

Inclusive
Green Growth
in Egypt

GROWING EGYPT'S GREEN ECONOMY

BARRIERS TO GREEN ENTERPRISE GROWTH AND COMPETITIVENESS



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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 palm date.

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 Improving market intelligence in key green sectors

UNIDO has implemented many projects in these green economy sectors since 2014, including industrial development work, policy assessments, entrepreneurship facilitation and MSME support projects. Through this work, UNIDO has identified that **limited and asymmetric access to market data and market knowledge** is one of the key barriers to participation and competitiveness of cluster and value chain participants in Egypt, particularly in Southern Upper Egypt. For example, the burdens of analyzing technology and market risks in relatively nascent business areas is an impediment to investment by banks and private investors.

To remedy this, UNIDO has made the creation of **Market Intelligence Products** integral to its industrial development approach. These are centered on local data, information and insights, and are targeted at key participants, such as start-ups, MSMEs, financiers, policy-makers and support institutions¹.

The following Market Intelligence Products were developed as part of UNIDO's IGGE project in 2020-2021:

- *IGGE Sector Policy and Regulatory Mapping (2021)*
- *Barriers to Green Enterprise Growth and Competitiveness (2021)*
- *Business Opportunity Mapping, Clusters and Value Chains Diagnostics (2021)*

By making such information available, UNIDO aims to **support the mobilization of resources** by key stakeholders and **remove barriers to their entry and engagement** in these focus sectors, including policy-makers, financiers, start-ups and MSMEs.

The following Market Intelligence Product, *Barriers to Green Enterprise Growth and Competitiveness*, aims to shed light on key **internal and external challenges facing green firms** in Luxor and Qena, as well as **service gaps and opportunities**.

¹ Recent Market Intelligence Products by UNIDO include:

- [*National Road Map Summary for Strengthening the Quality of Locally Manufactured Products and Components Related to Solar Water Heaters and Solar Thermal Technologies in Egypt \(2020\)*](#)
- [*Business Opportunity Mapping in Waste Management, Renewable Energy, and Agro-industry in Luxor Governorate \(2017\)*](#)
- [*Pre-feasibility Analysis of Medium and Large-Scale Investment Opportunities in Luxor \(2017\)*](#)

Green value chains and clusters in Luxor and Qena



1.3 Overview

This section discusses the **most prominent barriers** faced by MSMEs and green startups in the waste management, sustainable agriculture and food production and renewable energy sectors in Qena and Luxor. In addition to insights from a literature review, the barriers and challenges highlighted are principally based on primary research via green start-ups and MSMEs, as well as financial and non-financial intermediary institutions interviews. In total, 58 organizations were interviewed.

The interview questions were designed to address the knowledge gaps identified in the literature review, to profile the green start-ups and MSMEs, as well as stakeholders, and also to highlight the necessary interventions to accelerate the adoption of green growth models in Luxor and Qena.

Accordingly, the following areas were investigated*:



Green start-ups and MSMEs:

- clusters in which they operate or service gaps in skills, technology and supply;
- services which are both currently used and required; policies which support or hinder their development;
- and barriers for women, as well as their access to service providers, suppliers, finance and clusters.



Educational institutions:

- services/vocational training/courses offered to startups and MSMEs in the IGGE sectors;
- their view on the gaps and support needed, as well as their plans to support the IGGE sectors and/or start-ups and MSMEs.



Financial institutions:

- challenges faced, financial and non-financial support offered;
- as well as the support needed.



Business development support institutions:

- services offered to startups and MSMEs;
- challenges faced; support needed to expand their services;
- and what they could offer to future programs.

**More specifically, our report presents a closer look at the sample of green start-ups and MSMEs interviewed.*

Firm profiles

Most of the firms interviewed (64%) are in the **sustainable agriculture and food production sector (SA&FP)**, followed by an equal split between **waste management (18%)** and **renewable energy (18%)**. Most of the green start-ups and MSMEs interviewed serve or operate in the food processing and packaging value chain/cluster reflecting that it is a main driver of the economy in Luxor and Qena. This reflects the agricultural nature of the governorates. The majority of the firms are under three years old, with the SA&FP

sector having the largest share of firms older than seven years old. This is a clear representation of how the **WM and RE markets are nascent**, with most firms being young startups.

Most of the firms have an **annual growth rate of either under 20% or over 40%**, with a larger share of WM and RE firm growing more than 40% per year, reflecting how rapidly RE and WM industries are developing in Egypt.



Figure 1

Age of green start-ups and MSMEs interviewed by sector

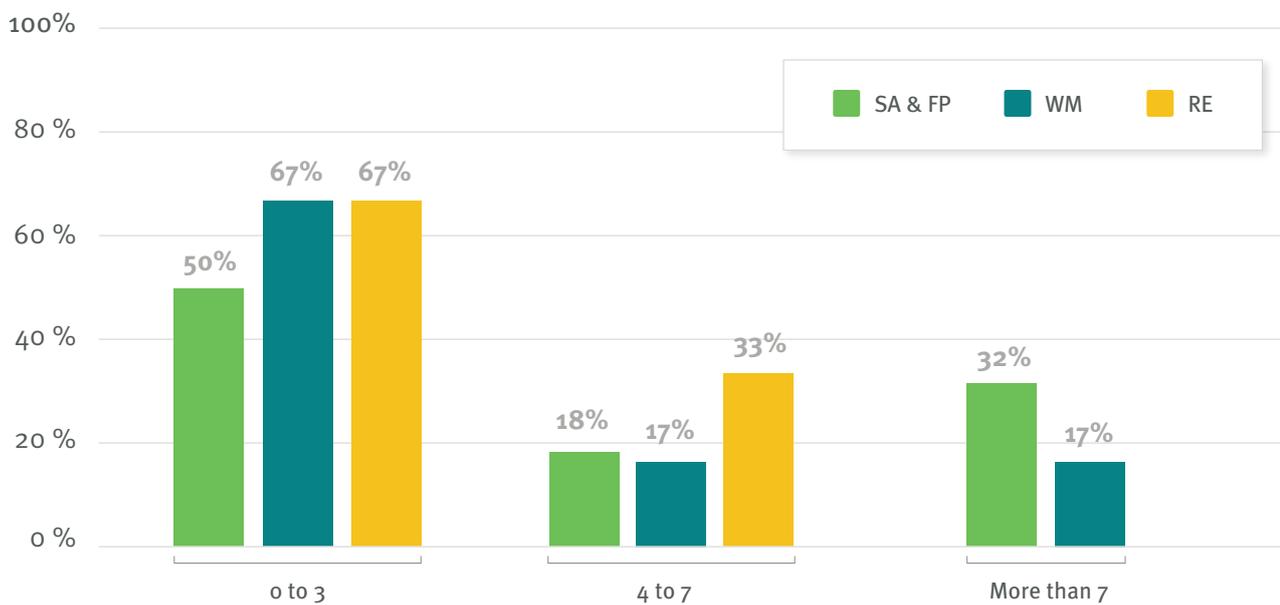
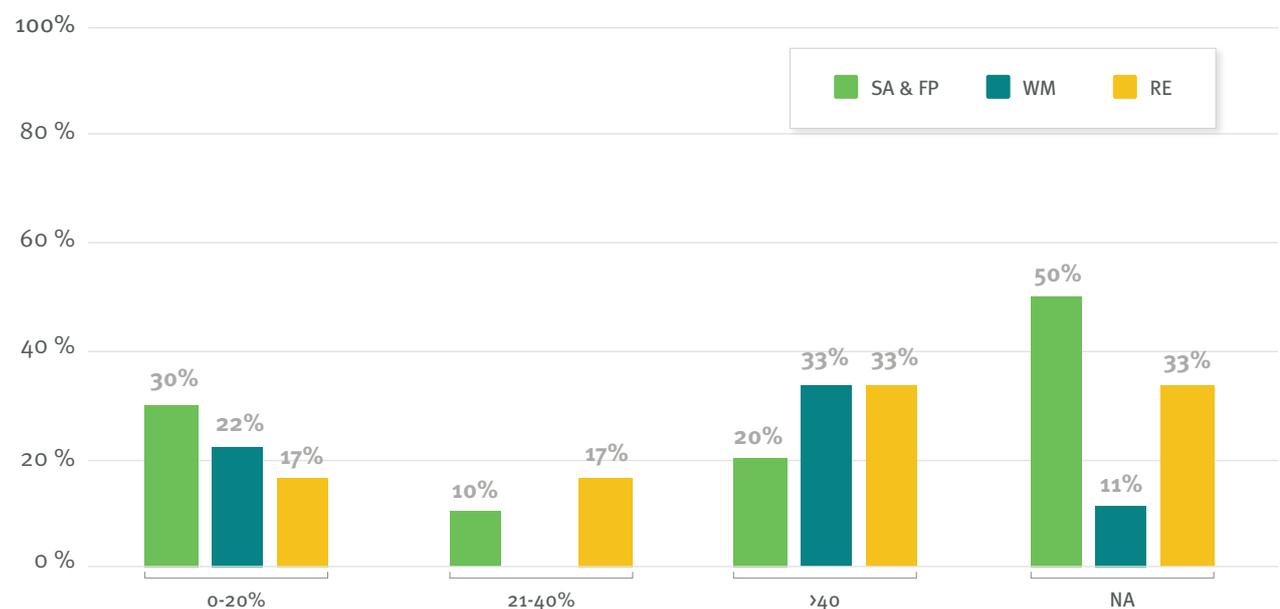


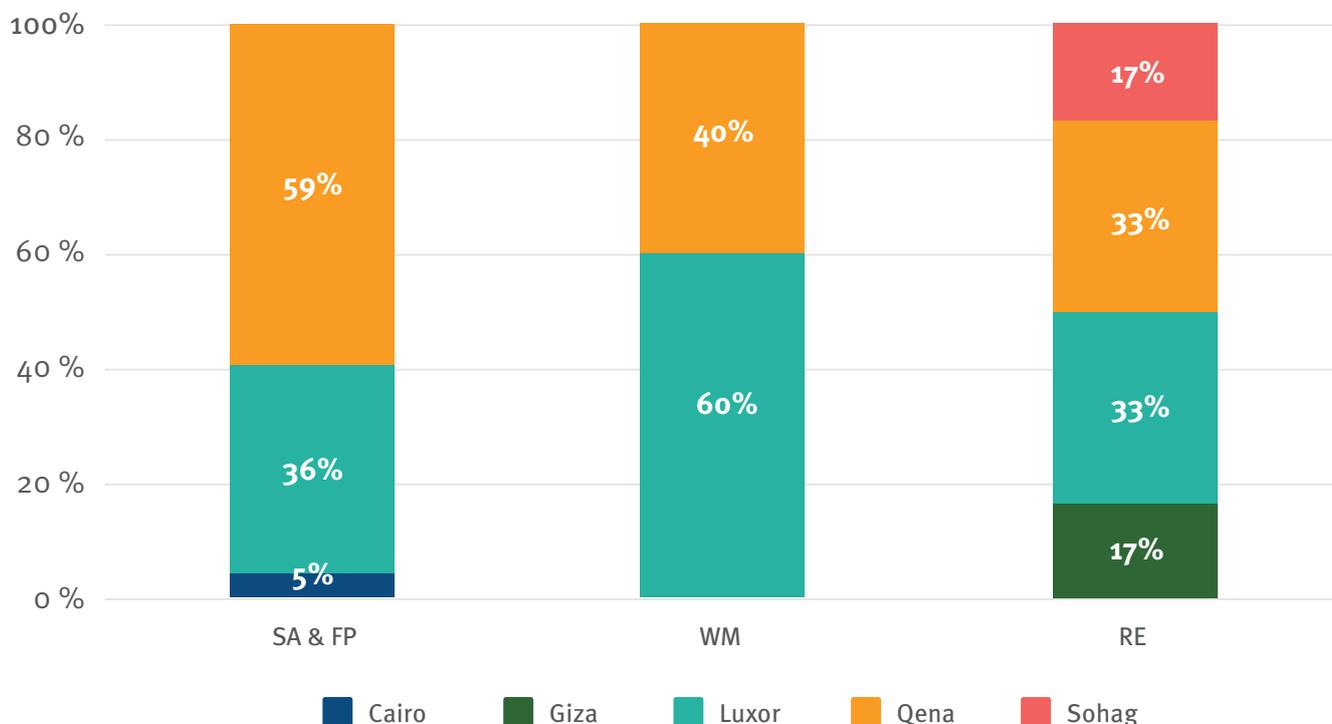
Figure 2

Growth rates of green start-ups and MSMEs interviewed by sector



The **firms' headquarters are primarily in Luxor and Qena**, with greater SA&FP activities in Qena. This reflects that MSMEs prefer to be closer to their clients.

Figure 3
Headquarters of green start-ups and MSMEs interviewed



Markets and suppliers

About **half of the firms' buyers are in Upper Egypt** and around **a third in the Greater Cairo area**. However, this is practically reversed when analyzing the geographical spread of suppliers, suggesting that value chains and supply chains need **further development to be able to rely more on local suppliers**. This reliance on local suppliers could help grow local businesses and would increase overall effectiveness of operations. However, it also shows that green MSMEs can add value to local resources

and are capable of addressing markets outside Upper Egypt. With, for example, 44% of clients based outside Upper Egypt and 36% relying on resources from Upper Egypt, this contrasts with predominant economic activities in the target governorates which do not usually focus on adding value to local resources, but rather on processing raw material from outside the governorates and targeting their consumer markets.

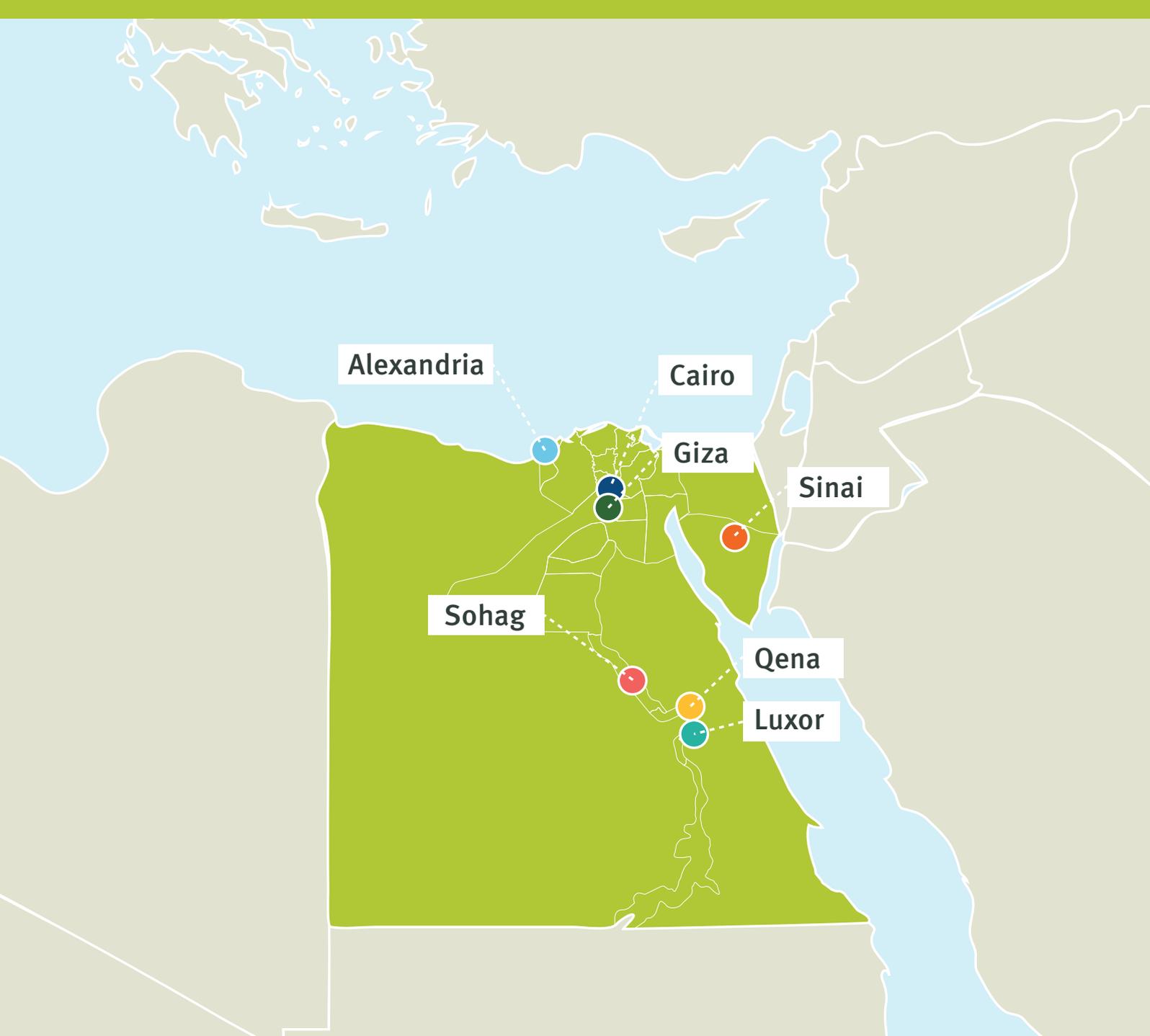


Figure 4

Geographies of key buyers/markets

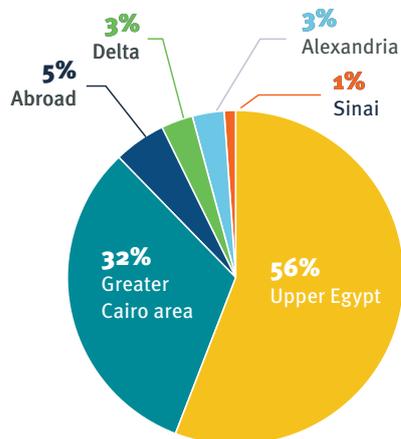


Figure 5

Geographies of key suppliers

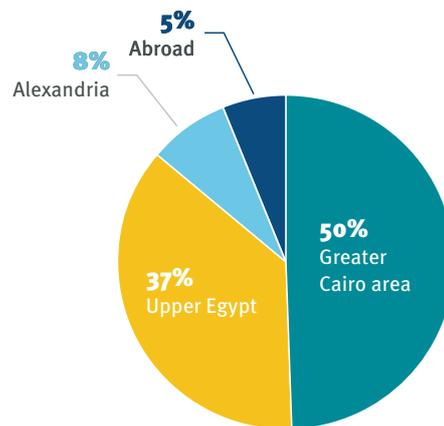
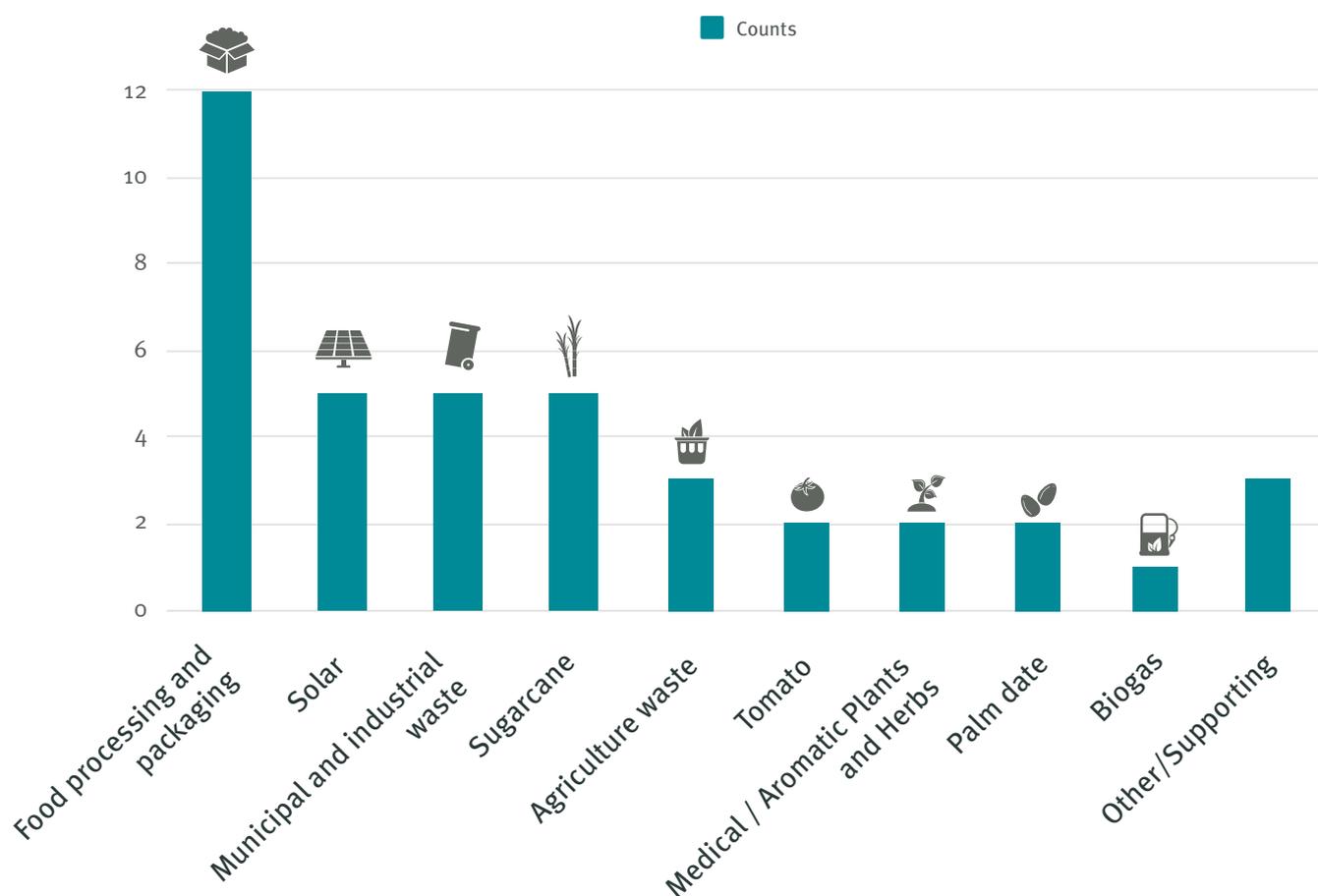




Figure 6

Green start-ups and MSMEs interviewed by value chain/cluster



As can be seen in Figure 6, **food processing (primarily fruit and vegetables) and packaging** is the value chain/cluster with the **highest concentration** of businesses in the green economy. This sector is strongly correlated to the rural, agricultural nature

of the governorates. **Sugarcane**, as a major crop in Luxor and Qena, attracts the largest number of green MSMEs. Other prominent value chains for green MSMEs are **tomatoes, medicinal, herbal and aromatic plants and palm dates**.

Job creation and labour force

Most of the firms interviewed employ **staff full-time**, demonstrating a high social impact and favorable and stable working conditions. This does not necessarily reflect employment patterns in Luxor and Qena more broadly, but rather it shows the employment situation in our focus sectors. The SA&FP sector has the greatest share of **seasonal workers**, followed by RE. In SA&FP, seasonal workers predominantly cover the high-season workload. These are primarily jobs in packaging or collection of agricultural produce,

while RE part-time workers are often technicians or providing labour to work on installing RE systems. 38% of RE's workforce are **women**, which is the highest of the three sectors. This is higher than the sector typically shows across Egypt (with a national average of 20%, based on 2018 International Finance Corporation data). The sector with the lowest representation of female employees is WM which, at 4%, unfortunately reflects a nation-wide average.



Figure 7

Breakdown of employment type in green start-ups and MSMEs interviewed by sector

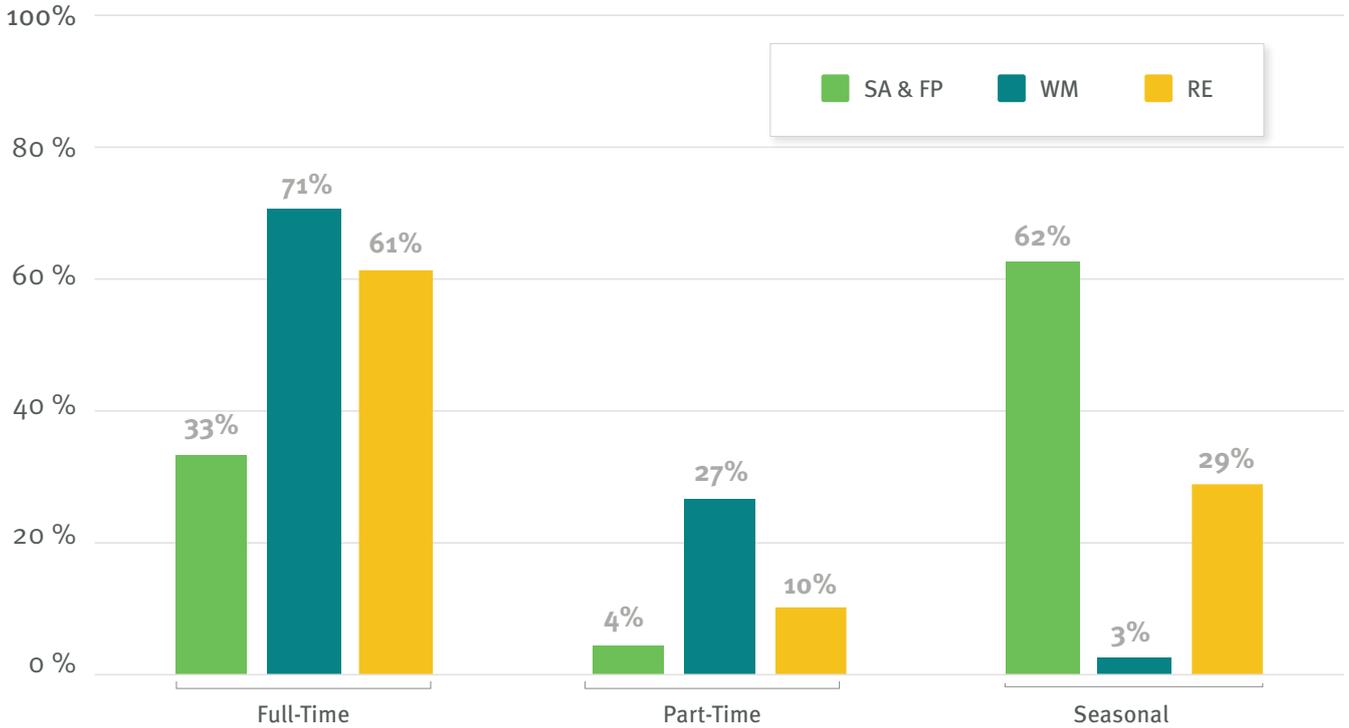
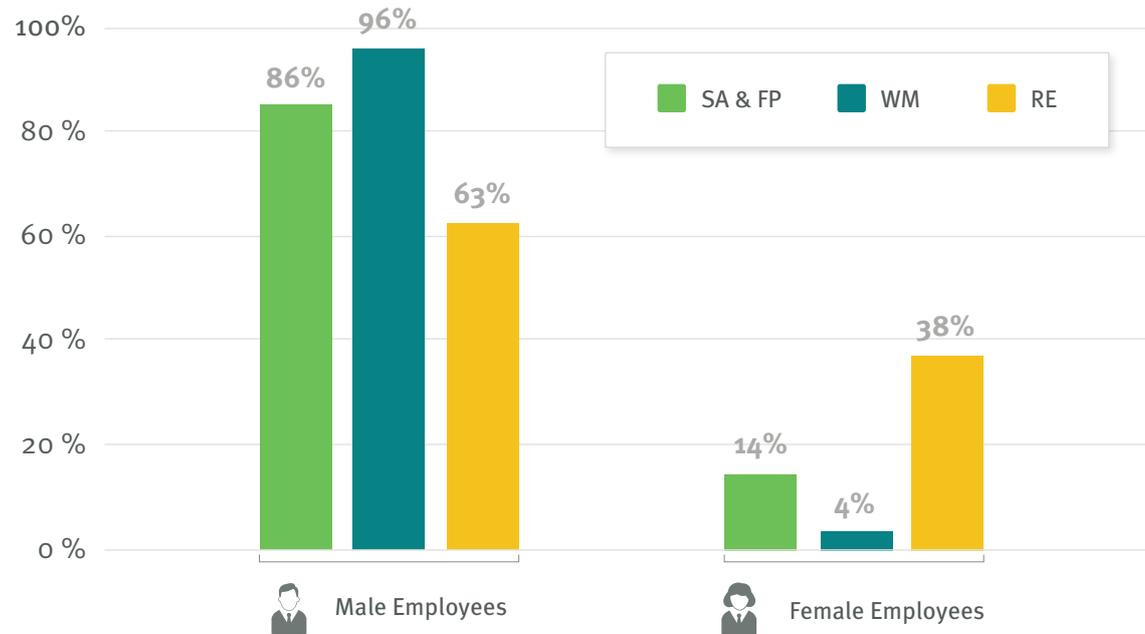


Figure 8

Breakdown of employee gender in green start-ups and MSMEs interviewed by sector



1.4 Barriers to green enterprise growth and competitiveness

This section aims to highlight the most significant barriers faced by green start-ups and MSMEs: **issues that hinder growth and competitiveness** across the waste management (WM), sustainable agriculture and food production (SA&FP) and renewable energy (RE) sectors.

The challenges laid out are based on information gathered from 58 interviews conducted with start-

ups and MSMEs, financial institutions, educational bodies and business development support institutions in both Luxor and Qena Governorates, as well as analysis of value chains and clusters and an in-depth literature review. Of the interviews conducted, 6 (18%) were in the WM sector; 22 (65%) were in the SA&FP sector and 6 (18%) were in the RE sector.



Sustainable agriculture and food production (SA&FP) sector

Barriers and challenges²

Financial challenges	Limited access to finance despite the traditional nature of the sector, due to limited industry knowledge of banking services, limited connection to the banking sector (e.g. relying on cash transactions) and the informality of suppliers. <i>(UE)</i>
	Limited access to sector knowledge by credit officers, including seasonality issues, risks and pricing.
Knowledge challenges	Limited access to technical labour and sector-related data.
	Limited access to services due to limited service providers and low connection with support organizations in Lower Egypt.
	Lack of access to qualified agricultural engineers. <i>(UE)</i>
	Absence of accreditation scheme for labour and advisors in food safety and other disciplines.
Market challenges	Infrastructure limitations , such as a lack of natural gas in industrial zones in Upper Egypt, as well as supply chain challenges which include the transportation of inputs to manufacturing and cold storage of produce. <i>(UE)</i>
	Limited access to principal firms and markets. This limited market reach is a direct result of the difficulties in food health and safety compliance, product certification, as well as limited access to testing facilities. Accordingly, start-ups and MSMEs are not able to develop high-quality products suitable for national and international markets. <i>(UE)</i>
	Difficulty in accessing maintenance services as well as suppliers for specific production lines. <i>(UE)</i>
	Limited presence of key farming, food processing and packaging equipment and technologies. This includes, for example, efficient irrigation technologies, food-grade packaging, food-grade chemicals, fruit and vegetable driers and measurement devices such as pH meters. <i>(UE)</i>
	Absence of high-grade food packaging and cost effective materials , leading to difficulty in producing high-quality finished food products. <i>(UE)</i>
	Absence of product specification and standardization for compost and animal feed from biomass residues.
Policy challenges	A lack of clarity about the production processes that could be implemented on agricultural land and industrial land, respectively.



Barriers and challenges²

Financial challenges	Limited access to finance , in part due to the absence of suitable financial programs. This is related to the informality of waste management firms and their suppliers, as well as their lack of familiarity of recycling businesses with the banking sector.
	Limited awareness from the firms about diverse financial instruments offered by banks.
Knowledge challenges	Limited awareness from the firms about diverse financial instruments offered by banks.
	Limited access to specialized and competent experts (e.g. agriculture engineers, chemists). (UE)
	Limited access to specialized educational and vocational programs , which results in a lack of required technical labour.
	Limited presence of formal or vocational training programs for skilled labour for collection, segregation and basic upstream activities (pre-processing).
Market challenges	Uneven competition over waste between recyclers (SMEs) and traders. Waste from public institutions (mainly sugar cane factories) is usually tendered in public auctions to the highest bidder. This disadvantages recyclers who cannot compete in cashflow with traders to win tenders.
	Limited access to raw materials from suppliers and small-scale, cost-effective equipment needed to develop value-added products, such as shredders, baling machines and pelleting machines. (UE)
	Absence of product specification and standardization.
	Informality of firms and/or their suppliers.
	Limited market trust and quality of products (e.g. compost and animal feed from biomass residues).
Policy challenges	Agricultural land fragmentation has led to difficulty in agricultural waste collection . The absence of dedicated land for agricultural waste pre-processing and the lack of designated recycling areas on industrial zones leads to inefficient operations and complex supply chains.
	Difficulties in registration of firms , due to the absence of a clear definition of some business activities in recycling.



Renewable energy (RE) sector

Renewable energy technologies are new in Egypt and come with high upfront costs. In Luxor and Qena, the renewable energy sector is the smallest of the three IGGE sectors and consists mostly of solar photovoltaic (PV) firms, as well as biogas companies. Such firms largely deliver off-grid applications, serving farmers in the agricultural sector and/or rural households with biogas. Their businesses rely on selling systems to end users.

Barriers and challenges²

Financial challenges	Limited access to finance because of limited special financing programs for both businesses and end users.
	Limited awareness from the firms about diverse financial instruments offered by banks.
	Increased financial burden on start-ups and MSMEs, owing to end-user financial solutions not being readily available in the market. This means that firms often need to include financing solutions in their business models to access their markets.
	Increased operating costs , in addition to already high capital costs . This is due to renewable energy firms in Southern Upper Egypt importing their systems from Lower Egypt, as well as operations and maintenance services, and the marketing costs associated with introducing relatively new solutions in an emerging market. <i>(UE)</i>
	Absence of formal land ownership documentation , which limits farmers access to loans to purchase renewable energy systems.
Knowledge challenges	Limited sector-related knowledge available in the market, in addition to limited formal and vocational specialized programs , resulting in limited access to skilled labour and technical knowledge.
	Absence of regulation and certification for solar engineers and technicians (including solar, thermal and biogas).
Market challenges	Little to no access to local system suppliers as well as operations and maintenance (O&M) providers .
	Difficulty of marketing and financing off-grid systems and applications. Both the limited awareness among end users and their limited access to financing hinder the adoption of renewable energy technologies.
Policy challenges	Absence of policies to encourage local manufacturing of RE systems and components.
	Vague definition of biogas systems , whether treated as building or on-farm equipment.

² Challenges specific to Upper Egypt are marked (UE)

1.5 Service gaps in the green economy

A significant challenge faced by green MSMEs is **access to services and critical inputs**. Green MSMEs in Luxor and Qena are not yet a part of well-developed clusters and value chains. There is no critical mass of firms for a service market to develop.

SA&FP firms suffer from **limited access to packaging material and service providers**. They also suffer from **challenges in accessing production additives**, as well as **spare parts**. In all three sectors, MSMEs face

challenges with regard to access to supply. However, this is not due simply to a lack of suppliers, but rather to a perception of some potential suppliers as unprofessional or unreliable.

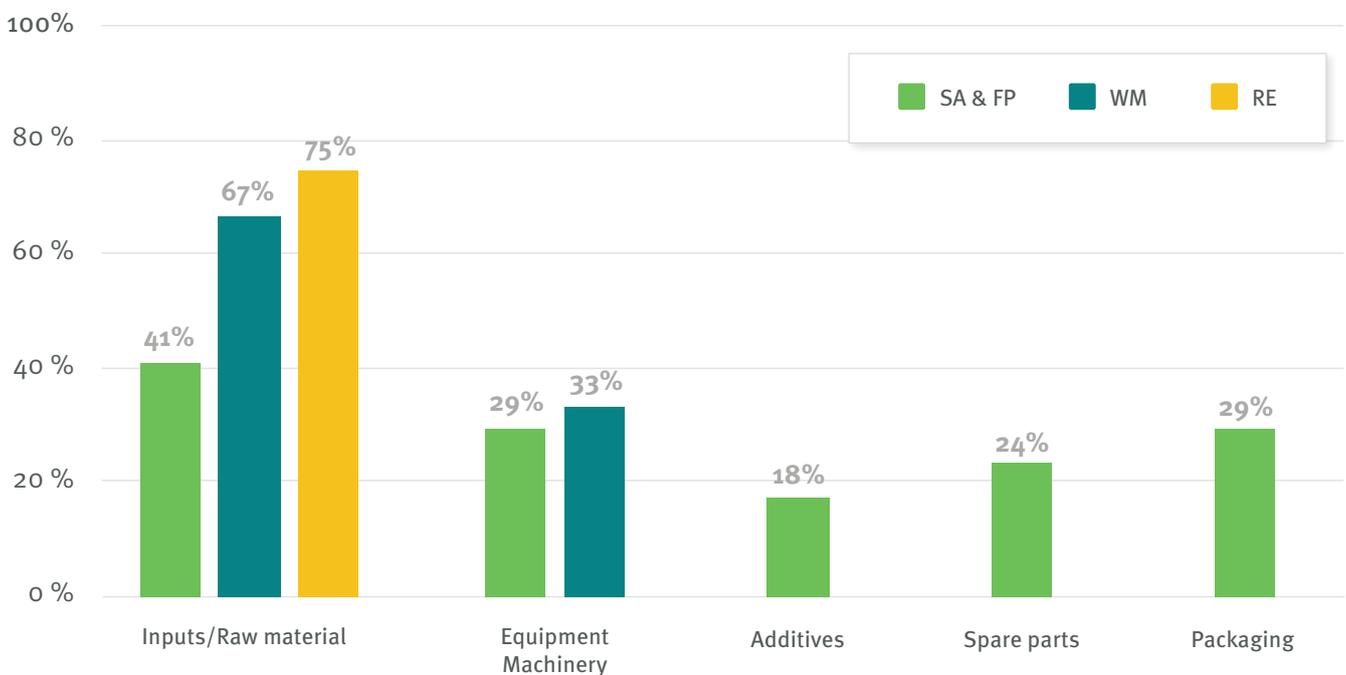
The firms have limited quality control themselves and they face **challenges of obtaining steady, sustainable and high-quality supply**. Both the WM and SA&FP sectors face **challenges in sourcing equipment and technology providers**.



Figure 9

Main supply challenges according to interviewed green start-ups and MSMEs

Percentage of firms facing challenges at each aspect of supply





Sustainable agriculture and food production (SA&FP) sector

Service gaps

Based on market analysis and interviews, as well as UNIDO's experience in conducting energy efficiency audits across more than 100 food production facilities, the following service gaps in the sustainable agriculture and food production sector were identified:

- **Limited interaction** between start-ups, MSMEs and major firms in the sector, both as suppliers of equipment and buyers. The result is missed business linkages and networking services.
- **Limited access to market data, technical data and services**, as well as **inadequate infrastructure** which impacts firms' abilities to enhance product development.
- **Limited access to marketing and sales services**, as well as limited internal marketing capacities to determine optimal marketing mixes, such as pricing and promotion. This is a significant barrier for start-ups and MSMEs in the **SA&FP sector**, which need strong marketing capabilities to build credibility and brand-awareness in order to be able to compete with more well-established products in the market.
- **Limited access to resource efficiency services** (for the relatively energy intensive food production sector) which could prevent firms from achieving cost competitiveness.



Waste management (WM) sector

Service gaps

According to our value chain and cluster analysis and stakeholder interviews conducted with the sector's startups and MSMEs in Qena and Luxor governorates, the following was highlighted as an important service gap in the waste management sector:

- **Limited access to technology, marketing and sales services** due to limited business linkages and networking opportunities and services among principal firms, start-ups and MSMEs in the WM sector.



Renewable energy (RE) sector

Service gaps

Finally, based on the analysis and interviews outlined above, the following issues were highlighted as significant service gaps in the renewable energy sector:

- **Lack of formal supporting institutions and service providers** for the RE sector in Luxor and Qena.
- **Limited market and technology data** and **technical assistance** to help RE firms build their business case to end users. This would also help financial institutions to understand the market better, as well as the technological and operational risks and opportunities.
- **Absence of marketing and sales support**, as well as **business linkages and networking services**. This is significant for connecting the firms with equipment and O&M providers nationally, as well as relevant financing (e.g. fintech) and digital solutions.

Recommendations



In general, green MSMEs in the focus sectors represent a **nascent and rapidly growing market** in Luxor and Qena, as they do across Egypt. They are well connected to local clusters and value chains and either valorize products and by-products of such clusters or value chains, or serve them through products and services. Some of the **challenges faced by green MSMEs in Luxor and Qena** are unique to the geographical location, but others are shared with their peers across the country. While of course some challenges are internal, requiring MSMEs to improve their operations in order to overcome them, many barriers are external and require stakeholders to work on removing them.

Access to finance

Access to finance is generally **challenging to renewable energy and waste management firms** across the country. This barrier arises in large part from the informality in the waste management sector and the unfamiliarity of the banking sector with both WM and RE. Information and data can help financial institutions see these sectors as less risky and engage further with them. **SA&FP**, on the other hand, is well-financed in other parts of the country but faces **specific challenges in Luxor and Qena**. This is principally due to weak linkages with the banking sector in Luxor and Qena.

In general, MSMEs have limited awareness of banking services and a strong reliance on cash operations, leaving MSMEs not particularly visible to the banking sector. **Support to MSMEs** through better financial management, using banking systems for payments and understanding diverse financial services is critical. From the other side, **technical assistance to the banking sector** and support in designing financial products explicitly targeted at these sectors could be of high impact.

Infrastructure

In industrial zones, MSMEs face challenges with **underdeveloped infrastructure**, which limits their profitability. Here, Industrial Development Authority investment in **developing industrial infrastructure** in Luxor and Qena could remove a key barrier.

Access to services and suppliers

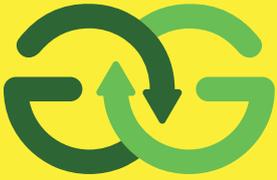
Access to services, technology providers and suppliers is limited for all three focus sectors in Luxor and Qena. This could be overcome through stakeholder support. For example, **intermediary institutions** (public and private) which facilitate service provision nationwide need to expand their operations to Luxor and Qena. Additionally, donor-funded programs which operate on a national level should ensure their offerings reach firms in Luxor and Qena.

Skills gaps

The skills gaps faced by MSMEs revolve around **limited access to high-skilled technicians** and at times relate to a **lack of highly-specialized experts**. Developing **vocational and educational programs** focusing on skills needed for the sectors is critical. In the short term, international development partners, in collaboration with the government, can help create **short training programs** to boost the skillsets of current employees in green MSMEs.

For further related challenges, please see detailed discussions in other IGGE reports.





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INCLUSIVE AND SUSTAINABLE INDUSTRIAL DEVELOPMENT