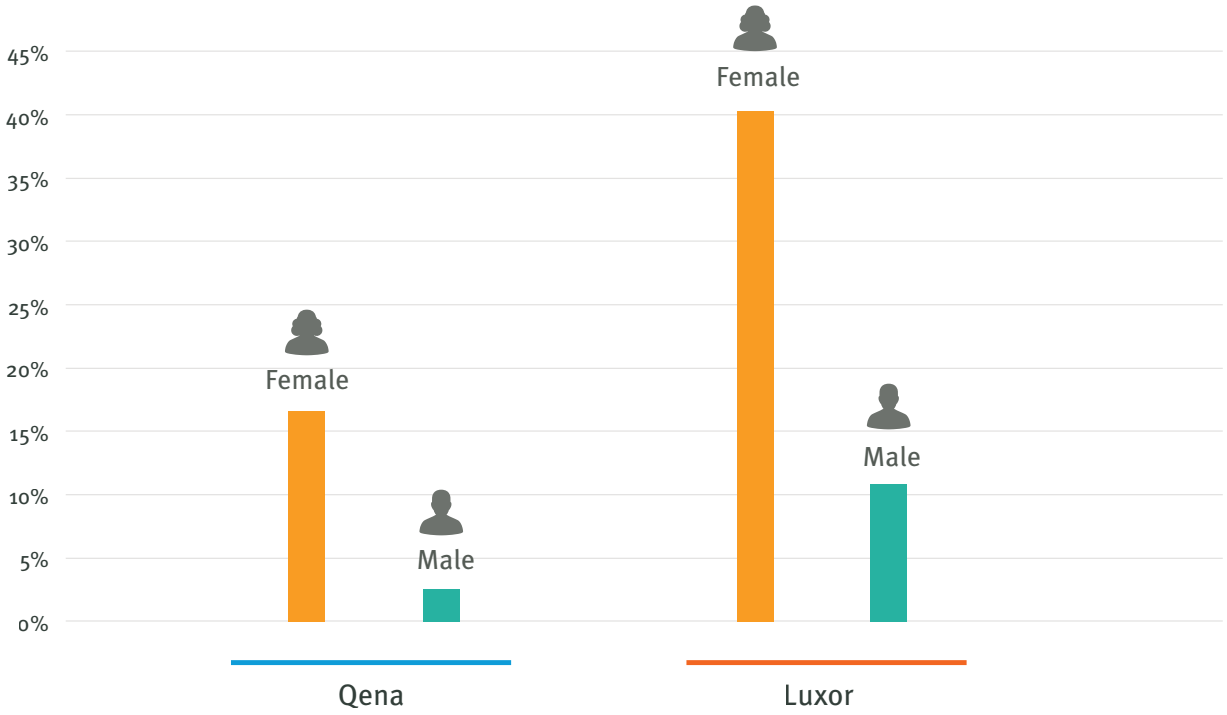
Unemployment rates in Upper Egypt



(Source: CAPMAS, Annual Bulletin Labour Force Survey, 2020)

Figure 4

Unemployment rates by gender in Qena & Luxor



(Source: CAPMAS, Annual Bulletin Labour Force Survey, 2020)

In both governorates, the **unemployment rate is higher among women than men**, with a starker contrast in Luxor (40.4% of female labour force is unemployed versus 10.9% of the male labour force) than in Qena (16.6% of the female labour force is unemployed versus 2.6% of male labour force). The main reason may be attributed to educational levels and available occupations in both governorates.

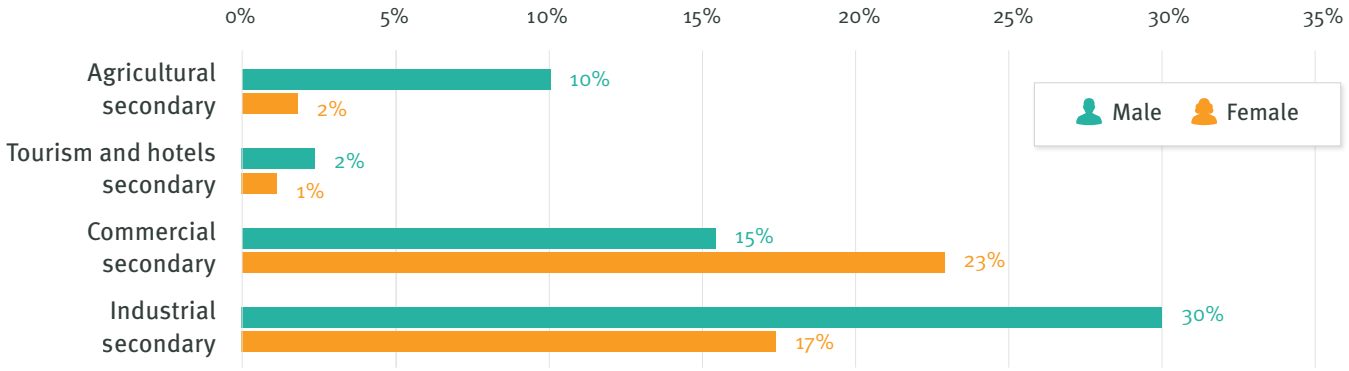
Local educational attainment

This subsection addresses the level of education of the employed in Luxor and Qena, including breakdowns by gender, in order to understand and contextualise the **knowledge and skills of the workforce** in these governorates and their occupations.

Regarding **technical secondary schools** in Egypt, there are four main specialisms: agricultural, commercial, industrial and tourism. As of 2018–2019, the percentage of men receiving a technical education related to industry (30%), agriculture (10%) and tourism (2%), exceeded that of women educated in the same areas: industry (17%), agriculture (2%) and tourism (1%). On the other hand, the percentage of women (23%) educated in commercial secondary schools is higher than that of men (15%), as illustrated below. This gives an insight into **female and male employment representation in specific sectors**, as well as reflecting a cultural and social dimension to this dynamic.

Figure 5

Representation of male and female in technical education sectors in 2018/2019

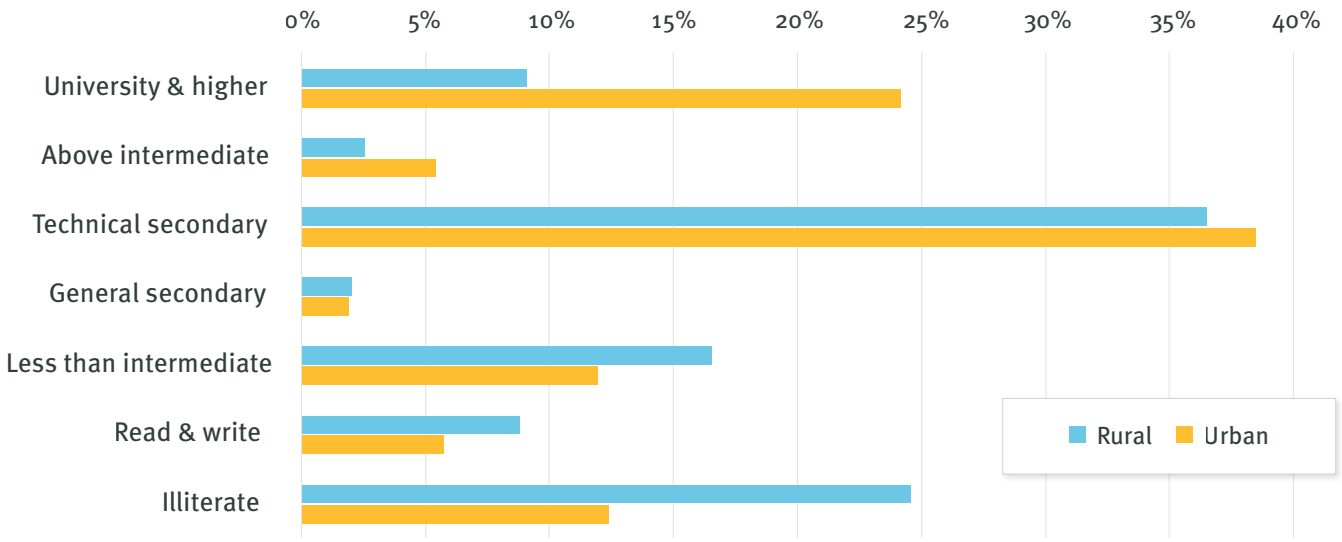


(CAPMAS, Egypt Annual Bulletin for Pre-university Education, 2018/2019)

Generally speaking, **most of the employed population in Upper Egypt has technical secondary education**, followed by university and higher education in urban areas, while the **number of illiterate is higher in rural areas**, as shown in the figure below.

Figure 6

Education attainment in Upper Egypt (2019)

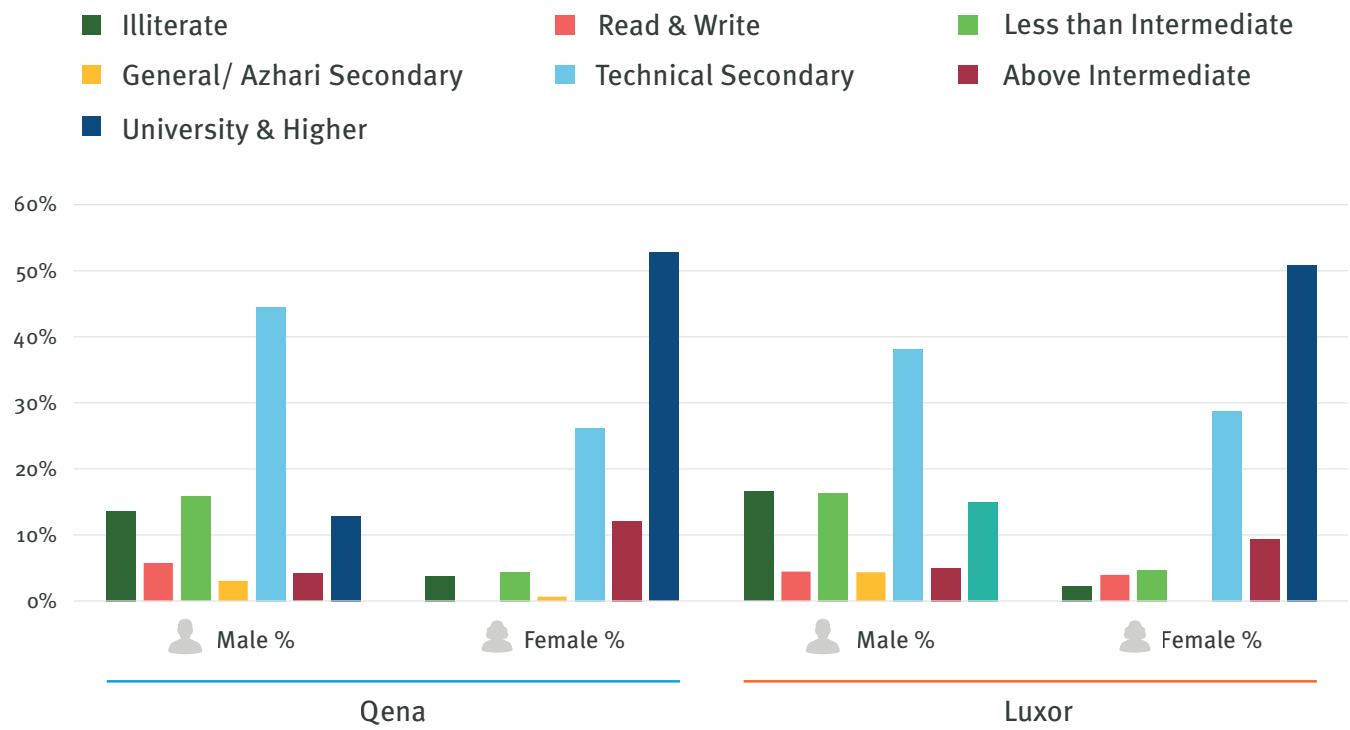


(CAPMAS, Egypt Annual Bulletin for Pre-university Education, 2018/2019)

The level of education in the employed labour force in Luxor and Qena is broken down by gender in the figure below. **Among women, the percentage of university graduates is by far the highest** (52.8% in Qena and 50.8% in Luxor); whereas the percentage of technical secondary graduates is the highest among men in both governorates (44.5% in Qena and 38.1% in Luxor). The percentage of illiteracy is higher among men than women. Overall, it reveals how women are highly-educated compared to men in both governorates, reflecting the high representation of women in high-skilled occupations, as will be discussed.

Figure 7

Educational attainment of the employed population



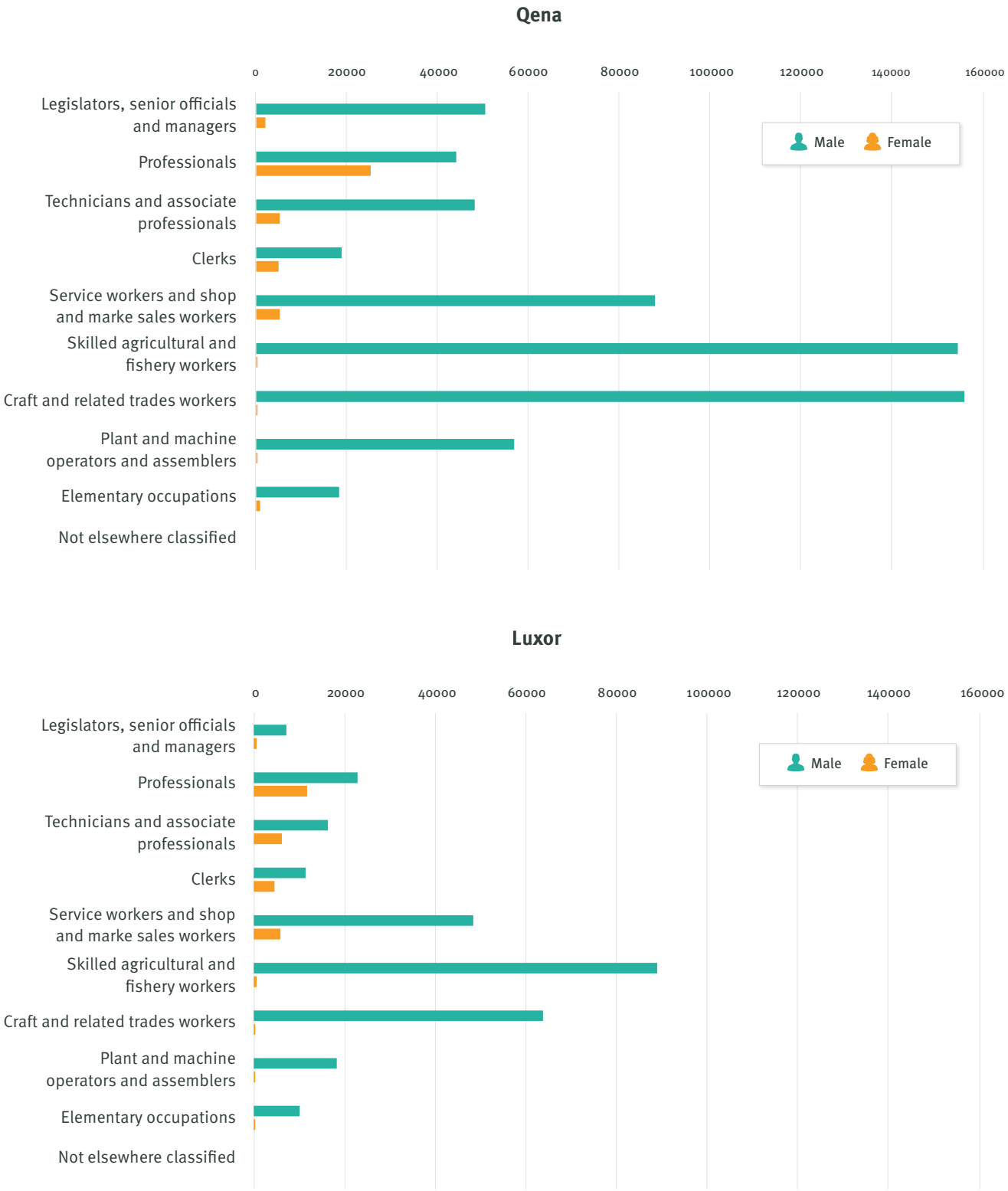
(CAPMAS, Annual Bulletin Labour Force Survey, 2020)

Educational attainment is strongly related to the type of occupations for both men and women in Qena and Luxor. The figure below presents **formal employment percentages by occupation** in Luxor and Qena among men and women. Women are typically employed in highly-skilled occupations as professionals, technicians and associate professionals, in most cases in the public sector, while men are mainly occupied as skilled agricultural and fishery workers and as craft and related trade workers.[7]

[7] *Classification of occupations following International Standard Classification of Occupation (ISCO): Professionals: Science and Engineering Professionals, Health Professionals, Teaching Professionals, Business and Administration Professionals, Information and Communications Technology Professionals and Legal, Social and Cultural Professionals. Associate Professionals: Science and Engineering Associate Professionals, Health Associate Professionals, Business and Administration Associate Professionals, Legal, Social, Cultural and Related Associate Professionals and Information and Communications Technicians. Agriculture and fishery activities: Market-oriented Skilled Agricultural Workers, Market-oriented Skilled Forestry, Fishery and Hunting Worker and Subsistence Farmers, Fishers, Hunters and Gatherers. Crafts & related trade activities: Building and Related Trades Workers (excluding Electricians), Metal, Machinery and Related Trades Workers, Handicraft and Printing Workers, Electrical and Electronic Trades Workers, Food Processing, Woodworking, Garment and Other Craft and Related Trades Workers.*

Figure 8

Employment by occupation classified by gender (2019)



(CAPMAS, Annual Bulletin Labour Force Survey, 2020)

In general, the **low participation of women in the labour force despite their high level of education** is a well-known phenomenon across the MENA region, not just in Egypt.[8]

Examining female education alongside their main types of occupation gives an insight into the low female participation rate in the labour market. This is explained partly by the **subjects and majors studied by women**, which prepare them for specific careers, for example in education, health and public administration sectors. This predominantly prepares women to work in **public sector employment**, which has recently been shrinking. According to the World Bank, the **unemployment rate is higher among highly educated women** and especially educated women who work in the fields of education and health.[9]

The results of the field research conducted as part of the ELMA found that women with higher levels of education predominantly enrolled in faculties of medicine, education and business administration, which increased their likelihood of joining the public sector rather than the private sector. On the other hand, women with preparatory, secondary or intermediate education were mainly occupied as technicians or low-skilled workers.

2.2 Labour demand

Creating jobs is not only about the skills and education of the workforce. Low economic growth rates and **insufficient generation of demand for labour** both hamper the generation of new job opportunities in Egypt.

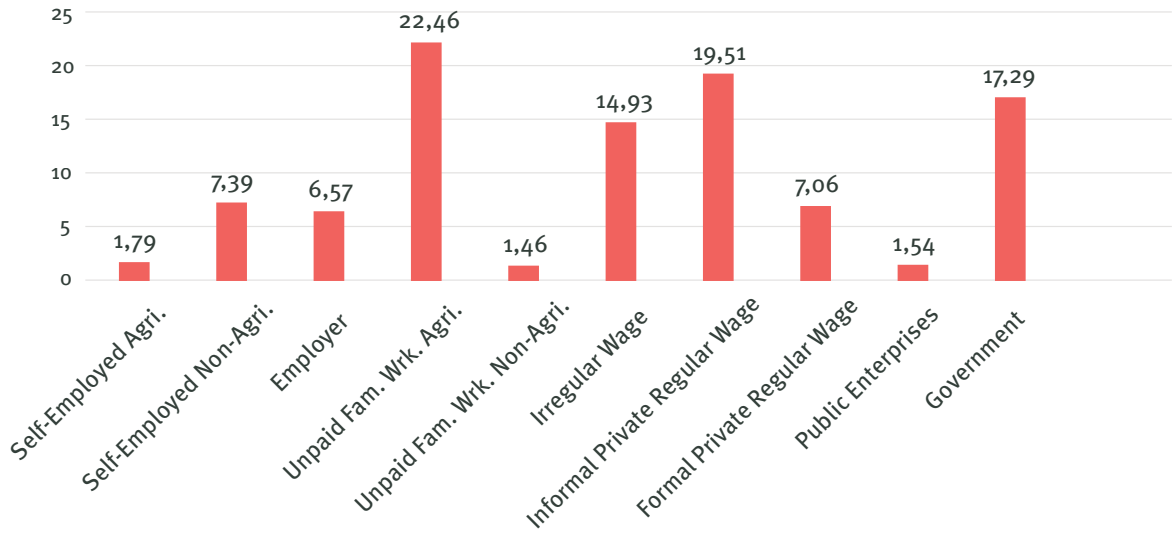
This section focuses on the **demand side** of Egypt's labour market – employers – with a particular focus on Upper Egypt. It details the number of enterprises across sectors, as well as their size, the makeup of their workforce and their production value.

2.2.1 Employment by sector in Egypt

According to ELMPS 2018, most workers are concentrated in **unpaid farm agricultural activities, informal private sector work** and the **government sector**, as shown in the below figure.

Figure 10

Employment (working age population) by type of employer (%)



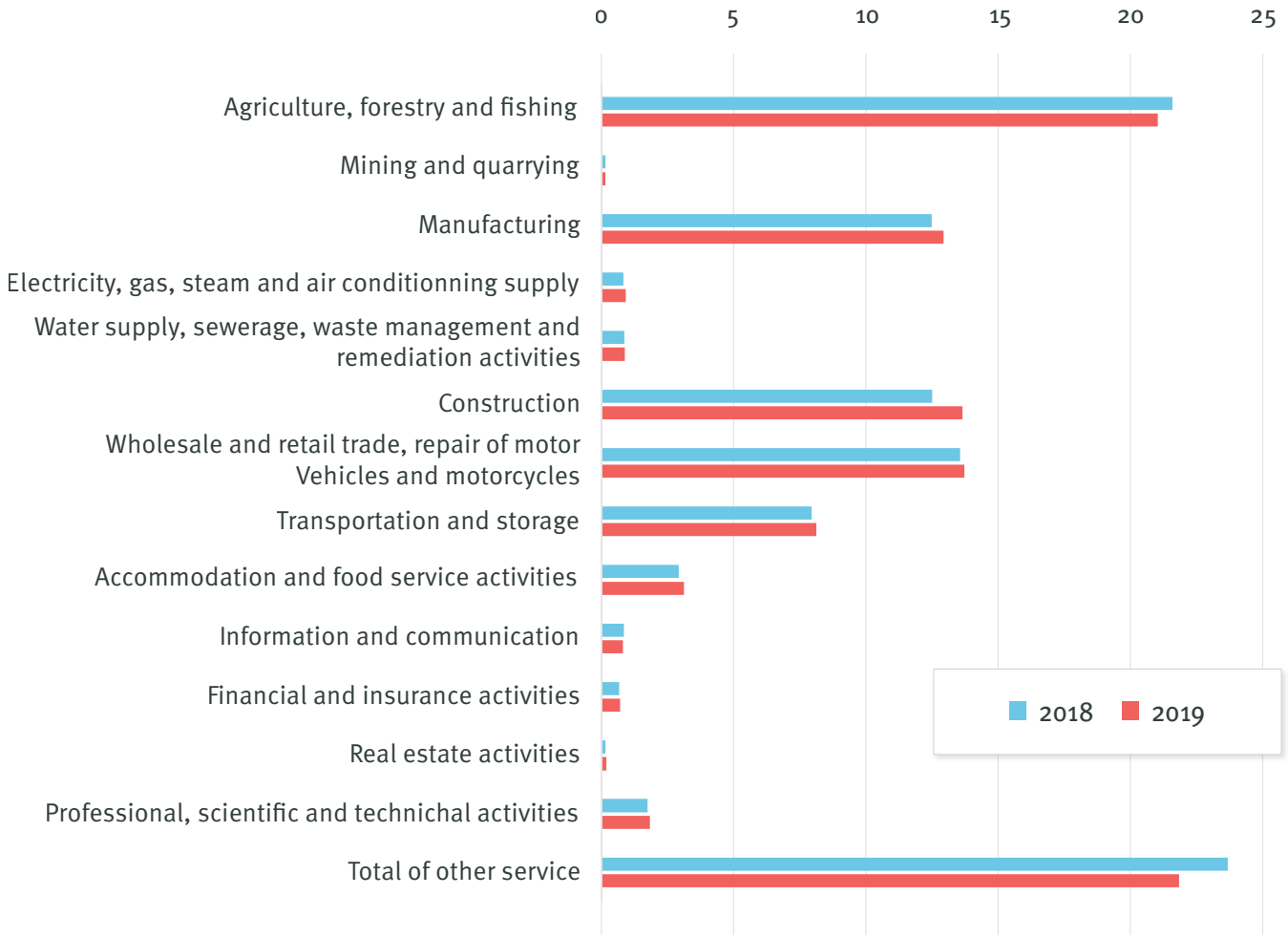
(Source: ELMPS 2018, CAPMAS, Egypt Economic Census, 2018).

[8] See the "MENA Paradox" in Assaad, Ragui, Abdelaziz AlSharawy and Colette Salemi, "Is the Egyptian Economy Creating Good Jobs? Job Creation and Economic Vulnerability from 1998 to 2018." Economic Research Forum Working Paper Series (2018)
[9] World Bank, Opening Doors: Gender Equality and Development in the Middle East and North Africa (2013)

Regarding employment by economic sector, the following figure shows the employment shares by sector in both 2018 and 2019. We can see that around **21% of the employment is generated by the agriculture sector**, followed by wholesale and retail (13.5%), construction (12.5%) and then manufacturing (12%). It is worth noting that employment in the agriculture sector slightly declined over the period from 2018 to 2019, while slightly increased in both the manufacturing and construction sectors. Similar patterns have been observed between 2011 and 2017.[10] Nonetheless, **agriculture and the food industry remains the highest employing industry** in Egypt.

Figure 11

Employment by economic activity (2018-2019)



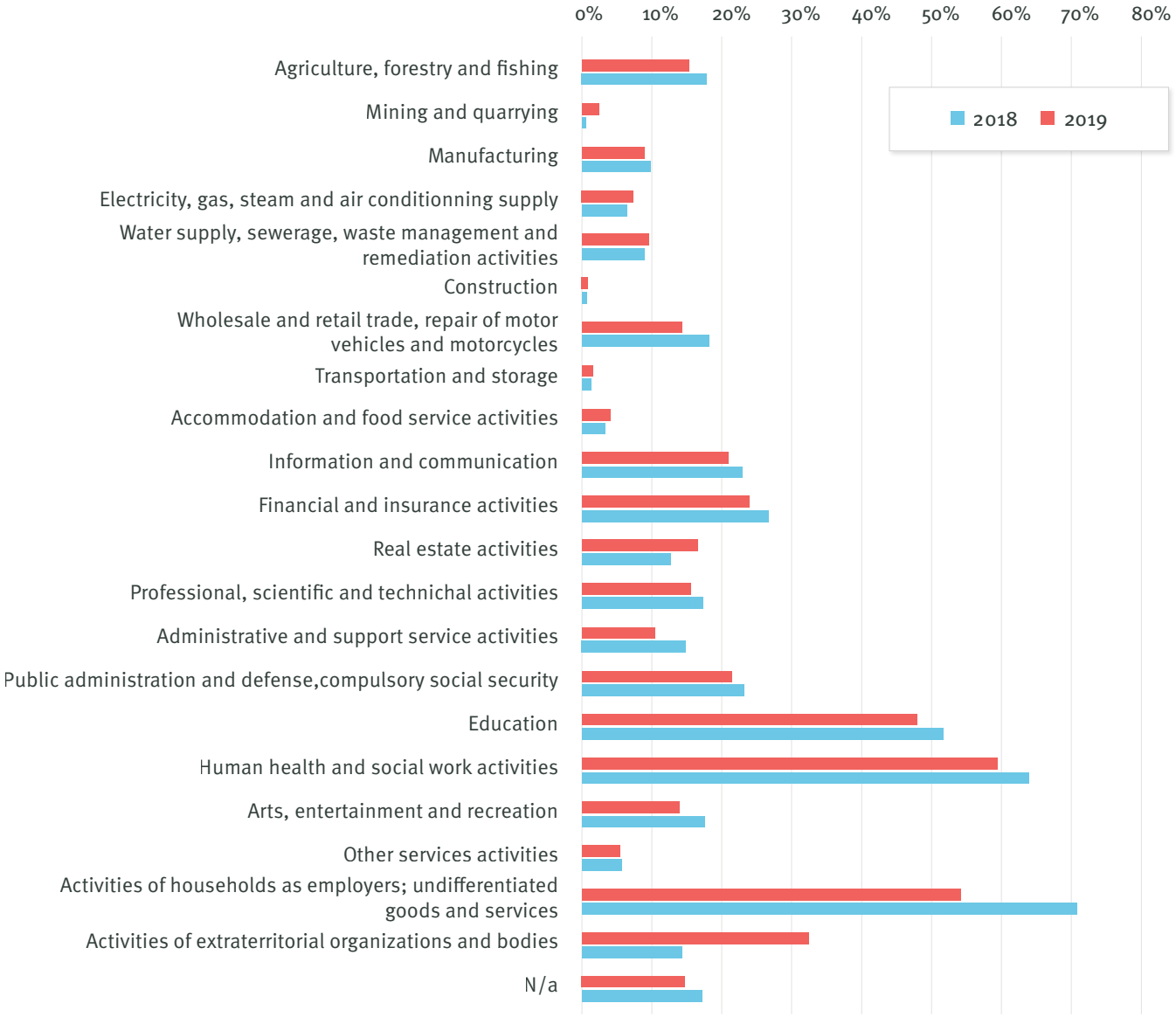
(CAPMAS Annual Bulletin Labour Force Survey, 2020)

10 *ELMPS (2018)*

Regarding **female employment patterns by economic activity**, the highest female employment in 2019 is in the areas of human health and social work, household-related activities, education, followed by ICT, financial and insurance activities, public administration, agriculture, wholesale and retail trade.

Figure 12

Female employment by economic activity in 2018 & 2019



(CAPMAS Annual Bulletin Labour Force Survey, 2020)

2.2.2 Employment by sector in Luxor and Qena

Regarding the **share of formal employment across economic sectors in Luxor and Qena**, the percentage distribution of men and women are almost the same in both governorates. **Men** are largely employed in agriculture and construction, followed by wholesale and retail trade, manufacturing, public administration, transportation and storage, accommodation and food services activities, and education. On the contrary, **females** are mostly employed in education, followed by wholesale and retail trade, public administration, and health.

Table 2 *Employment by Economic Activity in Qena and Luxor by Gender (%)*

Economic Activity	Qena		Luxor	
	Males	Female	Males	Female
Agriculture, Forestry and Fishing	30.2	1.1	31.5	2
Mining and Quarrying	0.3	0.0	1.7	0.0
Manufacturing	7.9	0.7	5.3	3
Electricity, Gas, Steam and Air Conditioning Supply	0.4	0.4	0.7	1
Water Supply, Sewerage, Waste Management	1.2	0.0	0.8	0
Construction	21.7	0.0	18.4	1
Wholesale and Retail Trade, Repair of Motor Vehicles	9.6	12.8	9.3	20.4
Transportation and Storage	6.1	0.0	5.8	0
Accommodation and Food Service Activities	4.7	0.4	5.3	1
Information and Communication	0.4	0.0	0.3	1.7
Financial and Insurance Activities	0.9	2	0.6	4.3
Professional, Scientific and Technical Activities	1.3	1.1	1.1	2.7
Public Administration and Defence	5.1	10.6	7.3	19.7
Education	5.5	57.3	5.7	28.1
Human Health and Social Work Activities	1.1	11.3	1.9	11.4
Total of other service	3.8	2.2	4.4	3.7

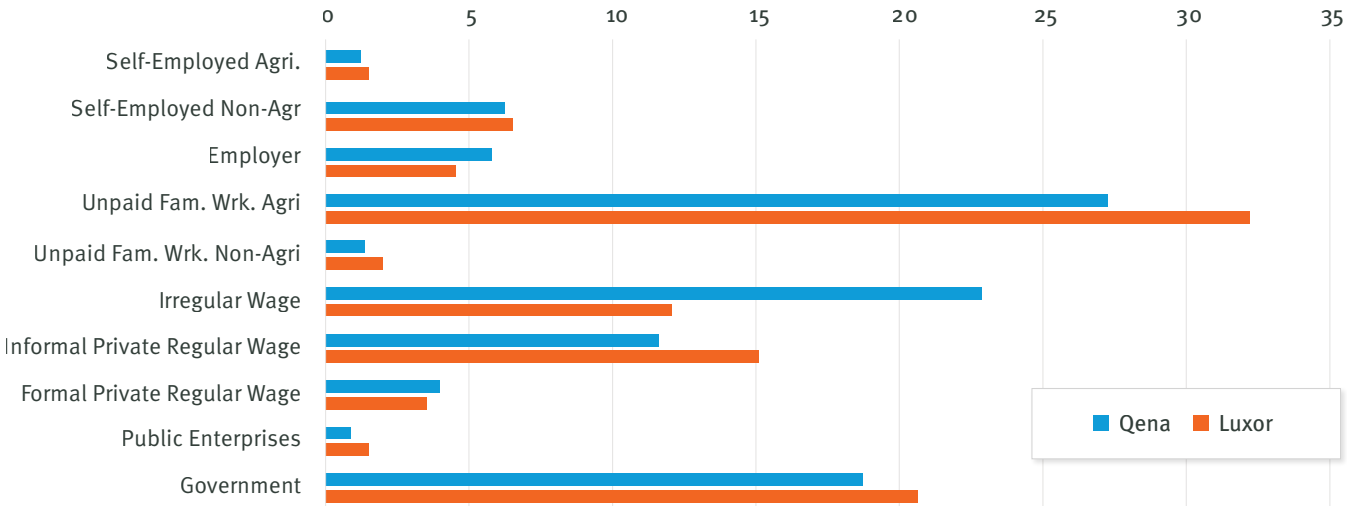
(CAPMAS Annual Bulletin Labour Force Survey, 2020)

The distribution of **formal and informal employment** in Luxor and Qena is shown in the following figure based on the ELMPS survey (2018). In line with national trends, most workers in **Qena** are concentrated in unpaid farm agricultural activities, though this portion accounts for a slightly higher than average percentage for Qena of around 27% of employment in the governorate. Government sector occupations are also in line with national averages. However, irregular wage work is higher than the national average, while employment in the informal private sector is lower in Qena compared to the national average.

In **Luxor**, 32% of the workforce is employed in unpaid farm agricultural activities, which is again higher than the national average of around 22% shown above. Government sector roles and irregular wage work are broadly in line with national trends, while employment in the informal private sector is slightly lower compared to the national average but higher than Qena.

Figure 13

Distribution of employment in Qena and Luxor by type of employer

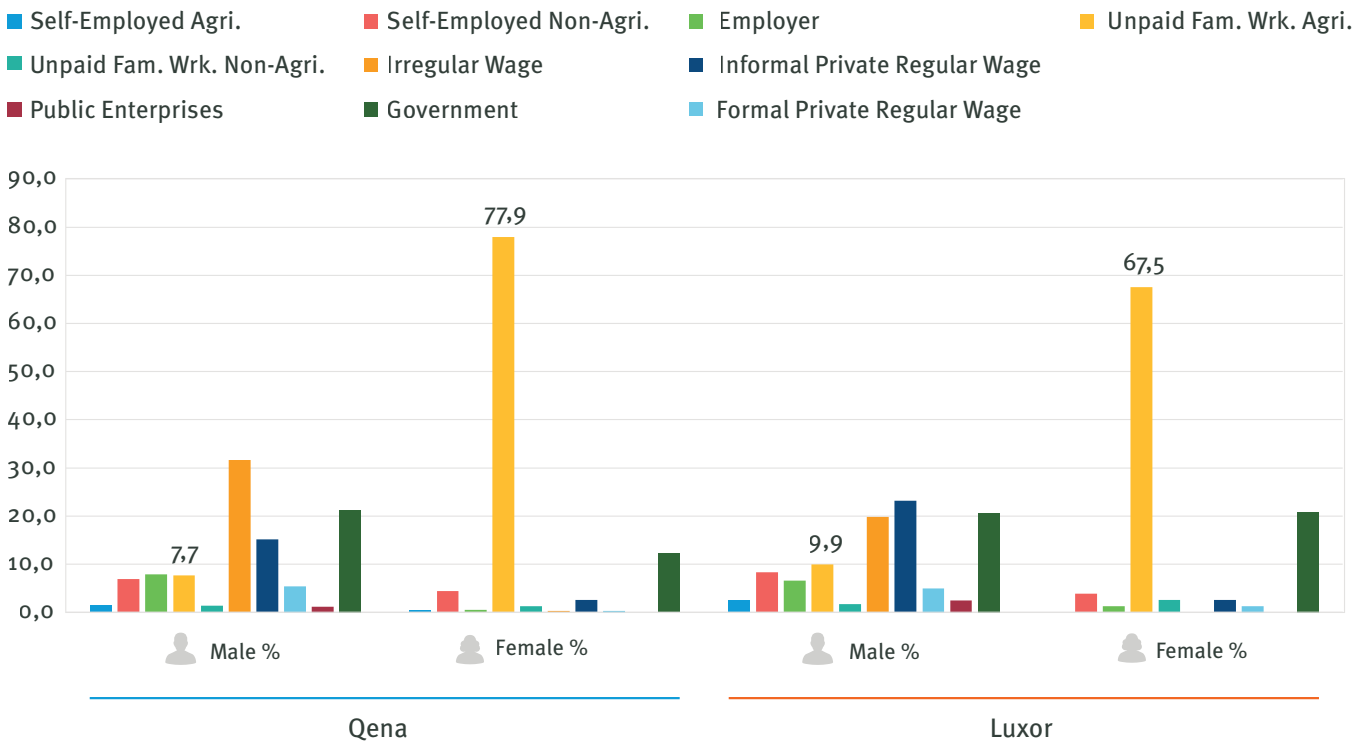


(ELMPS, 2018; ELMA analysis)

The **vast majority of women work as unpaid workers** in agriculture, representing 77% of Qena's female workforce and 67% of Luxor's. As expected, we also found that a large percentage of women are employed in the **government sector** compared to the private sector. The **male workforce** is largely concentrated in **irregular wage** and **informal private regular wage work**, as well as in the **government sector**.

Figure 14

Distribution of employment in Qena and Luxor by type of employer and gender

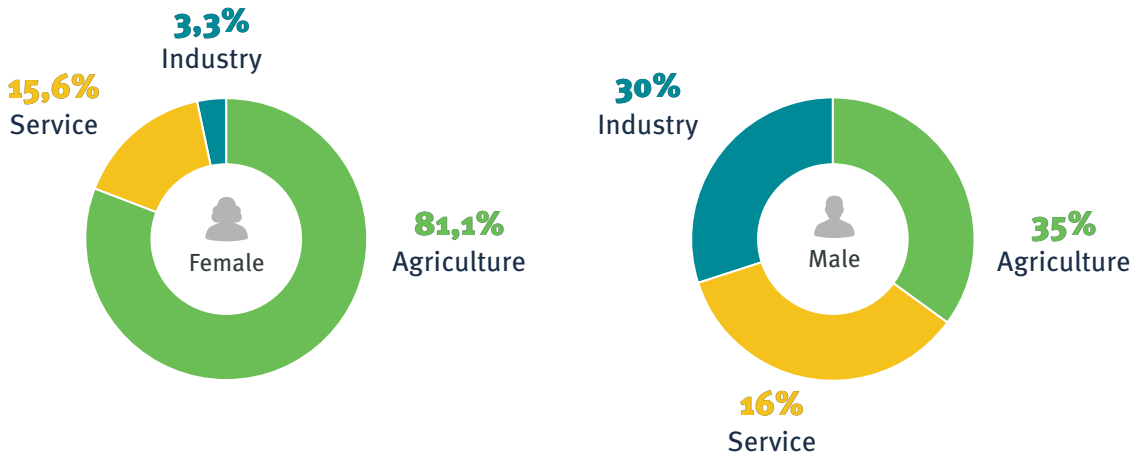


(ELMPS, 2018; ELMA analysis)

At national level, in line with the trends in Luxor and Qena, the largest share of **female informal employment is in agriculture**, which is estimated at 81%, as shown in the following figure. This differs from the distribution of informal male employment, which is characterized by equal distribution between the agriculture, industrial and service sectors.

Figure 15

Distribution of informal employment by gender and sector



(International Labour Organization, 2018)[11]

[11] *International Labour Organization (ILO), Women and Men in the informal Economy: A Statistical Picture (Third Edition) (2018)*

Local industrial activity

Industrial activity is a **key lever of economic growth and job creation**. Based on registration of enterprises with the Industrial Development Authority (IDA), the following table shows the number of **registered enterprises across Upper Egypt**, as well as their production value and number of workers.[12]

Table 3 *Number of Enterprises, Production Value, Investment and Number of Workers (2018)*

Governorate	No. of Enterprises	Production Value	Investment	No. of Workers
Beni Suef	376	43,310,930	18,933,087	20,887
Fayoum	262	7,696,652	3,366,354	14,765
Minya	510	5,233,890	5,780,475	13,476
Assiut	797	13,330,884	10,058,939	17,774
Sohag	534	3,203,675	2,474,866	9,925
Qena	203	17,734,292	10,730,603	24,083
Aswan	205	5,148,017	6,512,717	14,850
Luxor	28	1,020,312	681,837	2,082
Red Sea	67	27,345,494	13,850,083	8,252
New Valley	26	380,923	350,163	1,269
Total Upper Egypt	3,008	124,405,069	72,739,124	127,363

(ELMA analysis using IDA-registered companies data, 2018)

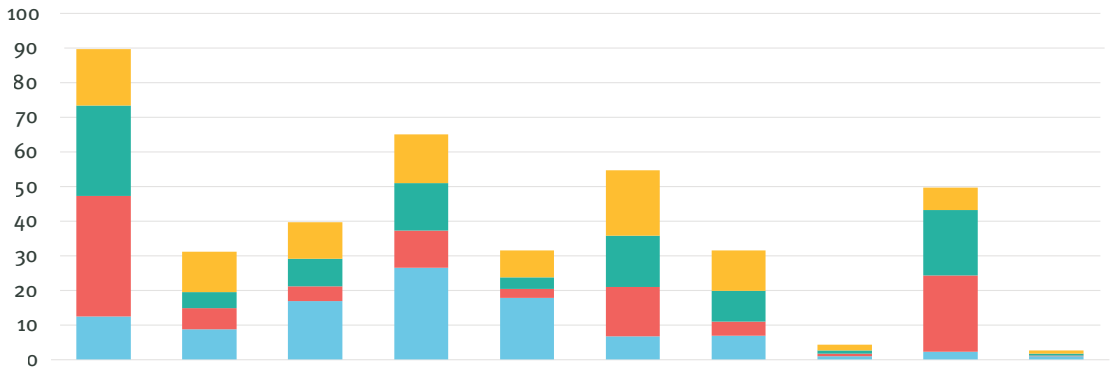
It is worth noting that the total number of enterprises that are registered with the IDA is limited and there is a huge gap between the number of enterprises published by the CAPMAS in the economic census and the ones registered with the IDA, as many companies **do not possess industrial registers.** For example, the number of reported enterprises in the economic census in Luxor is 41,282 (20,086 registered and 21,196 unregistered) and in Qena is 81,295 (31,178 registered and 50,117 unregistered)[13]. This reflects the limited number of firms that are located in the region's industrial zones.

[12] *Registration with the IDA is obligatory for all factories operating in industrial zones across Egypt.*
[13] *CAPMAS, Economic Census 2018.*

The figure below shows that **Qena** has the highest employment rate in the Upper Egypt region (19%) among the **workers in industrial establishments** despite the number of industrial establishments being below 7%. This indicates the presence of **labour-intensive industries** in the governorate. In contrast, **Luxor** and New Valley are the governorates with the l**owest number of industrial establishments**, workers and production value.

Figure 16

Percentage of enterprises, production value and workers by governorate in Upper Egypt region (2018)



	Beni Suef	Fayoum	Menia	Assiut	Sohag	Qena	Aswan	Luxor	Red Sea	New Valley
No. of Workers	16,4%	11,6%	10,6%	14,0%	7,8%	18,9%	11,7%	1,6%	6,5%	1,0%
Investment	26,0%	4,6%	7,9%	13,8%	3,4%	14,8%	9,0%	0,9%	19,0%	0,5%
Production Value	34,8%	6,2%	4,2%	10,7%	2,6%	14,3%	4,1%	0,8%	22,0%	0,3%
No. of Establishments	12,5%	8,7%	17,0%	26,5%	17,8%	6,7%	6,8%	0,9%	2,2%	0,9%

(ELMA analysis using IDA-registered company data, 2018)

Key findings: labour demand, labour supply & matching process

There are **major opportunities for growth in the green economy**, which build on existing demand and capitalise on emerging trends and markets.

According to the ILO, on the basis of the assumption that the agriculture sector employs 30% of the labour force, it is projected that sustainable green agriculture will generate around 8 million additional jobs by 2050. [14]

In addition, UNEP's 2014 report Green Economy Scoping Study for Egypt and the German Development Institute's report Building Domestic Capabilities in Renewable Energy (2012) have both made estimates regarding significant potential job opportunities in the green economy. Solar photovoltaic energy, for example, can generate 7-11 jobs per megawatt for a plant with average capacity. [15]

This section lays out the state of play in the IGGE project's targeted green growth sectors in Qena and Luxor – **sustainable agriculture and food production** (SA&FP), **waste management** (WM) and **renewable energy** (RE) – based on extensive interviews with 26 MSMEs in Luxor and Qena (50% in SA&FP, 31% in WM, 19% in RE). It explores private sector job requirements by sector, with a specific focus on MSMEs in Luxor and Qena, as well as gaps in the education and training offer and the match-making process

3.1 Labour demand

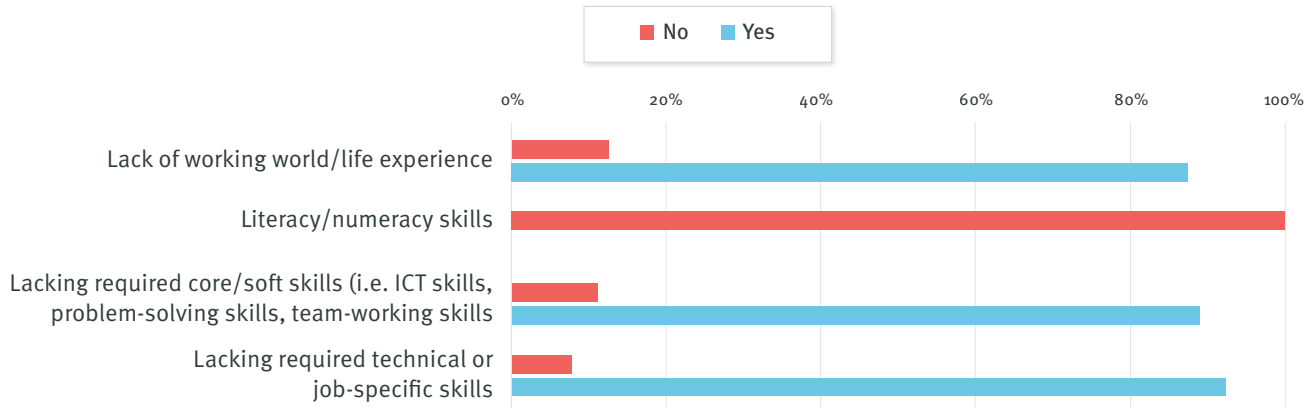
The majority of the interviewed firms are micro and small and rely to a great extent on the recommendations of their relatives in the hiring process. These firms **lack the existence of clear hiring structure and HR policies**, which is in keeping with MSMEs across Egypt. In general, the **managers of these firms also tend to be the owner.** This means they not only manage the whole business, but usually act as the primary technical expert in the business too, including training employees.

While all firms have low-skilled workers, technical jobs represent the vast majority of roles. **Technical jobs represent around 84% of the existing roles** across the surveyed sectors, which is consistent with the nature of the companies.

An issue across all these sectors is a lack of skills in new employees. Around 90% of firms stated that **newly hired workers often lacked soft skills** – such as communication, teamwork, presentation, leadership – as well as **technical expertise**, experience of the working world and job-specific skills.

Figure 17

Assessment of skills of newly hired workers



Source: ELMA Survey Results (January 2021)

[14] *ILO (2018)*
[15] *Ibid.*

The most frequent available occupations are managers (owners), engineers, technicians and low-skilled workers.

In general, most of the interviewed firms suffer from finding **engineers and technicians** with a high degree of practical experience or skills. On the other hand, most technical positions do not require more than secondary level education, with the exception of some specialised positions, such as agronomists or machine operators, which require a higher level of education.

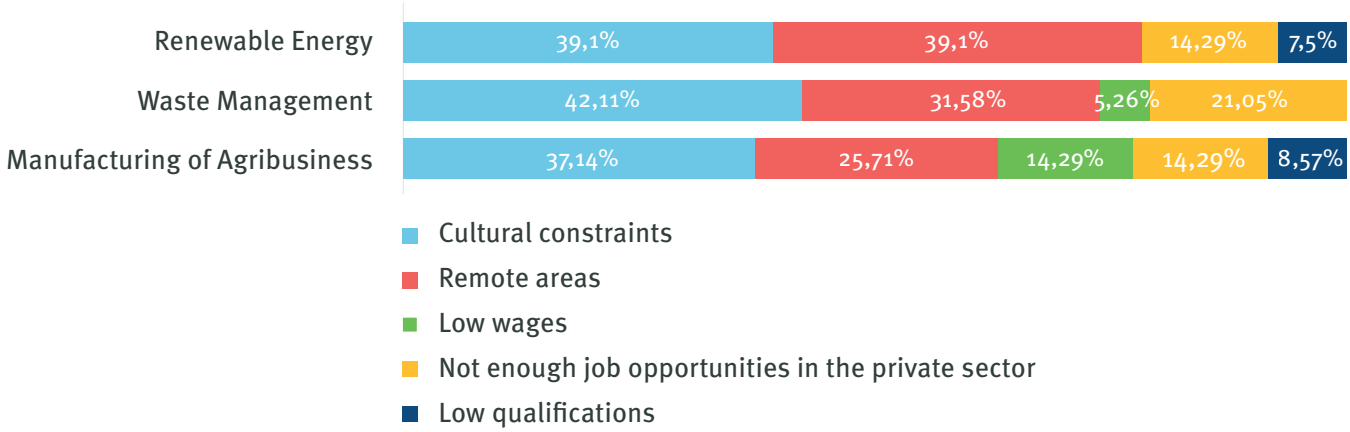
As engineers and technicians **lack practical skills required** by the employers – across all three target sectors – most firms provide **on-the-job training** to raise the qualifications of newly recruited workers. Such training is mostly provided by the owner of the company or through experienced workers, who themselves were often previously trained by the owner. This highlights that owners are usually the source of knowledge for training and information in these companies – which is potentially restrictive and not always reliable – and that there is an **absence of structured training programmes** both inside and outside of the firms.
Only a fraction of these utilize tailor-made training courses provided by specialized education and training institutions. Some firms reported that education and training centres in the governorates do not offer relevant trainings. This could either reflect a **lack of awareness** on the part of the firms or an actual absence of such trainings. Medium and large firms develop the skills of their staff mostly through transferring knowledge and skills from either the suppliers of the machinery, the buyers in other countries or even from competing firms.

The field work conducted shows only a moderate demand for managerial positions, primarily because the managers of micro, small and medium firms tend to be the owners themselves. In this respect, micro and small firms have, in most cases, only one manager. However, the bulk of the positions are **technicians and low-skilled workers**, with a high proportion of youth representation. Medium and large firms, on the other hand, employ a relatively lower proportion of youth workers, as they tend to have more than one manager and/or supervisors for each department.

3.1.1 Female employment

A key challenge behind the low representation of women in workforces in Qena and Luxor remains **cultural constraints**, which are deeply rooted in rural areas in Upper Egypt. These cultural barriers coupled with **lack of transportation** can restrict the movement of labour, especially to certain remote areas with relatively high job opportunities, such as industrial areas and reclaimed lands. Furthermore, **poor working environments for women** are a critical barrier and results in limited female participation in the private sector.

Figure 18
Challenges facing women in Qena and Luxor (%)



Source: ELMA Survey Results (January 2021)

Education plays a key role in female employment levels. Highly educated women, such as university graduates tend to work in the **public sector**, as medical doctors or teachers, as well as in administrative and HR roles. These professions are more readily available in the public sector, where the roles come with more stability and security, alongside more convenient locations and working hours, as well as benefits such as annual leave entitlement and social security. On the other hand, women with intermediate or lower levels of education, such as secondary or preparatory school graduates, tend to work as **technicians or as low-skilled workers** in morning shifts. In the SA&FP sector, roles include sorting, cleaning, grading and packing the final product, while in the RE sector positions involve assembling solar cells in the manufacture of solar panels. In the WM sector, women are primarily involved in collecting, filtering and sorting agricultural waste, as well as manufacturing handmade products out of this waste.

A recent USAID Gender Analysis and Assessment[16] similarly found that private employers choose not to hire women for certain occupations, reflecting the **gender biases** prevalent in Upper Egypt. On the other hand, the USAID study showed that **female-owned firms** and projects tend to hire women over men, as confirmed by the ELMA fieldwork, which both increases female employment as well as having a positive spill-over effect on society.

3.1.2 Sustainable agriculture and food production

The SA&FP sector firms surveyed in the framework of the ELMA primarily work on the production of black honey, jams, juices, dried fruits and vegetables, tahini, tomato paste, oil extraction and processing, and baked goods. Most of the surveyed firms are **micro and small firms** and do not have hiring processes or HR policies. The most frequently available roles are as managers (owners), engineers, technicians and low-skilled workers.

Main Findings

- Production techniques used by micro and small firms in the SA&FP sector tend to be very basic and **labour intensive**, with **limited use of technology** and modern practices.
- Companies often cite a **difficulty in sourcing qualified mechanical engineers and technicians**, especially regarding the repairing of machines. Our research highlights two key challenges to recruiting suitably qualified engineers. The first is a lack of qualified mechanical engineers and quality control personnel with practical experience in Upper Egypt. The second challenge is the **out-dated hiring process** employed by firms, which rely overwhelmingly on word-of-mouth recommendations.
- In terms of required qualifications and skills, practically experienced agronomists, quality control experts and mechanical engineers are greatly needed in this sector, along with well-trained mechanical technicians with practical experience of production machines. Practical training is also required for semi-skilled and low-skilled workers in grading and packaging activities.

[16] *USAID, Gender Analysis and Assessment, USAID/EGYPT, Final Report (2020)*

Job profiles required

Through focus group discussions with local firms and education and training providers aiming at developing priority occupational profiles, the following three main roles were identified in the food processing sector: **food production engineers, food safety specialists and food production operators.**

Occupation	Food production engineer
Description	The food production engineer works under the supervision of the production manager. S/he supervises all stages of manufacture operations, supervising technicians and workers, observing food safety requirements and applying occupational health and safety rules.

Key duties and tasks	Knowledge, skills and abilities
• Support the development of short- and long-term operations and production plans • Identify required materials qualitatively and quantitatively, according to required production specifications and human resources required to implement operations plans • Responsible for drafting operations procedures, records and reports, and participates in the development of the food safety plan • Ensure the safety and readiness of production lines before operation and supervises the raw materials mixing process alongside other operations • Ensure food safety requirements are met and occupational health and safety rules are applied during operations	• Familiarity with the basics of food processing, food preservation and food safety • Familiarity with national and international product standards, as well as food safety risks and how to avoid them • Knowledge of food safety requirements and application of occupational health and safety rules • Familiarity with relevant facilities and equipment (including design, location, buildings and rooms, devices and equipment), Hazard Analysis and Critical Control Points (HACCP) system • Familiarity with hygiene and health issues of individuals, health status, diseases and injuries, personal hygiene, personal behavior, visitors, records of good health practices • Knowledge of the raw materials used in manufacturing and their appropriate storage conditions • Ability to apply appropriate logistical and handling practices for products • Ability to implement product recall plans • Ability to ensure the safety and readiness of production lines prior to operations • Ability to supervise the process of mixing ingredients and other production operations • Soft and interpersonal skills

Occupation	Food safety specialist
Description	The food safety specialist organizes operations and implements procedures in order to avoid food safety issues, applying food safety specifications and standards in accordance with regulations. S/he works under the supervision of the general manager of the facility, ensuring food safety, proper manufacturing practices and personal hygiene of workers and technicians.

Key duties and tasks	Knowledge, skills and abilities
• Plan food safety according to the facility's policy and in line with local and international requirements • Determines the facility's policy towards implementing food safety specifications and requirements • Spreads awareness about personal hygiene among workers, food safety requirements in the facility, food safety laws and regulations • Conduct research to develop the facility's food safety policy in accordance with local and international requirements • Implement food safety requirements • Ensure the compliance of suppliers with food safety requirements • Identify appropriate personal protective equipment for workers and to ensure food safety • Verify the implementation of preliminary requirement programs within the facility, food safety plan within the facility • Implement corrective measures in accordance with food safety programs within the facility	• Familiarity with the basic concepts of food safety, its importance and the specifications of safe food • Familiarity with food safety risks and how to avoid them, food safety specifications and requirements, and the Hazard Analysis and Critical Control Points (HACCP) system • Familiarity with hygiene and health issues of individuals, health status, diseases and injuries, personal hygiene, personal behavior, records of good hygiene practices and corrective actions according to food safety programs within the facility • Ability to implement food safety requirements, preliminary requirements programs, food safety plans and corrective measures in accordance with food safety programs inside the facility • Ability to ensure suppliers comply with food safety requirements • Ability to determine personal protective requirements for workers and to ensure food safety • Soft and interpersonal skills

Occupation	Food production operator
Description	The food production operator works under the supervision of the food production engineer and supervises the workers: implementing operations around various food materials and products, ensuring food safety requirements are met and applying occupational health and safety rules.

Key duties and tasks	Knowledge, skills and abilities
• Supervise workers • Distribute workload among workers • Ensure employee commitment to occupational health and safety procedures, compliance with personal hygiene requirements • Communicate with workers and monitor their health conditions • Prepare tools and equipment necessary for operation, including preparation of raw materials according to the production order and specification • Monitor operation counters, including checking processes and readings (such as heating, cooling and freezing) • Supervise the packaging process	• Familiarity with the basic concepts of food safety, its importance and the specifications of safe food • Familiarity with food safety risks and how to avoid them as well as food safety requirements • Familiarity with hygiene and health issues of individuals, health status, diseases and injuries, personal hygiene, personal behavior, records of good hygiene practices • Knowledge of the raw materials used in manufacturing and their appropriate storage conditions • Ability to apply appropriate logistical and handling practices for products • Ability to execute a product recall plan • Ability to ensure the safety and readiness of production lines before operation • Ability to supervise the process of mixing ingredients and other operations • Knowledge of food safety requirements, occupational health and safety rules and how to practically apply them • Soft and interpersonal skills

3.1.3 Renewable energy sector

The majority of RE surveyed firms are in **engineering, procurement and contracting (EPC),** operations and maintenance and the **distribution** and marketing of systems, with a focus on off-grid applications in agriculture. They are largely **micro and small firms;** only one firm interviewed was of medium size. The main roles available in this industry are as engineers, technicians and low-skilled workers.

Main findings

- The surveyed firms employ a mix of engineers, technicians, low-skilled workers and commercial/ sales staff. Our primary research shows that youth employees are preferred largely due to their greater **ability to learn,** as well as their physical **capacity and adaptability** to field and remote locations.
- **The low percentage of female employment** in the solar energy sector is attributed to the fact that women are employed in a limited range of roles, such as engineers (designing) and technicians (assembling of the PV cells). However, female technicians are not involved in installation operations for reasons discussed above **(travel, remote worksites, perceptions of physical capacity and other cultural and gender biases)**. On the other hand, according to one interviewee, while cultural constraints persist in Upper Egypt, there is **great improvement regarding female empowerment** in the solar energy sector.
- Women are not employed in commercial or sales jobs, due to social and cultural barriers in women dealing with the largely rural customer base (farmers).
- Both engineers and technicians are required to possess practical experience relevant to the design and installation of solar systems, as the formal education curriculum provides only a basic knowledge and understanding. This suggests a need for specialized, advanced practical training, in order to allow a greater proportion of the labour force to perform jobs such as solar electricians.

Job profiles required

Through focus group discussions with local firms and education and training providers aiming at developing priority occupational profiles, the following three main roles were identified in the solar energy sector: **design and technical support engineers, installation engineers and installation technicians.**

Occupation	Design and technical support engineer for renewable energy systems
Description	The design and technical support engineer for renewable energy systems conducts research and provides designs, advice, planning and guidance for the construction and operation of renewable energy systems. S/he is responsible for drawing up the necessary technical designs, using various design programs, for renewable energy systems in line with international design codes, as well as providing calculations and costings for the design. S/he works under the supervision of the technical office manager.

Key duties and tasks	Knowledge, skills and abilities
• Define the objectives and limitations for the initial design through communication with clients and stakeholders • Utilize specialized design software, formulate design concepts and plans that align aesthetic considerations with technical, functional, environmental and production requirements • Prepare diagrams, illustrations and simulations • Provide research and advice around the maintenance and repair of electrical, electronic and mechanical systems • Provide advice and designs of electrical power generation plants and systems • Establish control standards to monitor the performance and safety of various systems and equipment	• Knowledge and ability to design on-grid and off-grid systems • Knowledge and ability to identify solar system components – including solar cells, batteries and charger controllers – and to choose solar system components with high efficiency • Knowledge and ability to design solar water heater systems and solar irrigation systems; a working knowledge of their types and components, and ability to select appropriate pumps for irrigation • Soft and interpersonal skills

Occupation	Renewable energy installation engineer
Description	The renewable energy installation engineer is responsible for the on-site installation and delivery of the renewable energy system and ensuring its conformity with designs. S/he participates in the design and works according to agreed plans, probes the site, installs PV panels, supervises the execution process and ensures its conformity with designs, oversees operations and maintenance activities, manages on-site activities in accordance with the rules of occupational health and safety.

Key duties and tasks	Knowledge, skills and abilities
• Conduct research, guide the installation, oversee operations, maintenance and repair work for renewable energy systems • Participate in the design of renewable energy generation systems • Set supervision standards to monitor the performance and safety of electrical and electronic systems and equipment • Perform installation in accordance with designs and in line with safety instructions • Select required tools and equipment in order to execute the construction of various systems	• Knowledge of relevant materials, tools and equipment for outdoor application, and installation, including different fixation systems, system units, series fuses and bi-chain, types of inverters, spare batteries, battery storage systems, cables and connections, electrical protection systems associated with electrical installations, net metering (such as smart meters and bi-meters) • Understanding of the difference between on-grid and off-grid systems • Ability to install the renewable energy systems in line with safety instructions, (including, for example, installing units, fixing frame structures, adjusting slope angles of mounting structures, checking slope angles of the cells using a suitable meter, ensuring shading calculations, installing battery racks and reflectors metal brackets) • Soft and interpersonal skills

Occupation	Renewable energy installation technician
Description	Renewable energy installation technicians perform technical tasks associated with research and operational methods in electrical and mechanical sciences and engineering, working under the supervision of renewable energy installation engineer. They supervise and control the technical and operational aspects of electricity, manufacturing, construction and other engineering operations, as well as the operation of technical equipment. Principal duties include installing chassis and laying cables according to the design, observing the rules of occupational health and safety, participating in operation and maintenance activities.

Key duties and tasks	Knowledge, skills and abilities
• Provide technical assistance in research and development of electrical equipment and facilities, including test models • Design and prepare plans for electrical installations and electrical circuits in accordance with specifications and designs • Prepare detailed estimates of quantities and costs of materials and labour required for installation and fixing according to specifications and designs • Monitor technical aspects of assembling, installing, operating, maintaining and repairing various power systems to ensure satisfactory performance and compliance with specifications and regulations • Plan installation methods, examine the completed installation for safety, compliance with specified standards and initial operation of various equipment and power systems • Assemble, install, test, calibrate, adjust and repair electrical and mechanical equipment and installations for various power systems in accordance with the regulations and requirements of occupational health and safety and the environment	• Familiarity with the principles of electrical engineering, mechanical engineering and mathematics • Relevant specialist knowledge including various solar energy systems and their components, terms and symbols used in technical, shop drawings and design drawings, engineering drawing programs, panel orientation programs, occupational health and safety procedures. • Ability to read and implement designs and shop drawings, as well as understand technical descriptions in work-related documents • Ability to audit sites and adjust the orientation of solar panels • Ability to assess customer needs • Knowledge of technical drawing software and ability to use it • Working knowledge of English language • Soft and interpersonal skills

3.1.4 Waste management sector

The main roles available in this sector are as engineers, technicians and low-skilled workers.

Main findings

- **Youth make up around 60% of the WM workforce** of firms interviewed. Youth are mainly employed in lifting residues and placing them into the production yards, as well as turning, mixing and washing raw materials. Meanwhile, managers and engineers require previous relevant experience in the production process of agricultural waste, to allow them to perform supervisory roles.
- **Women** tend to be employed as technicians in the manufacturing of furniture and in the filtration and sorting of residues. The real and perceived physical demands of some roles, alongside gender biases, are a major barrier to women taking on certain roles including manual labour and driving roles. Social and cultural biases prevalent in Upper Egypt mean that micro and small firms generally do not hire women for engineering roles.
- Despite the above, the role of women in the WM sector, particularly the agricultural WM sector, is **expanding into new roles,** for example the processing of animal feed out of sugar cane waste. Moreover, the interviews revealed the presence of some niche activities which are female-dominated, such as the manufacturing of furniture and decorative handmade products from banana tree waste, where women are perceived to have more relevant skills. It is worth noting, however, that this is a rather small-scale and seasonal activity.
- More broadly, the agricultural WM sector greatly requires agronomists with relevant practical experience, quality control experts and chemists, in addition to well-trained mechanical technicians to operate production machines for large companies. Practical training is also compulsory for semi-skilled and low-skilled workers on building good compost heaps with specific diameters, stirring and mixing the residues and adding water with specific amounts to the compost if required.

Job profiles required

Through focus group discussions with local firms and education and training providers aiming at developing priority occupational profiles, the following three main roles were identified in the **agricultural waste management sector: waste management chemists, supervisors and technicians**.

Occupation	Waste management chemist
Description	The waste management chemist is responsible for the laboratory; using various tests to determine the chemical and biological properties of waste and appropriate treatments, including calculating production quantities. S/he works under the supervision of the factory manager, supervising the decomposition and biological and chemical treatment of waste by recycling and extracting the value according to product specifications, as well as customer needs and expectations. S/he develops compounds and shaping processes, as well as evaluating the efficiency and performance of chemical compounds, taking into consideration occupational health and safety procedures.

Key duties and tasks	Knowledge, skills and abilities

Supervising:
• Prepare (Matrix) items for chemical / biological treatment:
  • Prepare organic matter (piles) In its various forms
  • Monitor different measurements for each pile (e.g. moisture percentage, temperature etc.)
  • Ensure pile readiness for treatment
• Perform the chemical treatment for the matrix according to its properties:
  • Moisturize and turn the pile
  • Add chemicals, biological and natural components to the pile to activate bacteria and organic matter to improve the product
• Prepare compost in its final form:
  • Sift the organic matter (initial preparation of organic matter)
  • Pack compost in plastic bags
  • Store compost in designated storage areas
  • Write work related reports
  • Use chemical and biological test equipment
  • Follow regulations and ensure compliance with new regulations
  • Advise clients
	• Familiarity with product characteristics and the construction and properties of various materials and particles that compose the different materials, according to their chemical composition and structure
	• Familiarity with chemical and biological reactions and other forms of mutual interaction between materials according to their chemical composition and structure
	• Knowledge of relevant technical legislation and regulations
	• Familiarity with regulations and laws for waste management
	• Knowledge of standards for compost products specified in legal regulations and international standards
	• Ability to implement occupational health and safety
	• Ability to investigate gaseous pollutants, ensure quality control and compliance with legislation and technical regulations
	• Ability to monitor and control composting and fermentation processes, including various technical processes

Key duties and tasks	Knowledge, skills and abilities
• Translate formulas into operations	• Ability to ensure quality of compost and fermentation products • Ability to use sewage sludge and animal waste • Ability to take samples from solid and liquid waste, inspect them and determine their caloric value • Ability to classify and group the matter elements in groups that share the same characteristics • Ability to use different devices and tools • Ability to conduct different composting and fermentation operations using different methods, including various technical operations • Ability to implement occupational health and safety procedures, as well as identify, assess, control and deal with risks • Ability to implement procedures and instructions for using, maintaining and cleaning factories and equipment • Soft and interpersonal skills

Occupation	**Waste management supervisor**
Description	The waste management supervisor coordinates the collection, sorting, recycling and disposal facilities of waste. S/he supervises waste management operations, ensuring compliance with environmental standards, as well as supervising workers. S/he assists in developing waste management methods, with the aim of increasing their disposal, and helping in preventing violations of waste recycling legislation, while observing occupational health and safety procedures in the workplace.

Key duties and tasks	Knowledge, skills and abilities
Supervise the implementation of work plans and operation: • Supervise collection processes • Receive waste trucks (transported waste) according to size and type • Supervise the sorting, pressing and operation process • Ensure product quality • Prepare required reports	• Ability to determine types of waste and calculate quantities and sizes • Knowledge of raw materials, various production processes and stages, machines and tools, repairs, and maintenance • Ability to identify potential malfunctions and resolve them • Ability to operate various types of equipment and machines

Key duties and tasks	Knowledge, skills and abilities
Work planning and management: • Distribute workload among employees according to type and quantity • Follow up with workers, monitors problems and solves them **Implement occupational health and safety procedures:** • Ensure workers comply with health and safety requirements • Ensure safety of the workplace and minimizing of dangers (e.g. ventilation, lighting etc.) • Advise clients • Ensure compliance with legislative regulations related to waste	• Ability to apply daily checks to ensure that equipment is operating in accordance with operating procedures • Ability to operate equipment in accordance with training and safe work systems • Ability to implement the procedures and instructions for using, maintaining and cleaning any used factory or equipment • Knowledge of the effect of various factors on the quality of the final product and how to monitor the components of the product or the components included in the product, including materials and packaging • Familiarity with conducting product measurements and comparing them with specifications, including methods of evaluating and analyzing the reasons for any differences • Knowledge and ability to monitor equipment and ensure it is working properly • Knowledge of various quality standards and specifications • Knowledge of sampling methods for various raw materials and products and different standards • Knowledge of the legal framework for transporting different types of waste, including hazardous waste, identifying types of hazardous waste, its storage and proper disposal • Ability to implement occupational health and safety procedures • Knowledge and ability to prevent occupational health and safety accidents • Ability to identify, assess and control risks • Ability to coordinate recording and reporting of information, including preparing monthly reports • Knowledge of production methods, human resource coordination and resource allocation techniques, management and time management methods • Soft and interpersonal skills

Occupation	Waste management technician
Description	Waste management technicians (sorting and recycling workers) perform tasks relating to the sorting of recyclable materials, making sure that there are no unsuitable materials that end up among the recyclables. Technicians inspect materials, perform cleaning duties and work according to waste regulations and abide by environmental instructions in the field of work. They work under a supervisor to sort all kinds of waste, classify waste by type, collect it in containers, and store it according to type and size, considering occupational safety and health procedures.

Key duties and tasks	Knowledge, skills and abilities
Commit to occupational health and safety procedures: • Wear occupational safety clothing • Commit to occupational health and safety instructions • Deal with different emergency situations in the work environmen **Collect waste from different places:** • Clean the gathering places • Deal with different types of waste • Identify and deal with hazardous waste • Lift waste to conveyors • **Sort waste by type:** • Use sorting equipment and tools • Sort and classify waste • Transport waste to specified places according to type **Compress waste by type:** • Prepare quantities to be compressed according to type • Make sure the press is ready • Compress waste according to type • Pack compressed waste and bind it according to type • Transport and store waste by type **Shred the waste by type:** • Prepare and unpack bales • Prepare the shredding machine and make sure it is safe	• Practical knowledge to identify the different types of waste, their origin, the basic differences between them, and acceptable and unacceptable waste, as well as the process for dealing with non-conforming waste • Familiarity with occupational health and safety procedures, accident prevention, emergency handling and emergency/accident response in accordance with approved procedures • Ability to apply occupational health and safety procedures in the workplace • Familiarity with presses and shredder types and their main components, including knowledge of how to operate them and possible basic malfunctions • Knowledge of methods for determining the volume and weight of waste • Knowledge of how to identify types of hazardous waste, methods of safe handling, including their storage and proper disposal • Knowledge of proper use of cleaning fluids and cleaning materials • Ability to identify cases of non-compliance within the Technician's scope of responsibility, informing the appropriate person. • Knowledge of the risks associated with operating equipment to themself, colleagues and other people in the vicinity • Ability to monitor/evaluate own performance in order to make improvements or take corrective action • Ability to apply proper lifting procedures for heavy weights

Key duties and tasks	Knowledge, skills and abilities
Shred the waste by type: • Prepare and unpack bales • Prepare the shredding machine and make sure it is safe • Perform the shredding process • Pack waste after shredding • Store shredded waste	• Ability to identifying risks and know how to deal with them • Ability to apply and understand the procedures and instructions for using, maintaining and cleaning any equipment used • Ability to operate equipment in accordance with received training • Ability to perform daily checks to ensure that equipment is operating in accordance with operating procedures • Ability to operate equipment in accordance with training and safe work systems • Soft and interpersonal skills

3.2 Labour supply

Below are our key findings regarding labour supply stakeholders in Luxor and Qena with focus on **education and training service** stakeholders. The findings are based on the extensive interviews conducted during the employment and labour market analysis, with bodies including universities, higher education institutes, public training centres and non-governmental organizations (NGOs), covering both formal and informal education and training.

3.2.1 Sustainable agriculture and food production sector

Among the education and training providers interviewed, only **higher education institutions** and NGOs offered education and training services related to the SA&FP sector. Both the Faculty of Agriculture and Faculty of Engineering at South Valley University (SVU) produce graduate agronomists, agricultural and mechanical engineers, which are much needed by companies in the SA&FP sector. Both faculties provide tailored **theoretical and practical** education and training, through their training centres, to their graduates and to some other beneficiaries such as small business owners and farmers. They also collaborate with national and international donors and NGOs.

Despite the above, there are still some **deficiencies related to insufficient sub-sector training.** This includes limited on-the-job practical experience as well as limited outreach, meaning training remains largely restricted to university graduates (high-skilled workers), rather than technicians or low-skilled workers. Moreover, the faculties do not produce graduates able to take on the quality assurance roles required by the labour market across the food processing sector. This is an issue found across Egypt related to the lack of proper **labour market information systems.**

NGOs are key stakeholders, providing training services for a wide range of roles including technicians, IT and commercial/sales. Our findings show that this training is directed at **various value chains**, including the production of pickles, baked goods, packing palm dates, drying of tomatoes, though **there is a significant gap around higher value-added activities.** Most of the beneficiaries of these trainings are female technicians and low-skilled workers, with courses designed to enable women to perform these functions either in their own homes or to establish their own small businesses. The duration of courses provided is on average between five to 10 days, with training remaining basic and conducted on relatively low-tech machines. The training is provided for free, financed by international and local donors and NGOs.

3.2.2 Renewable energy sector

Education and training services related to the RE sector are **relatively scarce** in Upper Egypt, with few faculties, schools or NGOs providing such services. South Valley University's Faculty of Engineering offers only one module, as part of the physics curriculum, on renewable energy in general and on solar energy specifically. However, no practical training is conducted in this area and there is no specific department focused on renewable energy or solar energy. Ultimately, these institutions provide engineers with only the fundamentals of the subject.

SVU's Faculty of Science offers a module on solar energy for students, through the physics curriculum, and it is the only institution which offers a **solar energy diploma**, under its SOLEDA project,[17] which is funded by the European Union's Tempus programme. The diploma is composed of two semesters. The courses include solar photovoltaic (PV) systems, modelling and simulations of PV systems, solar thermal energy at different temperatures, solar desalination, hybrid energy systems, solar technical sales and marketing, project management, concentrated solar energy and energy applications, and covers practical training too.

The technical education schools offer **electrical and mechanical curricula** for technicians, which act as a foundation to enable them to work in the solar energy industry. It should be noted that a new programme related to renewable energy and solar energy is currently being introduced across 14 technical schools, including in Qena.

Only two **vocational training centres** are offering or planning to deliver services related to the solar energy industry. The PVTD possesses three training centres (two in Cairo and one in Assiut), which offer three-year renewable energy programmes focused on solar energy. The training centre in Cairo is equipped with a solar heating workshop,[18] solar photovoltaic lab and wind lab supported by the Technical and Vocational Education and Training Reform Programme (TVET Egypt)[19]. Only one NGO delivered a specialized training course on the production and installation of solar heaters, which was supported and sponsored by domestic donors.

3.2.3 Waste management sector

SVU's Faculty of Agriculture and Faculty of Science both provide **specialized education and training** services relevant to waste management in general and agricultural waste management specifically. As such, they largely train high-skilled workers such as agronomists and scientists. The Faculty of Science offers formal education on the production of compost, animal feed and biogas, as part of its Biology Department. Students usually specialize in their third and fourth years, with six-week practical training placements in sugar cane factories in Qena offered to final year students. However, there remains a limited supply of quality control personnel and lab engineers across this value chain, because newly qualified graduates often migrate to Greater Cairo seeking better job opportunities at higher wages.

None of the public vocational training centres provide training courses related to agricultural waste management, only general training courses, for example for mechanics and electricians. Most of the interviewed **NGOs** conduct training on the production of compost, biogas and animal feed. The training is based on basic technology, with duration ranging from four days to two weeks.

[17]Solar Energy System Design using Advanced Learning Aids (SOLEDA).
[18]The PVTD training centre in Cairo was equipped by UNIDO Solar Heating for Industrial Process (SHIP) project, which is funded by the Global Environment Facility and implemented together with the Ministry of Trade and Industry – Industrial Modernization Centre.
[19]The Technical and Vocational Education and Training Reform Programme (TVET Egypt) operates nationwide and is co-funded by the Government of Egypt and the EU.

3.3 Matching labour supply and demand

Below are key findings about how labour supply is being matched with demand.

3.3.1 Recruitment procedures and employment services

The ELMA revealed that there are often **no clear recruitment rules or structures** in place across companies in these sectors, with recruitment largely based on recommendations from neighbours and relatives. It is important to note that none of the interviewed companies made use of employment service providers.

There is **little communication** between these companies and education and training service providers. From the companies' side, this is due to the lack of exposure of MSMEs and their limited level of awareness of the existence of these centres. From the employment service providers' side, the limited activity and scope of these entities, along with the lack of advertisement about the services provided, is another reason behind this disconnect.

A considerable proportion of companies across these different sectors are **not aware of employment service providers** and their main services which constitutes a real barrier to progress in recruitment and training. There are few employment services operating specifically for Qena and Luxor. This includes the Career Development Centre (CDC) in South Valley University (SVU) and the directorates of Manpower in Qena and Luxor. However, these service providers **lack structured databases of job seekers** and **linkages with private companies** to offer efficient matching/recruitment services.

In general, CDC offers employment placements for job seekers among SVU students and graduates, therefore largely targeting highly-educated job seekers in administrative, accounting, engineering and scientific areas. This is usually done on a project basis, rather than an agreed process with companies. Despite offering training for job seekers, there appears to be limited awareness of their services among employers. The centre hopes to develop partnership agreements with employers, though it is hindered by a lack of financial resources that restricts its capacity to conduct awareness-raising campaigns or marketing in order to open up communication channels with potential employers.

The employment offices of the Ministry of Manpower in both Qena and Luxor do not possess databases of job seekers, graduates, employers or companies in the study areas. This is a major barrier to delivering effective matching of labour supply to demand. As a result, their services are mostly restricted to those job seekers who are already familiar with their services and seek to register with them.

On the contrary, Cairo-based organizations delivering employment services tend to offer online services, through which both the employers and job seekers can post their job vacancies and apply for the suitable job offers, which implies their relatively higher ability to reach more job seekers and companies. Some organizations have developed databases of registered job seekers and their CVs and have agreements with specific companies to match people to vacancies. Among the employment service providers interviewed, only a few – such as the National Employment Pact (NEP), recruitment agency Tawzef and job site Wuzzuf – conduct interviews with job seekers to assess their skills and qualifications. However, their work is broadly focused on Greater Cairo, with a lower level of activity in Upper Egypt, with some exception in the case of NEP.

[20] This includes employment offices and centres offering employment and recruitment services across Egypt.
[21] NEP also offers follow-up services to make sure that decent jobs are provided and that employment contracts are honoured, consistent with labour law (in terms of workplace safety, wages, working environment etc.).

Our analysis highlighted that none of the employment services organization, whether local or nationwide, cater specifically to the targeted sectors or value chains. Furthermore, they **do not offer career counselling or coaching** which is another major gap and a missed opportunity to drive youth towards technical careers where demand for labour is stronger. In general, employment service providers tend to have a **willingness to expand,** but lack the financial resources to do so.

Conclusion

Through the rapid ELMA including stakeholder interviews, we have mapped out labour supply, labour demand and the matching process between them, in order to help better understand the market and to inform the **creation of more green job opportunities** in sustainable agriculture and food production, waste management and renewable energy in Upper Egypt, particularly Luxor and Qena.

4.1 Gaps in the employment and labour market

Our findings reveal that there are many gaps in the labour market among every sector analysed, including, but not limited, to the following.

Training and qualifications

- There is a **lack of qualified job seekers** in the market. This is principally related to:
    - Inadequate specialist education and vocational training, with a limited number of training facilities, financial resources and trainers, which fail to meet the requirements of the labour market;
    - Only basic and generalised levels of relevant education in schools and universities, meaning practical skills for these sectors often need to be developed on the job.
- **Approaches to on-the-job training are largely unstructured,** informal and frequently conducted by business owners.

Women and youth in the workforce

- The **lower participation from women** is underpinned by deep-rooted social and cultural barriers in Upper Egypt, including perceptions of 'appropriate' work for women, as well as deficiencies in the process of matching labour supply to labour demand.
- **Gender imbalances in the workforce** see women less likely to enter employment in the private sector and more likely to work in the public sector, part time in the informal sector, or in occupations that pay less than male counterparts.
- **Remote worksites, inadequate transportation and infrastructure** are one key barrier to greater female participation in these sectors, in addition to limited access to affordable childcare.

Matching labour supply and labour demand

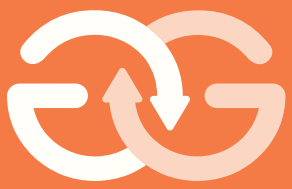
- There is **low awareness of employment service providers** and the assistance they can offer, particularly among job seekers.
- There is **inadequate provision of employment services** in Qena and Luxor, with providers falling short in the process of matching labour supply to labour demand, for example through lacking relationships with private companies and an absence of structured databases of job seekers and employers.

4.2 Recommendations

Below are recommendations based on the rapid ELMA's findings:

- Improving the provision of **sector-specific vocational training and education** services would help to produce more practically trained specialist technicians. Improvements could include additional financial resources, labour market information, more adequate machinery and trained instructors.
- As the high **female employment** rate in the public sector is largely due to the enabling environment and family-friendly policies available to public sector workers, initiatives which encourage the private sector to pursue similar policies would mean more women would be able or willing to enter the workforce in these sectors. This could include **improvements to infrastructure**, such as safe and reliable transportation and lighting on roads, **local affordable and accessible childcare** (day-care/ nurseries and preschools).
- **Online employment platforms** and websites generally have the capacity to cover all of Egypt and should be encouraged to do so and ensure their offerings reach firms and job seekers in Luxor and Qena.
- **Employment service providers** located in Qena and Luxor – such as the Career Development Centre in South Valley University and directorates of Manpower – should create databases of job seekers and/or graduates, employers or companies and not only cater to walk-in job seekers, which would help to improve awareness of employment offices and employment service providers with job seekers' demographics and in turn help to match more of the labour supply to labour demand.
- **Job search assistance, counselling and career guidance** should be promoted in Qena and Luxor as active labour market policies in the **green economy**, implemented by the Government or civil society organizations.

Ultimately, while gaps exist in the employment and labour market in Qena and Luxor, there is a great potential for creating green job opportunities and enabling a workforce with the required skills to take them on. Implementing these recommendations would help to contribute to increased employment and growth in key sectors in Egypt's green economy.



Inclusive Green Growth in Egypt

INCLUSIVE AND SUSTAINABLE INDUSTRIAL DEVELOPMENT