

Terminal External Self-Evaluation of the Project:

Inclusive Green Growth in Egypt

UNIDO Project ID: 170146

Final Report

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Acronyms

ABE	Agricultural Bank of Egypt
ADCB	Abu Dhabi Commercial Bank
AICS	Italian Agency for Development Cooperation
BASD	Bioenergy Association for Sustainable Development
BBES	Bio-Based Economy Strategy
BBFs	Bio-Based Fertilizers
Business Development Services	BDS
BM	Banque Misr
BOs	Business Opportunities
CAPEX	Capital Expenditure
CBE	Central Bank of Egypt
CC	Carbon Credits
CDA	Community Development Association
CFI	Chamber of Food Industries
CLEIU	Climate and Environment Investment Unit
CLOA	Central Laboratory for Organic Agriculture
CO ₂ eq	Carbon Dioxide Equivalent
EBank	Export Development Bank of Egypt
EBRD	European Bank for Reconstruction and Development
EPAP	Egyptian Pollution Abatement Programme
EOS	Egyptian Organization for Standardization and Quality
FGDs	Focus Groups Discussions
FI	Financial Institution
F&B	Food and Beverage
GEFF	Green Economy Financing Facility
IDA	Industrial Development Authority
IGGE	Inclusive Green Growth in Egypt
IMC	Industrial Modernization Center
MoE	Ministry of Environment
MoI	Ministry of Industry
MSME	Micro, Small, and Medium Enterprise
MSMEDA	Micro, Small, and Medium Enterprises Development Agency
MTR	Mid-Term Review
M&E	Monitoring & Evaluation
NBE	National Bank of Egypt
NCW	National Council for Women
NEP	Network for Employment Promotion
NFSA	National Food Safety Authority
NGO	Non-Governmental Organization
PMT	Project Management Team
PSC	Project Steering Committee
PV	Photovoltaic
QNB	Qatar National Bank
RDF	Refuse-Derived Fuel
RECP	Resource Efficient and Cleaner Production
SAFP	Sustainable Agriculture and Food Production
SE	Sustainable Energy
SC	Steering Committee
SDC	Swiss Agency for Development and Cooperation
SME	Small and Medium Enterprise
SVU	South Valley University
SWOT	Strengths, Weakness, Opportunities and Threats
TEST	Transfer of Environmentally Sound Technologies
TE	Terminal Evaluation
TTU	Tiba Technological University
UNIDO	United Nations Industrial Development Organization
VC	Value Chain
WM	Waste Management

Project Factsheet

Project title	Inclusive Green Growth in Egypt (IGGE)
UNIDO ID	170146
Region	Arab
Country(ies)	Egypt
Project donor(s)	Government of Switzerland (Swiss Agency for Development and Cooperation – SDC) Government of Italy (Italian Agency for Development Cooperation – AICS)
Project implementation's start date	July 2020
Expected duration	5 years
Expected implementation end date	June 2025 (including no-cost extension)
Implementing agency	UNIDO (United Nations Industrial Development Organization)
Main Government Counterpart	Ministry of Industry
Key Partners	Ministry of Environment, IMC, IDA, CFI, FEI, MSMEDA, WMRA, NREA, BASD, Luxor, Qena, and Beni Suef Governorates
UNIDO thematic area	IC3
Donor funding	CHF 5,000,000 EUR 800,000 USD 667,468
UNIDO input (in kind, USD)	USD 5,469,634
Total project cost (USD), excluding support costs	USD 4,638,840 (SDC) USD 767,404 (AICS) USD 63,390 (UNIDO)
Mid-term review date	January – May 2023
Planned terminal evaluation date	September 2024 – January 2025

I Executive Summary

The IGGE project has made important contributions to an ecosystem conducive to expanding inclusive green Micro, Small, and Medium Enterprises (MSMEs). IGGE supported stakeholders and institutions at all levels in multiple sectors and domains to accomplish this. Drawing on UNIDO's previous experience and knowledge of the conditions in Upper Egypt, IGGE's initial steps were to understand the conditions and identify the stakeholders (across domains and scales) germane to inclusive green growth in Upper Egypt. At the macro level, IGGE assisted government agencies in removing policy barriers to green MSMEs' expansion by helping different ministries and authorities develop legal definitions, standards, and other regulations contributing to more efficient and inclusive green growth. IGGE also supported credit institutions in developing capacities and instruments to reach green MSMEs. Working with financial institutions (FIs) and other stakeholders, the project supported the introduction of models that made new and existing financial resources available to green MSMEs. Simultaneously, IGGE worked with MSMEs, non-governmental organizations (NGOs), community development associations (CDAs), and farmers to develop their business skills, expand their business links, and engage with value chains (VCs) – regional, national, and international – which gave them access to new technologies, inputs, and markets to place their products.

Overall, the project is rated as **highly satisfactory**. Specifically, the project is **highly effective** in meeting its targets: out of 33 key impacts, outcomes, and output indicators, IGGE exceeded 30 and achieved one eight months before the project's end and is on its way to completing the remaining two targets. The project's achievements sometimes duplicated or triplicated (in a few cases reaching orders of magnitude) the initial targets. This can be observed across the targets achieved by the 30 indicators, specifically among the impact and behavioural change indicators in Tables 2 and 3 below in the report. This high accomplishment rate was made possible due to well-planned, highly collaborative work with partner institutions and **efficient use of funds and time**. The stakeholders interviewed during the evaluation's field mission, including top government officials, university staff, NGOs, and MSMEs, all considered IGGE's approach to expanding green MSMEs **highly relevant and timely**. Stakeholders also reported that project interactions with collaborating agencies and organizations took place in ways that supported and improved their capacities to carry out their respective mandates. Detailed project ratings are found in Annex 8.

Critical in this process was the rise of awareness across stakeholders of all sectors and levels on opportunities in green growth. This has led to a cognitive shift in the perception of waste as a resource. An important aspect of this cultural shift was the project's efforts to provide stakeholders with reliable information and market intelligence on concrete green growth opportunities that are available in ways that they could understand. The progress achieved in removing regulatory, administrative, and financial barriers, as well as access to knowledge, business skills, technologies, financial resources, and buyers and suppliers have also contributed to a growing perception among MSMEs that these opportunities are within their reach.

Removing barriers to expanding green MSMEs in Upper Egypt required changes in national-level standards and other regulations. IGGE's engagement with the relevant agencies and stakeholders across sectors has also led to the approval of a relatively large number of regulatory reforms and definitions in a relatively short time. IGGE has also helped bridge gaps between central-level entities and regional entities by facilitating interactions and sharing information, concepts, and approaches to green growth and circular economy. In addition to the contributions to specific policy instruments, the project also established five advisory communication consultative mechanisms for public-private policy formulation whilst the project typically partnered with one or more institutions that mandated policy interventions. Other agencies – and departments within agencies – were also often invited to be part of the process which helped build links among institutions and resulted in a speedy approval process.

IGGE has also played an important role in establishing links among stakeholders and processes across market domains and scales, which is essential for setting the foundations for inclusive green growth. One example is identifying business opportunities (BOs), which rested on analysing the interactions between seven prominent VCs in Upper Egypt.

IGGE has helped develop models to make financing available to MSMEs, by addressing supply and demand conditions. To address the supply side, the project has assisted FIs in gaining more knowledge of the three target sectors: sustainable agriculture and food production (SAFP), waste management (WM), and sustainable energy (SE). The project also has four FIs operating at the national level to develop procedures related to green growth and MSME financing, including financing products to address specific financial needs of green MSMEs. IGGE's strategy helped catalyse regional financing for MSMEs, where none, or few existed before. In just two and a half years, from 2022 to June 2024, 32 IGGE-supported MSMEs and one NGO attracted EGP 132,070,000 (USD 2,662,165 as of 9 December 2024) in the form of loans, grants, and external equity investments. Specifically, IGGE facilitated SME financing of 18 loans with a total of EGP 81,870,000 (USD 1,650,272 as of 9 December 2024) from five different banks.

The project has supported the application of knowledge and technology across domains, levels, and types of stakeholders. This included innovations in tools and processes to transform goods and add value, business skills and capacities, and market intelligence. Among MSMEs, NGOs, CDAs, and farmers, this has translated to increasing engagement and contributions to value creation. IGGEs supported 147 green MSMEs in Luxor and Qena since 2022. Since then, there has been a steady increase in the number of IGGE-supported MSMEs deriving green growth revenues, going from 36 entities in 2021 that generated EGP 147,712,349 (USD 2,977,472 as of 9 December 2024) to 142 entities in 2023 that generated EGP 667,816,267 (USD 13,461,326 as of 9 December 2024). These 142 MSMEs reached aggregate revenues of EGP 543,238,613 (USD 11,027,986 as of 9 December 2024) from January to June 2024, and at this rate, their revenues are likely to exceed the revenues derived in 2023. All 147 MSMEs supported by IGGE report improved productive practices and management capacities. IGGE also supports two universities and six local institutions in training qualified labour.

IGGE's approach, which includes multiple options and flexibility, has allowed market actors at different stages of development to choose innovative options compatible with their conditions and culture. At the micro level, the flexible approach to the promotion of innovations allowed MSMEs, NGOs, CDAs, and farmers to choose changes or technologies with the levels of complexity and financial or technical requirements that they felt were appropriate for their conditions, thus reducing the risks and opening the possibility for gradual growth. Also, MSMEs and farmers are adopting modern business practices and behaviours the project promotes in ways compatible with local socio-cultural presents and responsibilities.

The project has also promoted women's work and income-generation opportunities in different ways. According to the project's M&E records, 35% of the 141 firms that graduated from the project's start-up and enterprise support programs GO/GROW/EXPAND are led by women, 50% of business development services providers and ideation trainers are women, close to 50% of university staff capacitated by the project in Luxor and Qena are women, and 35% of market actors engaged in policy dialogue are women. Among the rural populations, the MSMEs, CDAs, and NGOs often support income-generation activities that women can implement in or near their houses and are compatible with domestic responsibilities.

IGGE's support to the adaptive capacities of MSMEs and other market agents is helping set the foundations for a more resilient economy and society. The project's promotion of links across sectors and VCs anchored to defined geography (Luxor and Qena) provides market agents with avenues to tap into national and international markets. Yet, many of the BOs identified take place within Upper Egypt. This approach sets the foundations for a more diversified and interconnected regional economy. This, coupled with the project's support mechanisms that the project is helping strengthen at the national and regional level over time, is providing market agents with more options to adapt to unexpected changes. As the adaptive capacity

of market agents increases and support mechanisms strengthen, so will the resilience of the regional economy and society, which will be better equipped to adapt to internal disruption and external shocks.

Recommendations

During phase I, the project, in its catalytic role, interacted directly with stakeholders across levels and domains to build awareness, remove regulatory and financial barriers, build capacities, and demonstrate and test technologies for a transition to inclusive green growth in rural Egypt. However, the transformation into an inclusive green economy in rural Egypt is best conceived as a path rather than a destination. This path's construction will require increasing agencies, organizations, and stakeholders to assume roles and behaviours consistent with a green growth development trajectory.

A dynamic catalytic role for IGGE that learns and changes as partner entities develop capacities. The long-term and complex nature of developing a green and inclusive economy will require IGGE-UNIDO and other partner institutions to adapt and learn to address new challenges. There are now indications that agents are assuming roles that promote conditions supporting green growth and MSME development. These achievements by partner entities allow UNIDO-IGGE to redefine its roles and shift attention and resources to address remaining and emerging challenges.

Recommendation: UNIDO, the Swiss Agency for Development and Cooperation (SDC), the Italian Agency for Development Cooperation (AICS), Ministry of Industry (MoI), Ministry of Environment (MoE), and other partners adopt a learning strategy that periodically revises the capacity development across partner institutions and encourages partners to occupy roles that UNIDO now fulfils in the IGGE project, while allowing UNIDO to address emerging challenges. In this context, UNIDO should continue to engage with stakeholders across the ecosystem, particularly with national-level institutions and processes, cultivating its role as a facilitator of connections and interactions. This should be approached as a process that evolves and is jointly carried out with key partners and with a more direct role of the Project Steering Committee (PSC) members in leading and implementing changes, with the PSC becoming a function for learning and decision-making in addition to its current reporting role.

Gradually expand the geographical reach of the IGGE project to incorporate the economic region. The project demonstrated the critical role of green BOs across VCs in constructing a vertically and horizontally diversified, well-connected, and resilient local economy. The clear definition of the sectoral boundaries and stakeholders targeted by IGGE (SAFP, WM, and SE sectors and MSMEs) was a factor contributing to identifying opportunities in the VCs. Having tested a set of approaches and tools, the project is well positioned to expand its reach to encompass more of the natural, socioeconomic region in which it operates.

Recommendation: UNIDO, SDC, AICS, MoI, MoE, and other partners should gradually expand the geographical reach of the IGGE project to include the governorates in the relevant socioeconomic region in Upper Egypt.

Build a lasting and broad coalition to support a long-term and expansive process. While the aggregate product of the IGGE-supported MSMEs remains small compared with the product of Luxor and Qena, the IGGE project has demonstrated tools and approaches to shift the region's development trajectory to a green, inclusive economy. Yet, the widespread adoption of the practices demonstrated will require time and a diverse coalition to provide the financial, technical, and political support required along the way.

Recommendation: UNIDO, SDC, AICS MoI, MoE, and the governorates of Luxor and Qena should jointly look for additional financial and technical partners to ensure that the green growth development momentum in Egypt is sustained in the long term.

Expand the engagement in IGGE by the relevant governorates in Upper Egypt. The governorates of Luxor and Qena have played an essential role in implementing specific aspects of the project. The results and accomplishments of IGGE make it apparent that the IGGE approach has a distinct potential for green, inclusive regional economic development. This emphasizes the need for close IGGE engagement with the regional development strategies of Luxor, Qena, and any new governorate to which IGGE expands.

Recommendation: IGGE and the governorates should explore ways of collaborating closer and, whenever possible, joint efforts and coordinating resources in regional economic development that expand opportunities for green MSMEs.

Address emerging mismatches. Tensions are emerging, caused by temporal mismatches between the rapid adoption of opportunities by MSMEs and the time it has taken for banks and FIs to go through the required steps to develop financing products and other guidance for loan officers. The financial products developed by the banks and FIs will help clarify conditions and processes for accessing specific types of loans. However, it is also likely that there is a perception among loan officers that MSMEs in Upper Egypt represent a high risk. It is also possible that banks might not provide sufficient incentives to loan officers to engage in time-consuming smaller loans.

Recommendation: National Bank of Egypt (NBE) and other FIs should take quick action in communicating their financial products to MSMEs. Similarly, the evaluation recommends that FIs review the performance criteria applied to loan officers to determine the extent of incentives and rewards for portfolios that include green MSMEs, women, and youth. IGGE could assist this process by hosting meetings, where bank and FIs officials can explain the process and loan requirements to MSMEs. IGGE could also assist FIs through focus group discussion (FGDs) with loan officers to identify the factors (and possible solutions) influencing the processing of green MSMEs loans in Upper Egypt, and in Egypt at large.

Adopt systems-based monitoring to support adaptive management. The monitoring records of the project have done an excellent job of capturing information on the project activities and accomplishments using the project's logical framework and focusing on the links between project inputs, outputs, activities, and outcomes. By contrast, a systems approach focuses on how the project interacts with the phenomena to bring about system change. Such a system-driven monitoring would 1) identify the system conditions likely to contribute to the desired system change, 2) determine the extent to which those conditions change from their starting condition, and 3) assess the extent and ways in which the project contributed to such changes, while considering what other factors could have also contributed to the observed changes. By shifting the focus from the projects cause-effect logical sequence to changes on the state of the system that is targeted for change, this approach takes a much broader view of the process and is better tooled to identify unexpected developments and thus to adjust interventions in line with the desired system trajectory.

Recommendation: Building on the work carried out for this evaluation, IGGE should develop a model of the conditions contributing to an ecosystem conducive to inclusive green economic development in Upper Egypt and rural Egypt at large. This model would then be used to identify indicators that allow for the trace of changes in such conditions. This model should be periodically revised with the participation of partners and stakeholders to review the model in the light of new developments and to adjust project interventions in response to emerging challenges and opportunities to drive the system in the desired trajectory.

II Project Background

The programme was designed between 2017 and 2019 at a time in which Egypt was going through an economic stabilizing phase that, in the short run, could have led to social pressures amplifying disparities across regions and Governorates. While the industrialization of Lower Egypt since the 1950's led to higher economic growth and economic opportunities, the economy of Upper Egypt has remained primarily agricultural with little added value, which has curtailed economic opportunities and contributed to high unemployment for the local population. In Qena and Luxor, where the project operates (see **Figure-1**), youth unemployment was considerably higher than the already high national average: 71% in 2006 in Luxor governorate when the national average was 30%, although a large portion of the labour force (around 59% in the Luxor governorate) is believed to be engaged in the informal sector. On the other hand, in the labour market, industrial enterprises suffer from the chronic supply of under-qualified personnel.

Economic growth in Egypt has resulted in a growing pressure on natural resources and the growth in solid wastes – with agricultural agriculture, in particular, accounting for one-third of all waste. Reviews carried out during project preparation estimated that 40% of the waste is collected, and only about 2.5% is recycled.¹ Qena governorate confronted major challenges in managing sugarcane bagasse as it is the country's largest producer (36%). In the Luxor governorate, agriculture occupied 74% of the total area. Often, agricultural waste is burned in open fields, releasing large amounts of carbon dioxide equivalent (CO₂e) emissions and causing health problems. Improper manure disposal released to the waterways resulted in water contamination and eutrophication of rivers and ponds.

In Egypt, more than 90% of the private sector are Micro, Small, and Medium Enterprises (MSMEs), which are responsible for 75% of jobs. However, the Egyptian MSMEs grew slowly and barely increased their productivity over time. MSMEs in Upper Egypt had lower access to services, infrastructure, and finance, were the poorest in the country, and had a high degree of informality. The need for well-trained and motivated staff results in high turnover and low-quality products and services. All these factors contribute to high operational costs and create a barrier to innovation, research, and development.² In its *Sustainable Development Strategy: Vision 2030*, the Government of Egypt (GoE) recognizes these challenges.³ By-products are approached as a resource and not as waste. The strategy seeks to promote job creation while balancing economic growth and societal well-being, reducing geographical imbalances, and protecting the environment. The Strategy also seeks to reach 16% of solar energy in the fuel mix for electricity production by 2030.

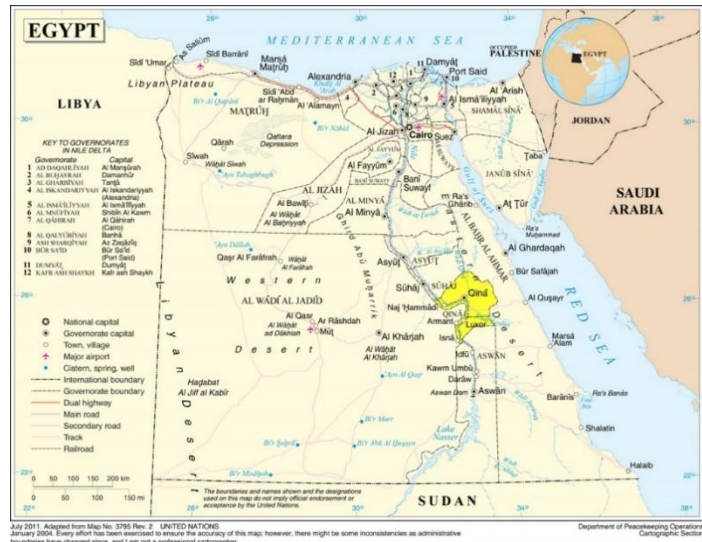


Figure 1: Map of Egypt

¹ Egyptian Environmental Affairs Agency (2017). *Environmental Status Report - 2016*. Arab Republic of Egypt. Cairo: Ministry of the Environment in GIZ (2018) *Economic and Financial Feasibility for Businesses in Egypt's Waste Industry*.

² UNIDO IGGE project document (2019)

³ Ministry of Planning, Monitoring and Administrative Reform, *Sustainable Development Strategy: Egypt's Vision 2030*.

III Project Objectives and Design

Project Objectives

The long-term objective of the Inclusive Green Growth in Egypt (IGGE) project is **“to contribute to a resilient and inclusive MSMEs ecosystem that is more conducive to entrepreneurship, growth, and job creation in the green economy”**. To this end the project:

- Supports green MSMEs, including those led/owned by women, to improve their productivity, innovation, and competitiveness and strengthen their resilience.
- Enhances the offerings from financial and non-financial support institutions to green MSMEs.
- Fosters the employability of youth and women in targeted green sectors.
- Mainstreams green growth approaches into government policies and strategies.
- Supports the demonstration of waste valorisation technologies for sustainable bio-based products and energy production.

The project seeks to contribute to the efforts of the GoE, and in particular to the Ministry of Trade and Industry, now the Ministry of Industry (MoI), to boost growth, productivity, and job creation while at the same time safeguarding the environment and unlocking the MSMEs’ potential to drive inclusive green growth.

Box-1: IGGE three selected sectors in Luxor and Qena

Based on UNIDO’s experience in Luxor and Qena governorates and analysis of the main local economic activities that can generate demand and supply for new BOs, the project targeted specifically **7 green clusters and VCs**. These green clusters and VCs were underdeveloped and characterized by low degree of value addition, but project activities focus **on promoting local value-added activities, valorisation of biomass residues generated in agricultural, as well as the uptake of small-scale, distributed renewable energy systems in these sectors**.

IGGE was designed to demonstrate approaches to such system changes in three economic sectors in the Qena and Luxor governorates (SAFP, WM, and SE in **Box-1**). In this regard, the coverage of the project’s interventions in waste management was extended, later in the project by adding a third outcome covering an additional governorate in the project’s target region of Upper Egypt - Beni Suef - through the implementation of a waste-to-energy demonstration plant. This builds on lessons learned from other developmental programmes⁴, as well as providing sector-specific capacity building for firms operating in the waste management sector. The interventions are funded with the Government of Italy’s support to reinforce the joint GoE-IGGE’s efforts to cultivate the waste management sector’s untapped potential to diversify the local economy, offer job and income opportunities, create higher value-added products, and promote a more efficient use of resources and the valorisation of underutilized and wasted ones. It is important to note that the scope of the Terminal Evaluation (TE) tackles only the Swiss-funded outcomes, while also assessing the overall performance of the project.

In a coordinated way, the project also works to bring about changes at the meso and macro levels that eliminate green MSMEs barriers, specifically in policies and regulations and access to capital, technology, and markets. IGGE was designed to build on UNIDO’s experience in Egypt: the project applied approaches previously developed and tested in Egypt by UNIDO, such as Transfer of Environmentally Sound Technologies (TEST) and Resource Efficient and Cleaner Production (RECP), and tools to identify and promote BOs. A predecessor UNIDO Project, IMKAN for Your Employability and Entrepreneurship in Upper Egypt took place from 2016 to 2017. It mainly focused on building the capacities of MSMEs and employment in Luxor governorate and thus helped UNIDO to become familiar with the region, its

⁴ EU Joint Rural Development Programme-funded “Sustainable Investments in Solid and Agricultural Waste in Fayoum and Minya” project implemented by the Government of Italy together with the Centre for Environment & Development for the Arab Region and Europe (CEDARE), and the Ministry of Environment

institutions, and the challenges facing MSMEs in this geographical location. Building on the lessons from IMKAN, UNIDO designed IGGE to address broader barriers and conditions affecting green MSMEs development.

IGGE, during the mobilization phase, carried out several studies on the conditions affecting green MSMEs in Luxor and Qena; these studies identified barriers and policy interventions to support the MSMEs, labour market conditions affecting their development, and BOs to add value across VCs. The project approaches opportunities in ways that enable the proliferation of productive MSMEs by addressing challenges related to skills mismatches between labour supply and demand, challenges related to financial and non-financial services to MSMEs and individuals (such as business development services, market intelligence, technology transfer, and technical and entrepreneurial education).

The project works at three levels:

- **Micro level:** the project helps MSMEs in piloting innovative green products, technologies, services, processes and business models. Interventions at this level target primary producers, start-ups, MSMEs, and job seekers and are implemented on the ground in Upper Egypt in the Luxor, Qena, and Beni Suef governorates.
- **Meso level:** the project seeks to strengthen the entities (governmental and non-governmental) that are providing financial and non-financial services to MSMEs and individuals at both governorate (Luxor, Qena, and Beni Suef) and national levels.
- **Macro level:** the project works with government agencies, mostly at the national level to ensure that the good practices and lessons learned generated by the project are disseminated more broadly for upscaling and are mainstreamed into the legislative/regulatory and institutional framework for enhanced support to MSMEs entering the green economy.

Figure-2 presents the diagram of the project's logical framework, which describes the causal links between project outputs, expected behavioural changes (outcomes), and changes in the broader system conducive to more inclusive green economic growth (impacts). Project outcomes 1 and 2 are the original components of the project and are funded by the Government of Switzerland, and outcome 3 in Beni Suef was added in June 2023 and is financed by the Government of Italy. The logical framework is included in Annex 1.

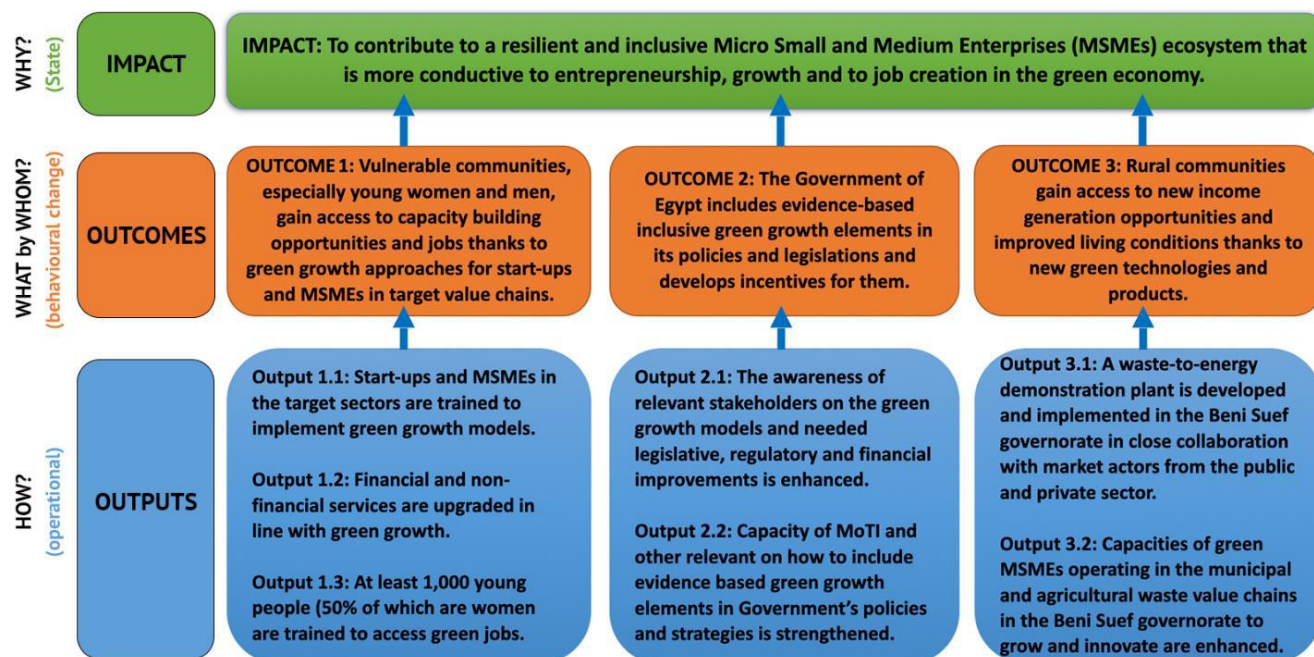


Figure 2: Diagram of Project's Logical Framework

Project Duration

The interventions funded by the Government of Switzerland (SDC) started in July 2020, following the signature of the project document with MoI in June 2020. In June 2023, the project expanded its scope and geographical coverage with additional funding from the Government of Italy (Italian Agency for Development Cooperation – AICS) to the Beni Suef governorate in partnership with MoE. In May 2023, upon the recommendation of the Mid-term Review (MTR), the project was granted a no-cost extension till June 2025 to compensate for the 6-month delay in starting the project (July 2020 instead of January 2020) and for delays in ground activities due to COVID-19.

Given the magnitude of the challenges to achieve major systemic changes, the project anticipates three phases; phase one and two, each 4-year long, in which UNIDO plays a key catalytic role, and phase 3, in which the market drives system change:

- **Phase 1.** The project addresses sector-specific barriers to MSMEs involvement in green growth and supports pilot innovative green products, services, and business models. In this phase, the project works closely with stakeholders at the macro, meso, and micro levels and on capacity building among MSMEs, service providers, and governmental institutions. In the end, the government promotes MSMEs' models and investments in green economic sectors.
- **Phase 2.** During the first years, the project continues to support capacity building among stakeholders at various levels and by the third year the project starts disengagement. By the end of phase two the green models piloted in phase one are widely disseminated and replicated in other governorates and mainstreamed into government policies and strategies.
- **Phase 3.** Three to five years after Phase 2, the ease of MSMEs' entry and access to financing is greatly improved. A robust entrepreneurial culture has developed, educational programmes are present nationwide, and the government adopts inclusive and green standards and requirements.

Project Management and Governance

The Project Management Team (PMT) based in Cairo is responsible for implementing the project, and it is formed by IGGE's Project Manager and Allotment Holder, who is the UNIDO Industrial Development Expert, National Project Coordinator, Monitoring and Evaluation (M&E) Expert, and Administrative Assistant. This core team has been assisted by national and international experts who have acquired additional expertise for the project. The project also keeps a field office in Luxor, which coordinates with the core team on a daily basis, ensures a smooth flow of operations in Luxor and Qena, and hosts training sessions and workshops, as needed.

The PSC is co-chaired by MoI, Embassy of Switzerland in Egypt, and AICS Cairo. Seven PSCs have taken place during the project's life. The PSC reviews and approves the annual budget, functions to keep stakeholders informed on matters related to the project and assists in the coordination of project implementation. The PSC is also regularly attended by representatives of 14 collaborating institutions, including ministries, governorates, and donors.⁵

Project Budget and Execution

The initial budget for the project was CHF 5,000,000 (4,368,840 as of 5 December 2024) through a grant from SDC, as well as USD 63,390 co-financing from UNIDO, including project preparation funds. More recently in 2023, additional funding of EUR 800,000 (USD 767,404 as of 5 December 2024) was obtained from AICS, bringing the total budget to USD 5,469,634 excluding support cost (**Table-1** Summary Financing at Project Entry). As shown in **Table-2** in Annex 2, most of the funding of USD 3,402,672 is allocated to Outcome 1, which focuses on supporting MSMEs startups and financial and non-financial support services. Outcome 2, targeting mostly policy and institutional changes, was allocated USD 675,455. Outcome 3, the demonstration in Beni Suef financed by AICS, was allocated USD 767,404. Outcome 4, the management and monitoring of the project by UNIDO was assigned a total of USD 600,602. This includes a full-time consultant for M&E functions. All funding allocated to the 4 outcomes add up to the total budget excluding support cost and project preparation funds. The exercise of the budget is on time. Project expenses for the Swiss-funded outcomes and management up to 19 December 2024, were USD 4,598,092 (**Table-2** in Annex 2).

Table 1: Summary Financing at Project Entry

\$	Project Preparation (UNIDO)	Project			Total (\$)
		SDC	AICS	UNIDO	
Financing	\$23,500	\$4,638,840	\$767,404	N/A	\$5,429,744
Co-financing (Cash)	N/A	N/A	N/A	\$39,890	\$39,890
Total (\$) excl. support costs	\$23,500	\$4,638,840	\$767,404	\$39,890	\$5,469,634
Source: Project management					

⁵ Other regular members of the SC include representatives from Ministry of Environment (MoE), Industrial Modernization Centre, Industrial Development Authority, Micro, Small and Medium Enterprise Development Agency, Ministry of Foreign Affairs, Ministry of International Cooperation, Ministry of Local Development, Federation of Egyptian Industries, Chamber of Food Industries, Waste Management Regulatory Authority, New and Renewable Energy Authority, Bioenergy Association for Sustainable Development, Luxor Governorate, Qena Governorate, Beni Suef Governorate, AICS, UNIDO (Secretariat)

IV Evaluation Question, Analytical Framework, and Process

The evaluation addresses the key question: **to what extent and how is IGGE contributing to market system changes conducive to an inclusive green economy focusing on MSMEs and women and youth employment?** This question provides the flexibility to address three evaluation objectives: the assessment of the project contributions to system change, the assessment of the project performance (including the accomplishment of project targets), and the identification of lessons and recommendations for a second phase and future projects.

The evaluation approach drew on complex adaptive systems to develop a methodology to identify and assess the conditions conducive to a market system supportive of green MSMEs. The evaluation team with the support of the PMT developed an analytical framework for the evaluation, which consisted of a system model of market change in Upper Egypt. In developing the analytical framework, the evaluation team drew heavily on studies and reviews commissioned by the project on labour conditions, market interactions, national policies, and barriers to green growth in the three selected economic sectors in Upper Egypt. These reports indicate a remarkable similarity between the conditions in the three VCs. Annex 3 summarizes the report's findings regarding the barriers found in each sector. The joint TE and PMT team also held a FGD with key stakeholders in September 2024, namely MoI, MoE, the Industrial Modernization Centre (IMC), the Industrial Development Authority (IDA), and NBE via video conference to verify and enrich the analytical framework prior to the field mission in Egypt. The evaluation team also continued to revise the model as the team learned more and developed a better understanding of the project. A key development during this process was the further definition of the cultural domain and its relevant conditions. While still a work in progress, this provided the framework that guided the gathering, interpretation, and analysis of evidence of the project's contributions to market system changes. The analysis also adopted the following postulates derived from complex systems thinking:

- Change takes place through agents adapting to each other's behaviours and changes in the environment.
- Systems are embedded and interconnected,
- The time elapsed between an input to the system and the system response can vary greatly across domains, levels, and stakeholders.
- Complex systems are highly unpredictable but deterministic (once change occurs, it is possible to know what brought about the change).
- Systems that are diverse and well-connected tend to be more resilient.

The independent TE was carried out using a participatory approach, whereby the key parties associated with the project were informed and consulted throughout the evaluation. The evaluation team included a senior international lead evaluator and a national evaluator. The evaluation team reviewed project components and activities related to outcomes one and two at both national and local levels (Luxor and Qena Governorates) first through desk research, followed by one-to-one interviews, FGDs, and field visits with 154 stakeholders representing, three ministries, 20 intermediary institutions and local NGOs, 57 MSMEs, two donors, UNIDO, and two service providers sub-contracted by the project. The country visit and interviews took place

Box 2: Interactive Stakeholder debriefing workshop in Cairo

Session 1: Debriefing of partners on preliminary findings of the evaluation including quantitative results -- *Presentation and Questions & Answers (Q&A)*

Session 2: To what extent has IGGE helped you serve better MSMEs? Partners' feedback on IGGE contributions in each domain (with a reminder of the 3 sectors targeted) -- *Facilitated interactive discussion.*

Session 3. What conditions/aspects that need further attention by the sector in the next phases? -- *Facilitated interactive discussion.*

Closing session: Brief presentation of the map and the project's link to it through indicators -- *Presentation and Q&A*

from October 12th to 28th, 2024. The preliminary findings on the project's achievements and contributions to market system changes were presented in an interactive debriefing workshop held in October 2024, gathering 27 project partners and donors representing 3 ministries, 3 intermediary institutions, 3 international organizations, and one service provider. The workshop allowed for a review of the enabling conditions needed for a conducive ecosystem and IGGE's contributions to those conditions (**Box 2**). The preliminary findings were also presented in the project's 7th Steering Committee (SC) meeting on 19 November 2024 in preparation for this full-fledged report for circulation among SC members in December 2024.

V Overall Project Performance: Effectiveness, Efficiency, and Relevance

Overall, the project is rated as **highly satisfactory**. Specifically, the project is **highly effective** in meeting its targets. Out of 33 key impacts, outcomes, and output indicators, IGGE exceeded 30 and achieved 1, 8 months before the project's end and on its way to completing the remaining 2 targets. Annex 1 presents the full set of indicators reported by IGGE during the 7th PSC meeting.

Impact indicators frequently measure changes or stress reduction in environmental, economic, and social conditions. The picture is also very favourable when looking at impact and behavioural change indicators related to system change. **Table 2** demonstrates a selection of impact indicators reported by the project M&E system. The prevention of CO₂eq emissions, an environmental stress reduction indicator, exceeded expectations from 8,000 tons at entry to 205,655 tons as of June 2024. Firms reporting economic gains, an indicator of economic benefits to MSMEs, also exceeded the expected 50 to 104. Similarly, regarding indicators of policy changes, which are not strictly impact or behavioural change indicators but are factors affecting stakeholders' choices, the project supported 11 adopted policy instruments that removed barriers to green MSMEs' expansion, in contrast to the four targeted policy instruments at project entry.

Table 2: Impact Indicators Pointing a System Change

Selected Impact Indicators	Target	Achieved
CO ₂ eq emissions prevented (tons)	8,000	205,655
Biomass valorised (tons)	100,000	342,599
% of firms reporting improved resilience	80%	94%
Firms with economic gains	50	104
Policy instruments adopted	4	11
Source: IGGE monitoring		

Given the assumption that system change takes place through agents adapting to one another and to the environment, behavioural change indicators help assess the project's contribution to changes in the system development trajectory. Regarding the project's M&E system report on indicators that point to behavioural change (**Table-3**), the project sensitized 3,255 local community members about green BOs, while the target was 1,500. Similarly, the project reports that 3,973 (71% women) market actors gained awareness, knowledge, and skills for new or better employment in the green economy, compared to the 1,000 (50% women) expected. These two indicators are significant when matched with the evidence obtained by the evaluation team during stakeholder interviews, FGDs, and workshops. The project, while facing challenges related to gender issues, demonstrated approaches to reach women. For example, over half of the established business start-ups supported by the project were led by women, and 37% of the 115 investment-ready proposals developed by participating MSMEs were women-led.

Table 3: Selected Key Behavioral Change Indicators

Behavioral Change Indicators	Target	Achieved
Local community members are sensitized about green BOs	1,500	3,255
Firms with improved management practices	150	147 (35% women-led)
Government and non-government institutions supporting green enterprises and jobs	60	91
Market actors gaining awareness, knowledge, and skills for new or better employment in the green economy	1,000	3,973
Established start-ups	50	59 (51% women-led)
Investment-ready proposals	50	115 (37% women-led)
Market actors participating in enhanced collaboration settings (clusters, networks)	30	1,472
Market actors engaged in policy dialogue	70	602
Source: IGGE monitoring		

The project's achievements sometimes duplicated or triplicated (in a few cases reaching orders of magnitude) the initial targets. This can be observed across the targets achieved by the 30 indicators, specifically among the impact and behavioural change indicators presented in **Tables 2 and 3**. This high accomplishment rate was possible due to well-planned, highly collaborative work with partner institutions and **efficient use of funds and time**.

The stakeholders interviewed during the evaluation, including top government officials, university staff, NGOs, and MSMEs, all considered IGGE's approach to expanding green MSMEs **highly relevant and timely**. Stakeholders also reported that project interactions with collaborating agencies and organizations took place in ways that supported and improved their capacities to carry out their respective mandates. MSMEs and other end-users often reported that IGGE support had expanded their outlook towards new economic opportunities, improved their positioning in the market, and improved their work environment and resources. The project was also highly relevant to Egypt's policy priorities; as indicated above, IGGE was designed to support the *Sustainable Development Strategy: Egypt's Vision 2030*. MoE invited IGGE to collaborate closely in developing Egypt's 1st Bio-Based Economy Strategy (BBES), which indicates the great extent to which IGGE support is considered relevant by policymakers. Similarly, MoI has requested IGGE's support to contribute to Egypt's Industrial Development and Trade Enhancement Strategy (IDTES), particularly the Green Industry Pillar (more details covered below). Moreover, another indicator of the relevance of the project and its contributions is the willingness of project end users (MSMEs, NGOs, and farmers) and institutions to invest their resources in the approaches and opportunities supported by the project. As indicated in **Figure-3**, the total cost of achieving the project accomplishments calculated by the PMT was estimated to be USD 11,365,688. This includes the grant funds provided by SDC and AICS (which add up to USD 6,296,730), other contributions for the development of tools, fees and contributions for IGGE's Green Business Expo, as well as financial resources to operate the businesses and of business investments mobilized by MSMEs and NGOs. The latter includes self-financing by enterprises, loans, grants and equity obtained by enterprises and NGOs from banks and other institutions and anticipated co-financing for the bio-refinery demonstration plant in Beni Suef. In addition to direct monetary investments, the project also calculated the in-kind contribution from local institutions at EGP 919,947 (USD 18,544 as

of 9 December 2024), specifically contributions in staff time and use of facilities and equipment in support of the project activities. Detailed project ratings are found in Annex 8.

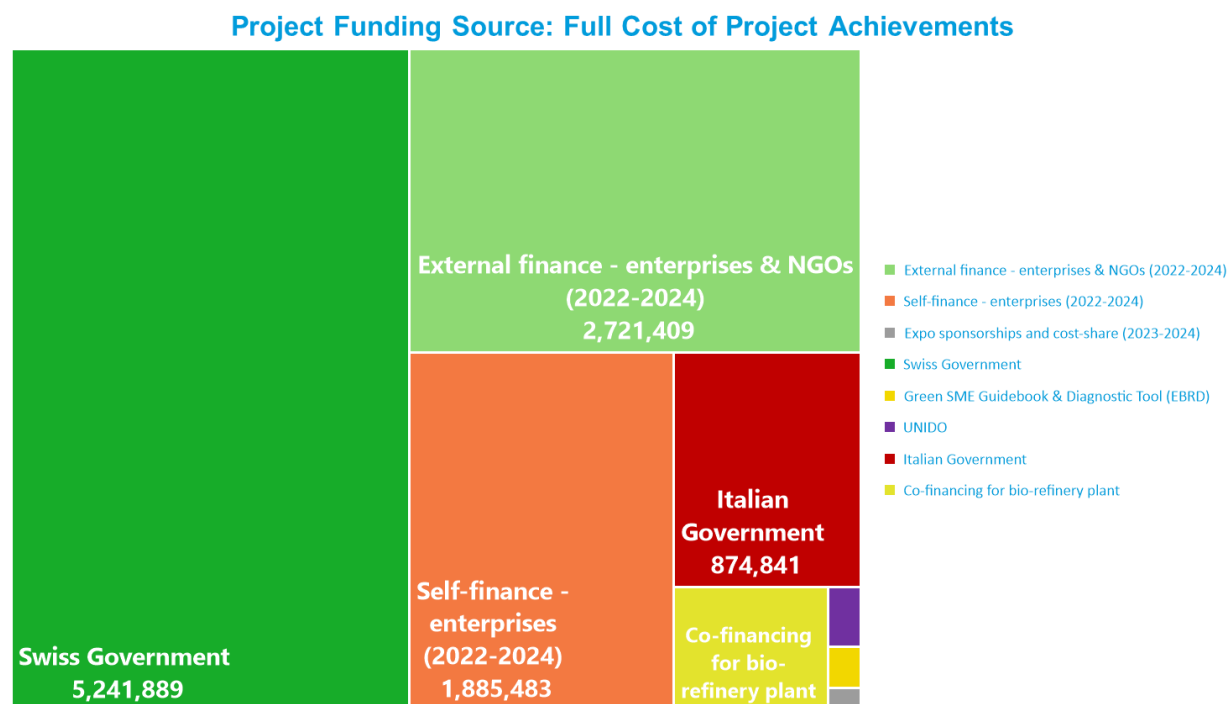


Figure 3: Project Funding Source - Full Cost of Project Achievements

VI Project Contribution to an Ecosystem Conducive to Expanding Green & Inclusive MSMEs in Rural Egypt

The project seeks to contribute to a resilient and inclusive MSMEs ecosystem more conducive to entrepreneurship, growth, and job creation in the green economy.⁶ **Figure-4** presents key domains in the ecosystem to bring about such transformation in Egypt's rural economy. This system mapping was developed by the evaluation team with the support of the PMT and validated with key partners, as mentioned earlier in the report. This figure illustrates a system approach which seeks to understand how elements (or parts) interact to form a greater whole. When applied to development interventions seeking behavioural

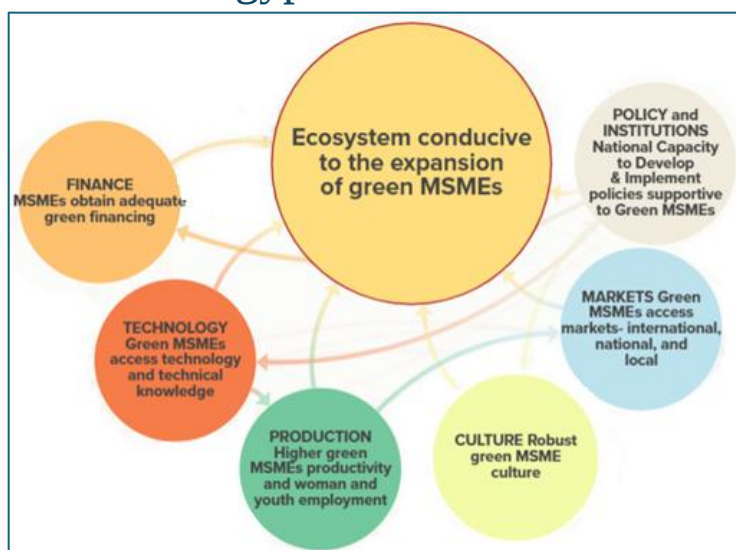


Figure 4: IGGE Ecosystem Key Domains and Conditions

⁶ The project defines an inclusive green economy as one that would expand opportunities by generating (i) economic growth (particularly focusing on MSMEs), (ii) expanding social inclusivity (with a focus on women and youth employment), and (iii) environmental sustainability or improvement (with a focus agricultural waste reduction and utilization and promotion of renewable energy).

change, a systems approach starts by developing a model of the conditions that interact in a specific place and time and are likely to enable behaviours conducive to a desired long-term change (or project objective). Subsequently, a systems-based evaluation examines the forms and extent to which projects interact with parts of a system and the changes resulting from such interactions. Because systems' approaches seek to analyse the conditions that affect a given development trajectory, these approaches give particular attention to the context in which an intervention takes place and to changes internal to the system emerging from the interactions of its components, be these changes intended or unintended.

The project seeks to contribute to the transformation of rural Upper Egypt, which depends mostly on agriculture that adds little value to products, offers few employment opportunities, and is environmentally detrimental, as mentioned earlier, to an inclusive green growth economy that expands opportunities for MSMEs growth and women and youth employment. The project demonstrates approaches to bring about such system changes in three economic sectors in the Qena and Luxor governorates: SAFP, WM, and SE. The project also seeks to bring about changes at the meso and macro level that eliminate barriers (such as policies, regulations, access to capital, technology and markets) to green MSMEs' expansion.

To bring about this transformation in Egypt's rural economy, the model postulates the need for a market ecosystem conducive to the expansion of green MSMEs. As indicated in **Figure 4**, the evaluation team has identified the conditions in 6 domains that are likely to enable this transformation: Culture, Financing, Knowledge and Technology, Market, Policies and Institutions, and Production. **Table-8** in Annex 7 presents 31 enabling conditions under these 6 domains that are distributed across different administrative levels (macro-national level; meso-institutional level/ regional; micro- MSME and women and youth labour). These conditions influence one another and cut across the 3 levels.

The following paragraphs present a summary of the contributions of the project to each of the enabling conditions in the 6 domains.

Contributions to National Capacity to Develop and Implement Policies Supportive to Green MSMEs

The project has supported the collaboration among public institutions, and between public institutions and private stakeholders to develop road rules that enable the expansion of green MSMEs. This pertains to the national policy and regulatory framework and how institutions develop and implement policies. Yet, the impact of policies and regulations on stakeholders can vary greatly depending on their specific conditions. Given this complex interaction of conditions affecting policy or regulatory reforms, the project carried out during the mobilization phase a series of participatory studies to assess the policy and regulatory barriers to the expansion of green MSMEs in the three priority sectors (SAFP, WM, and SE), considering the specific regional conditions in Upper Egypt. Based on this review, the project identified 32 policy interventions that would contribute to removing such barriers. These policy interventions vary; some define products, regulations, and standards, while others pertain to modifying policy-making processes and raising the awareness of market actors on green technologies in support of policymaking.

Out of the 32, the project contributed to 12 policy interventions, including adopting 11 new documents (**Table-4**).⁷ The project has supported the process of an additional 13 policy interventions (some of which are still in progress) with studies, strategies, and roadmaps. The project produced 20 policy documents and analytical publications for MoI, MoE and other relevant ministries and governmental entities. Worth to mention that only 7 of the identified policy interventions were not directly addressed by the project. On the other hand, the project had developed Egypt's IDTES in close collaboration with MoI, which has provided

⁷ IGGE defines a policy as a document that spells out the broad framework of values and objectives, within which government decisions are taken to solve a problem and/or the specific measures to be pursued in relation to such a problem.

the basis for a policy impetus for green industrial development in addition to developing Egypt's 1st BBES in close collaboration with MoE, as mentioned earlier. Annex 4 presents the 32 policy interventions identified during the mobilization phase and the IGGE contributions.

Table 4: IGGE Contributions to Policy Interventions Addressing Barriers to Green MSME Growth

Sector	Identified in Mobilization Phase	Directly contributed	Process Supported	Not Directly Addressed
WM	15	5	7	3
SAFP	9	4	3	2
SE	8	3	3	2
Total	32	12	13	7
Source: IGGE analysis				

In addition to the contributions to specific policy instruments, the project also contributed to the establishment of consultative mechanisms for public-private policy formulation. These include five advisory communication mechanisms between private and public sector institutions in drafting policies and consultative mechanisms among public agencies. The project typically partnered with one or more institutions that mandated the policy intervention. Often, other agencies – and departments within agencies – were also invited to be part of the process. This helped build links among institutions and resulted in a speedy approval process. As mentioned earlier, and under the leadership of MoI, IGGE was mandated in 2023 to develop the Green Industry Pillar of IDTES. Hence, a full-fledged analysis, recommendations, and detailed action plan have been developed in line with result areas developed by the World Bank (responsible for the overall IDTES development) and in consultation with the Ministry. Specific actions, milestones with timeline, owners, and targets have been developed with regard to both; 1) deepening the local manufacturing of green technologies, with a focus on streamlining registrations, enhancing quality infrastructure and quality of products/inputs, coupling technology transfer with skills development, expanding existing financial facilities and developing new ones, enhancing linkages and VC integration, attracting investment, and incentivizing local manufacturing, and 2) greening industrial operations – with a focus on developing standards for energy efficiency equipment, mainstreaming resource efficiency in industries and developing a service market, expanding and diversifying resource efficiency finance modalities, and developing eco-industrial parks.

The strategy encompasses an action plan casing the opportunities and challenges facing the Egyptian market to foster the manufacture of green technologies and aiming at greening the Egyptian industrial sector, by addressing challenges related to custom tariffs, quality and skills, and finance.

There is also evidence of the emergence of communication and policy dialogue mechanisms among MSMEs, and also between MSMEs and policymakers in Luxor and Qena. While not formally promoted by the project, MSMEs are forming these mechanisms to address shared challenges, which was demonstrated when IGGE, for example, engaged MSMEs in a process to define bio-based fertilizers (BBFs) requirements to access formal markets. This process made MSMEs realize the benefits from communicating with one another, sharing technical and business information, coordinating actions, and communicating with regulatory agencies. Despite being informal and early, this process indicates emerging MSMEs organizations. Similarly, the development process of the BBES relied on consultative mechanisms with both public and private actors, ensuring the development of a market-led strategy. In a different case, a group of black honey producers in Luxor and Qena formed a union initially motivated by the need to aggregate products and to meet the quantity demands of international buyers; nevertheless, during these interactions, members also started to share information on challenges in dealing with institutions (obtention of loans and permits, for example) and ways to overcome these challenges.

Contributions to Green MSMEs' Access to Markets

IGGE provided MSMEs and other market actors with market intelligence to diversify and expand operations. The project has adopted a systematic approach to promote BOs across VCs or subsectors in the three sectors targeted by the project. Over the last ten years, UNIDO and Chemonics-Egypt have developed and improved a methodology to evaluate VC competitiveness, seeking to determine gaps or areas for improvement in VCs that represent business or investment opportunities. Before the project, this methodology was used to identify multiple BOs across Egypt, of which 6 continued to be implemented by IGGE-supported MSMEs. During the mobilization phase, the project commissioned an analysis of seven VCs and clusters in Luxor and Qena with the potential for enhanced competitiveness which are: sugarcane, date palm, tomato, fruit and vegetable processing and packaging, medicinal/aromatic plants and herbs, manure-to-fertilizer/biogas, and solar photovoltaic (PV) and solar thermal energy (small-scale applicants and agribusiness).

The project identified 51 BOs that cut across and link the 3 sectors (and the 7 VCs) with significant potential to improve value generation.⁸ The BOs were selected based on 5 criteria: growth potential, value-addition, degree of innovation, capital and labour intensity, and operating cost. Examples of BOs include using products or by-products of one firm as inputs for the production process of a different product, the provision of services, or the development of new enterprises to add value to existing activities. Many of the BOs identified have the potential to generate multiple social and environmental benefits, as they are often in line with circular economic principles and are sources of local employment. Moreover, 32% of the BOs were assessed as having a significant potential to help micro or small-size firms move to medium or large-size enterprises. Also, as most of the BOs identified in the report are “locally rooted,” they have a solid potential to contribute to regional economic development. 13% of the BOs were assessed as having the potential to expand MSMEs' access to the national or international markets.

The BOs have provided MSMEs with an important tool for expanding their business operations. IGGE's M&E records indicate that the MSMEs directly supported by IGGE have pursued 36 of the 51 BOs. IGGE also reports indirectly supporting 9 additional BOs through its policy work, awareness-raising activities, and training within green VCs and clusters (**Table-5**). Annex 5 presents BOs with a complete self-assessment by the PMT of the extent to which the project has supported each of the 51 opportunities.

Table 5: BOs Supported by IGGE

Submarket ⁹	Identified in Mobilization phase	Implemented by IGGE Firms	Supported by IGGE	Not directly engaged
Dried Products	7	3	3	1
Bio-fertilizers & Animal Feed	11	7	2	2
Renewable Energy Solutions	9	7	0	2
Handmade Accessories	2	1	0	1
Food Retail Products	4	3	1	0
Technology/Equipment Manufacturing	6	3	1	2
Intermediary Products to Indust. (incl. food, pharmaceuticals, wood & paper)	12	8	4	0
Total	51	36	9	86
Source: IGGE analysis				

⁸ Mapping Value Chain and Cluster Competitiveness and Business Opportunities document Inclusive Green Growth in Egypt (2021).

⁹ Source: Annex 5

Other project-supported activities, such as solar caravans and the Green Business Expo events, have provided opportunities for MSMEs' interactions with increasing market actors. Such events have allowed local firms and banks to connect with suppliers and buyers outside the region. Other times, these horizontal links with similar market actors can lead to cooperation to address common interests or challenges.

The expansion and diversification of firms to different geographies and types of buyers and suppliers have contributed to firm resilience and regional economic diversification. Every six months, IGGE surveyed several business dimensions of the MSMEs it supports. Evidence from these surveys indicates

that beyond IGGE direct support to MSMEs, these firms have been very active in establishing links with buyers and suppliers. The project's M&E records indicate that the number of IGGE-supported firms establishing new links has grown rapidly, going from less than 5,000 in early 2021 to nearly 60,000 by June 2024 (**Figure-5**).¹⁰ More than 90% of these buyers and suppliers are local, i.e., operating

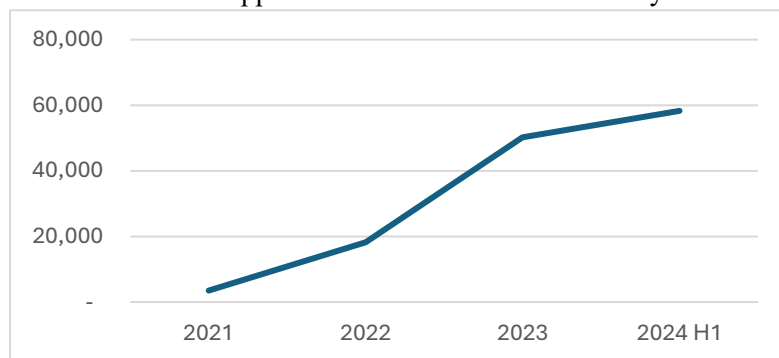


Figure 5: Buyers and Suppliers of IGGE Supported MSMEs

in Upper Egypt. Anecdotal evidence obtained during the field visits and in desk reviews by the evaluation team corroborated the active involvement of MSMEs, NGOs, CDAs and agricultural associations in expanding their business links. For example, 14 NGOs & CDAs have sought ways to increase their agricultural waste operations by expanding their links to primary producers (farmers) and fertilizer firms (buyers).

Diversification and access to national and international VCs has allowed firms to link with new types of suppliers, providing them with new income streams by selling new or more diversified products. For example, solar energy companies, such as United, Amjad, and Arab International for Solar, have expanded their supplier base for solar energy systems, improving their product diversification and reaching suppliers outside of South Upper Egypt to access new markets and attract a more extensive customer base. After joining the programme, Mozna (manufacturer and distributor of BBFs), Cheto Tech (manufacturer and distributor of BBFs), and Emaar (manufacturer and distributor of alternative farming inputs) have expanded their geographical reach. Emaar and Cheto Tech have operated in new governorates in Upper Egypt, while Mozna has entered new governorates in the Delta for the first time. This expansion has helped distributors and traders in these governorates access a broader range of sustainable products that these firms offer, contributing to increased profitability for traders and distributors and expanding their product portfolios to the markets. Diversification has also improved the local availability and accessibility of sustainable products and services in South Upper Egypt, particularly in previously marginalized communities or areas with limited access to markets. For example, farmers and breeders in these regions may now have better access to products like animal feed, compost, and biofertilizers, enhancing their productivity and growing their operations sustainably, reducing costs, while also safeguarding the environment.

¹⁰ Source: Annex 6: Buyers and Suppliers of IGGE Supported MSMEs.

Contributions to MSMEs Access to Green Financing

Challenges for green MSMEs financing in Upper Egypt. GoE has established special financing programmes targeting MSMEs. In 2016, the Central Bank of Egypt (CBE) launched an initiative to provide 200 billion EGP in loans to MSMEs over 4 years at a preferential interest rate.¹¹ More recently, the Micro, Small, and Medium Enterprises Development Agency (MSMEDA) announced that it would double its funding to support MSMEs in Upper Egypt, notably to support small firms' preparation for registration and to join the formal economy.¹² Yet, despite the financial resources in the market, financing Small and Medium Enterprises (SMEs) continues to be a systemic challenge within Egypt's green financing landscape. Banks often don't have the systems and capacities to reach SMEs. Five significant factors that limit access to SME financing in Upper Egypt are:

- Most green financing facilities adopt the European Union's SMEs definition and lack specific targets for SMEs financing as defined by CBE. This contributes to a staff incentives structure that results in larger ticket sizes better suited to mid-cap firms. While this approach lowers banks' transaction costs, it limits access to financing green SMEs.
- Outside Head Quarters (HQ), in regional branches like Luxor and Qena, staff often lack knowledge of their bank's green financing options, requirements, terms, and conditions, contributing to challenges in deploying green financing.
- Credit officers also face challenges in deploying green financing due to a limited understanding of green technologies, the business case for sustainable projects, and the track record of similar initiatives. This knowledge gap makes it difficult to determine which types of loan-financed items can be appropriately allocated to green financing facilities. It also limits the ability of credit officers to assess the risks of loans.
- The banks' staff, particularly in regional branches, also finds it challenging to align the financing needs of SMEs with the sustainability and climate goals of loan facilities, further complicating the identification of suitable projects.

In summary, banks in Egypt often do not have sufficient capacity and tools to lend to green MSMEs. Banks' staff - particularly in regional offices – often lack sufficient knowledge of green programmes and financing. As such, loan officials often have a low appetite for green MSMEs' loans, which are small, time-consuming, and with risks difficult to evaluate. Challenges related to SMEs' business practices also contribute to their low access to financing. SMEs may operate in the informal sector, lack a sufficient financial literacy and disclosure culture, and lack understanding of or do not meet FIs' requirements.

The project has strengthened the capacities of FIs and MSMEs for green financing in Upper Egypt.

The project addressed the capacity gap between MSMEs and FIs by adopting an integrated credit supply and demand approach. To address the supply side, the project has assisted FIs in gaining more knowledge of specific green growth sectors in which MSMEs operate. The project shared the market intelligence about green growth opportunities in Luxor and Qena and Egypt at large with FIs. This included workshops, talks, and demonstrations, reaching 203 staff from 9 FIs. Since early 2023, the project has been working with four FIs to help further build staff capacities on green growth, linking banks to MSMEs, and developing specific tools to service MSMEs. For example, the project trained 30 staff of NBE in Qena and Luxor, helping staff develop a shared understanding of the conditions affecting loans to green MSMEs in the region. The project has also supported NBE and three additional FIs operating at the national level to develop procedures related to green growth and MSME financing (**Table-6**). As part of this process, the project supported them to develop different financing products to address specific financial needs of green MSMEs. While these financing products respond to conditions identified in Luxor and Qena, FIs also see their relevance in other parts of rural Egypt. Other examples of the tools developed by FIs and supported by IGGE are 1) NBE's

¹¹ Arab Finance "Egypt's higher SME lending quota supports economy"

<https://www.arabfinance.com/2015/pages/news/newsdetails.aspx?Id=337985&lang=en>

¹² <https://www.egypttoday.com/Article/3/136031/MSMEDA-to-double-funding-targeting-increased-production-exports-in-Upper>

and MSMEDA's SME diagnostic tools to assess loans and advise clients, 2) Abu Dhabi Commercial Bank (ADCB)'s incorporation of sustainability key performance indicators into their loan origination systems, and 3) Banque Misr (BM)'s incorporation of green business components in BM's existing acceleration programme. It is important to point out that in addition to these tools, BM is also starting a process with IGGEs support to improve its acceleration programme by including outreach to MSMEs, clarifying selection processes, and adding expert panels, MSME capacity building, and advisory support needed by green MSMEs.

Table 6: IGGE Support to FIs

ADCB Egypt (January 2024 - onwards)	- Financing Product for Sustainable Energy – to be launched in Q4 20204. - Incorporation of Sustainability key performance indicators in loan Origination Systems for specific sectors. - Staff training in green growth & MSMEs. - Promotion of services and referrals of MSMEs.
BM (Starting July 2024 – in progress)	- Support in the development of three technology-tailored/circular economy. - Financing products – initiating the process. - Incorporation of green business components in BM's existing acceleration programme. - Staff training in green growth & MSMEs. - Promotion of financial services and referrals of MSMEs.
MSMEDA (October 2021- onwards)	- Financing Product for Solar PV - approved in May 2024. - SME diagnostic tool to assess loans and advise clients - Staff training in green growth & MSMEs. - Promotion of financial and non-financial services with MSMEs. - Key partner in Green Business Expo events.
NBE (May 2022)	- Financing Product for Agri-waste Recycling Machinery- up for approval in Q4 2024. - SME diagnostic tool to assess loans and advise clients. - Staff training in green growth & MSMEs. - Promotion of bank products and services and referrals of MSMEs. - 9 loans disbursed for EGP 66M (EGP 37M in negotiation by 7 MSMEs).

NBE has a strong track record in SME financing and managing green financing facilities, such as Egyptian Pollution Abatement Programme (EPAP), Finance in Common, and Green Economy Financing Facility (GEFF). IGGE and NBE's partnership played a vital role in promoting access to green financing. NBE was part of IGGE's solar caravans and IGGE's outreach and capacity-building activities, a sponsor in the Green Business Expo 2024 and a beneficiary of multiple capacity-building and technical assistance (TA) support activities. Other key entities, such as MSMEDA and programmes like EPAP, actively participated in IGGE Expos to promote their green financing facilities and outline their mandates and conditions. IGGE has also facilitated connections between firms and relevant green financing facilities through one-on-one meetings, the Green Business Expos, and multiple information sessions. Efforts are underway with NBE, BM, ADCB, and MSMEDA to enable access to finance for end-users to adopt green and circular solutions and green SMEs.

On the demand side, the project has also helped MSMEs and MSMEs' service providers build capacities to meet FIs' requirements and connect MSMEs with FIs. IGGE has helped organize numerous events that bring together FIs and MSMEs in which FIs explain their credit procedures and requirements. The three Green Business Expos, notably the Expo of June 2024, have been particularly fruitful in linking MSMEs and FIs, as there were many opportunities for one-to-one interactions in these events. The IGGE enterprise support programmes GO/GROW/EXPAND are geared to support MSMEs' growth by tailoring support to the needs of the MSMEs' development stages. The GO/GROW/EXPAND phases have included three rounds and 141 MSMEs (35% women-led and 56% youth-led). The programme provided MSMEs with many tools and skills to become competitive and sound enterprises which contributed to strengthening MSMEs' negotiation capacities with FIs. Such tools include business growth plans, Strengths, Weaknesses,

Opportunities and Threats (SWOT) analysis, and risk analysis in addition to financial statements, cash flow analysis, debt serviceability, and break-even points. The project also supported 115 MSMEs in becoming investment-ready and developing investment proposals (37% were developed by women-led MSMEs and 54% youth-led). IGGE training programmes have also helped firms seeking loans understand the documentation requirements and loan processes, enabling them to improve their applications over time. The IGGE programme's training and advisory support has also enabled firms to prepare for grant financing. With clear business models, action plans, marketing strategies, pre-feasibility, and feasibility studies, many firms became eligible, more confident, and prepared to apply for grant funding opportunities.

An important aspect of the IGGE strategy has been building and expanding existing non-financial services that can continue to support MSMEs in developing their business and financial management capacities. In this context, the project has supported three government institutions to build capacities and provide support services to green MSMEs: 1) MSMEDA, which works with agricultural sector MSMEs in the region; 2) IMC, which operates in aspects related to green industry, decarbonization; and 3) Chamber of Food Industries (CFI), which operates mainly in the food processing sector. The interactions among these institutions established during the project have also helped establish channels for coordination and complementarity, as well as with IDA, also operating aspects related to industry. The project has also supported eight business development services (BDS) experts and six local institutions to provide ongoing technical support to entrepreneurs and MSMEs.

The project facilitated the expansion of Green MSME financing in Luxor and Qena. IGGE strategy of generating market intelligence regarding the BOs in the region, the technical support on green growth to FIs, support of MSMEs to adopt business development systems and skills, and the fostering of links among stakeholders (MSMEs, FIs, and buyers) helped catalyse regional financing for MSMEs where none, or few existed before. In just two and a half years, from 2022 to June 2024, 32 IGGE-supported MSMEs and 1 NGO attracted EGP 132,070,000 (USD 2,662,165 as of 9 December 2024) from banks, grants, and external equity investors. IGGE facilitated SME financing of 18 loans with a total of EGP 81,870,000 (USD 1,650,272 as of 9 December 2024) primarily through NBE, along with the Agricultural Bank of Egypt (ABE), BM, Export Development Bank (Ebank), and Qatar National Bank (QNB). 15 of the 18 loans awarded were at below-market rates (with one being interest-free). Most of this financing was with an interest rate of 5%, given that most were small-sized enterprises, and NBE has been a key partner in this regard. In addition to bank loans, the project also facilitated grants for 25 MSMEs from 12 different granting entities amounting to EGP 23,214,000 (USD 467,930 as of 9 December 2024). Other 14 IGGE-supported firms (some with the assistance of IGGE or the collaborating institutions) procured EGP 22,135,000 (USD 446,180 as of 9 December 2024) equity investments. In addition to these funds, 100 start-ups and MSMEs self-invested EGP 91,502,500 (USD 1,844,436 as of 9 December 2024) to support their operations. Of these MSMEs, 14 combine self-financing with external financing. In total, self-financing and external funding from 2022 to June 2024 is EGP 222,872,500 (USD 4,493,397 as of 9 December 2024) as demonstrated earlier in **Figure-3**.

IGGE-supported firms are also integrating access to financing and financing facilities into their business models in cases with high initial costs for adoption, such as solar, irrigation, and biogas systems. These financing models address a barrier for farmers and factories (cashflow constraints) by providing more flexible payment options or access to existing financing opportunities in banks. For instance, many solar and biogas companies allow clients to make an initial down payment of up to 50%, with the remaining balance spread over at least one farming season. This approach alleviates the financial burden on customers and enables the adoption of such solutions. Additionally, some firms facilitate access to external financing by linking their clients to banks offering tailored financial products at subsidized interest rates, such as the solar irrigation financing options provided by NBE and ABE. IGGE supported these efforts through the support provided to the firms and solar caravans, which emphasized solar irrigation solutions. Firms providing financing facilities include Arab International for Solar, United, Sun Energy, Semco, Amjad, which provide solar irrigation systems for farmers, and Biomassr, which installs biogas units. Almohandes,

a provider of technical support services and agricultural supplies to farmers, has devised an innovative model of developing tri-partite agreements with banks to finance sustainable farming infrastructure, including drip irrigation and solar systems, particularly for farms on reclaimed lands. MSMEs have established partnerships with international companies such as Tanta Motors and Mozare3, which provide MSMEs access to capital and global VCs.

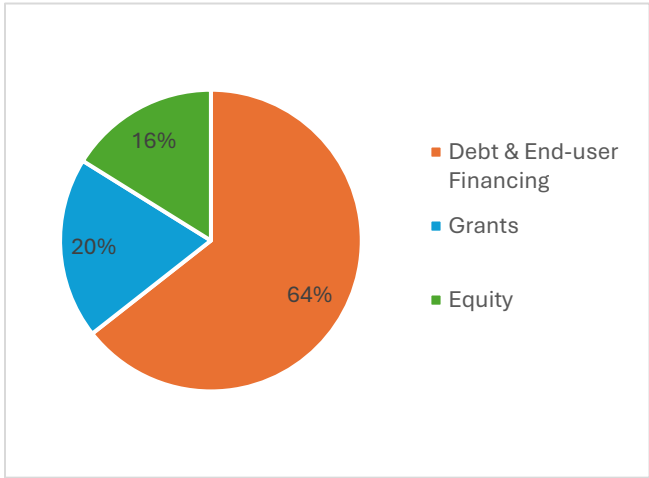


Figure 6: External Finance Disaggregated by Type

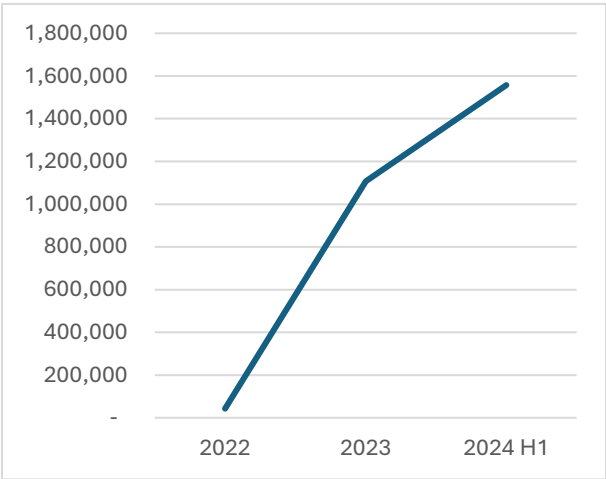


Figure 7: External Financing (USD)

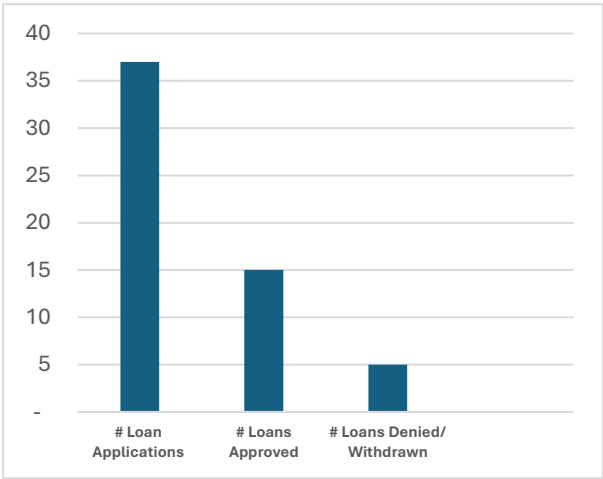


Figure 8: Loans Status Summary

In a very short time, IGGE has demonstrated that it is possible to activate the financial markets to support the expansion of green MSMEs by producing and sharing market intelligence on regional opportunities, providing targeted TA and capacity development, and building links across domains, levels, and stakeholders. Key agents are realizing the untapped potential in Southern Upper Egypt, while the momentum for green financing and innovation in the circular economy is growing.¹³ The effects of IGGE’s support are expanding beyond the direct project interventions. For instance, IGGE-supported firms have successfully been featured in platforms like Shark Tank and the National Initiative for Smart Green Projects, as well as in multiple Expos (Green Business Expo, Food Africa, and others), highlighting the

¹³ These agents include government agencies, 22 banks, equity investors, grant providers, and multiple angel investors and donors, such as the EBRD, GIZ, and World Bank

entrepreneurship and innovation, role models and successful green business cases emerging from Upper Egypt.

Contribution to Access to Knowledge and Technology Across the System

Technology is commonly understood as the application of knowledge for practical purposes.¹⁴ Technology is ubiquitous across of UNIDO's work and has been central to all aspects of IGGE interventions. In the context of UNIDO's work, technology is related to applying knowledge to industrial processes that add value to goods and services. IGGE ultimately seeks to apply knowledge to add value across VCs, drawing on circular economic principles that advance the efficient use of resources, reduce waste, and improve social equity. The project has supported the generation, dissemination, and application of knowledge and information for decision-making across domains, levels, and types of stakeholders. Three complementary forms of knowledge promoted by IGGE have been applied and widely acted upon by stakeholders across the system. The following three forms of knowledge and how they have been packaged and targeted to specific stakeholders have been important factors contributing to the project's achievements.

The project supported innovations in tools and processes to transform goods and add value. IGGE introduced new tools and processes to add value and reduce waste across the VC. This includes the introduction of machinery and practices to transform goods into elaborate products that meet market demand and requirements. *At the micro level*, the project assisted MSMEs in adopting tools and practices that better use natural resources and renewable energy to add value and fill market gaps. An example is the processing of sugarcane waste. *At the meso level*, the project helped existing entities (such as local NGOs, CDAs, agriculture associations and national institutions) to build service capacities in methods and tools such as RECP with CFI and TEST with IMC and IDA. Moreover, the project has supported partner institutions to develop specific tools to address technology transfer needs in the 2 priority areas: 1) Green Technologies Local Manufacturing Road Maps for agricultural waste recycling machinery and solar PV systems (in collaboration with IMC), and 2) Resource Efficiency Guide in the Food and Beverage Industry (developed in collaboration with CFI). The project also supported MSMEDA and NBE in developing rapid SME diagnostic tools, as well as another SME self-diagnostic tool for green transformation in partnership with the European Bank for Reconstruction and Development (EBRD), to be hosted by MoE's Climate and Environment Investment Unit (CLEIU). The project also supported 2 local universities, South Valley University (SVU) and Tiba Technological University (TTU) and 6 local organizations in developing training programmes to build a local labour force with the skills required by the new technology. *At the macro level*, as indicated earlier, many of the 32 policy interventions and financial products referred to earlier (and the elaboration of the resulting regulations, standards, and procedures) carried out in collaboration with national institutions also required the development of specific technical capacities. IGGE and its events like the Green Business Expos facilitated MSME's access to outside agencies and suppliers of machinery, parts, and inputs needed to implement the new technologies.

The project helped build MSMEs' capacities in business development systems. To complement the technical aspects directly related to the transformation of goods, IGGE supports mechanisms to help enhance business capacities among individuals and MSMEs. The project has been supporting 8 local leaders in offering business development services in Luxor and Qena, as well as business training and hands-on practice with skills and tools needed to manage a business. This training incorporates lessons from GO/GROW/EXPAND programmes and considers the needs along with the challenges different green MSMEs face in their business development stages. IGGE also supports 6 local institutions to prove ideas, focusing on helping entrepreneurs develop their business ideas. Ideation training is focused on understanding VCs, value addition, and identifying market opportunities.

¹⁴ Link through: <https://www.merriam-webster.com/dictionary/technology#:~:text=plural%20technologies-.1,of%20achieving%20a%20practical%20purpose>

Market intelligence provides market actors with key information for decision-making. Market intelligence includes knowledge and information that can make sound business decisions. IGGE has carried out several diagnoses and continues to provide critical information for decision-making to stakeholders across the system. These diagnoses or studies include 1) assessment of the existing quantities, type, and location of sugarcane and other agricultural waste in Luxor and Qena, 2) identification of policy interventions to remove barriers to the expansion of green MSMEs, 3) labour market study, and 4) mapping of VCs and BOs in Luxor and Qena. As indicated through the report so far, the project's initial diagnosis was an important step for the identification of policy interventions that remove barriers to green growth. The identification of BOs has also developed an awareness of the potential of the expansion of the green economy in the region in part of policymakers, public institutions, FIs, and MSMEs, and the decisions of FIs, and these diagnosed governmental and non-governmental partners to see the value of the project propositions.

Contributions to the Productivity of Green MSMEs and to the Employment of Women and Youth

IGGE support has strengthened MSMEs to increase value across the VC. For UNIDO a "VC" refers to the complete series of activities required to bring a product from its initial raw material stage, through various production phases, to its final market destination, encompassing all steps from input supply to distribution and including the added value created at each stage.¹⁵ In the VC, accomplishments in policy and regulatory changes, access to financial resources, knowledge and technology, and linkages to markets coalesce in product delivery that considers social, economic, and environmental values. As indicated earlier, the project identified 7 VCs or clusters of VCs, which vary in their technological complexity and capital requirements. For example, farmers sometimes realized the value of using agricultural waste by converting it into fertilizer or animal feed. During the FGDs for this evaluation, farmers reported that organic fertilizer increased production by approximately one-third while also lowering the costs of production in half by substituting imported chemical fertilizer for the organic one. Project records also indicate that MSMEs in their early stages of development (GO 1, 2, and 3) often show work in the agricultural sector as it requires less start-up capital.

By contrast, engagement in the SE sector requires considerably more capital and access to more complex technical know-how. The offering of options with different levels of complexity and capital requirements was an essential factor in providing opportunities that met the conditions and resources of MSMEs, NGOs, CDAs and agricultural associations in different stages of development. **Figure-9** illustrates the steps and stakeholders involved in agricultural waste to produce mainly BBFs and animal feed (and, to a lesser extent, industrial fuel) for the regional market.

¹⁵ Google AI search of UNIDO definition of a Value Chain. Also see <https://iap.unido.org/articles/what-are-global-value-chains-and-why-do-they-matter#:~:text=Global%20value%20chain,its%20end%20use%20and%20beyond>.

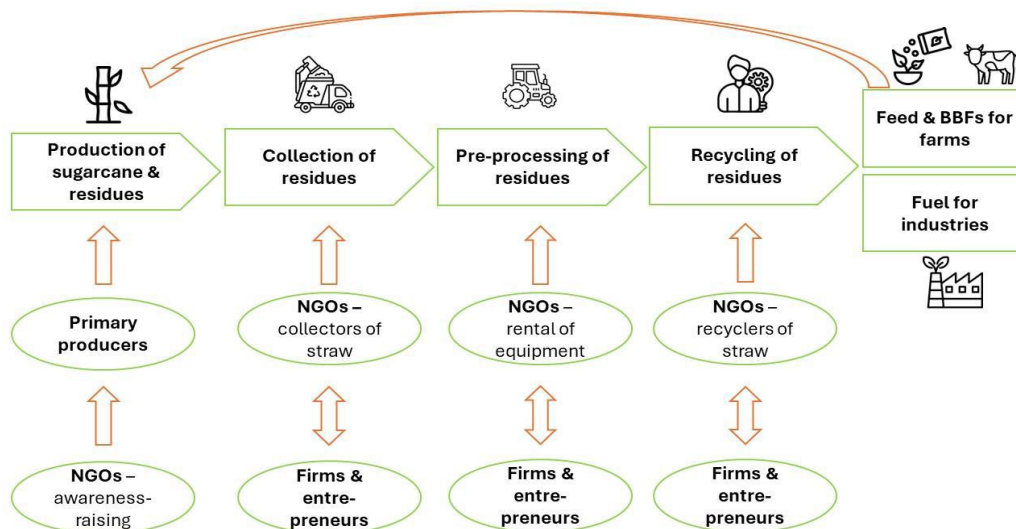


Figure 9: Illustration of Agricultural Waste Steps

At more aggregate level, in the agricultural sector, which is the most significant economic sector in Luxor and Qena, the IGGE M&E system reports that the project supported the use of 342,599 tons of biomass waste, e.g., agricultural waste, animal manure, and other types of biowastes. The IGGE M&E system also reports that the project prevented 205,655 tons of CO₂eq emissions. This avoidance of emissions took place mainly from the use of 322,555 tons of agricultural waste, e.g., sugarcane, tomatoes, bananas, corn hibiscus, and fennel, which is abundant in the region, and it is often burned or disposed of in waterways, causing respiratory and health problems to the local population, as well as animal manure. Other sources of avoidance also include the use of municipal solid waste and the shift from fossil fuel to solar energy.

Figure-10 presents a graph of aggregate revenues of the IGGE-supported MSMEs in Luxor and Qena in the three sectors, WM, RE, and SAFP. Since 2021, there has been a steady increase in the number of MSMEs deriving green growth revenues, going from 36 entities in 2021 that generated EGP 147,712,349 (USD 2,977,472 as of 9 December 2024) to 142 entities in 2023 that generated EGP 667,816,267 (USD 13,461,326 as of 9 December 2024). These 142 MSMEs reached aggregate revenues of EGP 543,238,613 (USD 11,027,986 as of 9 December 2024) from January to June 2024, and at this

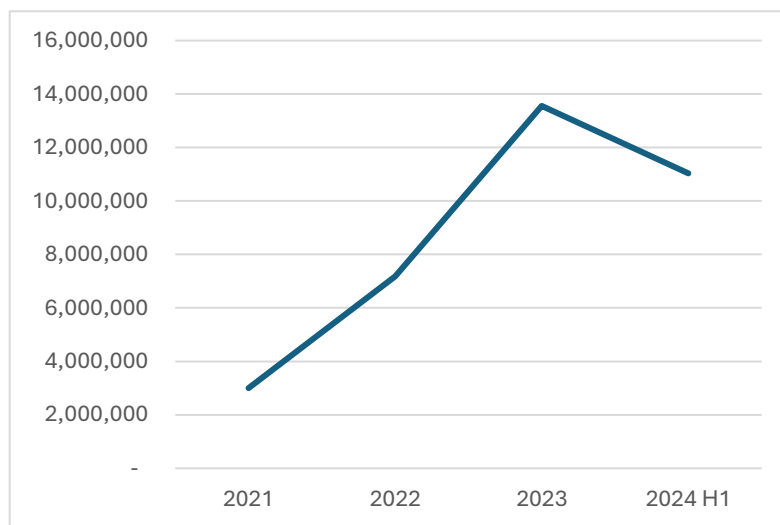


Figure 10: Total Revenues of IGGE-supported MSMEs in Luxor & Qena (USD)

rate their revenues are likely to exceed the revenues derived in 2023. The MSMEs' revenue growth and rates of investment and expansion from 2022 to 2024 occurred across MSMEs of different stages of the GO/GROW/EXPAND programmes. For example, 104 startups and MSMEs reported that they have increased revenues and savings. This is likely to result from a combination of the programme attracting MSMEs with higher potential for growth and the support it provides to improve MSMEs. All of 147 MSMEs supported by IGGE (35% led by women and 56% by youths) report improvement in their productive practices and management capacities.

The growing engagement of firms with national and international VCs, coupled with the gradual diversification of the local economy, sets the stage for developing a resilient local economy. Firms that tap into national or international VCs generate income streams in hard currency that enhance their ability to stabilize and expand their operations. This vertical diversification improves cash flow and profitability and strengthens their resilience against economic fluctuations, enabling them to sustain or even increase employment opportunities and improve their competitiveness. As indicated earlier, the BOs across VCs are helping to diversify and integrate the local economy, and 75% of the firms supported by the project operate the BOs identified by UNIDO since 2014. In the context of this growing horizontal diversification, injecting hard currency into the local economy can have a spillover effect that contributes to local economic growth since approximately 70% of the IGGE-supported firms have manufacturing or processing as a core business activity, highlighting their emerging role in driving local manufacturing. By producing goods locally, ranging from retail products to alternatives to chemical fertilizers, animal feed, and wood substitutes, these firms reduce reliance on imports for consumption from the Delta region or international markets. This shift supports import substitution and strengthens the local economy by enabling local value addition and providing basic goods and services that are locally produced and are often more affordable and accessible, while at the same time safeguarding the environment by introducing sustainable and less resource-intensive products. This vertical/horizontal diversification process is apparent among the firms supported by the project as at least four firms are expanding their exports during the programmes, and at least five others plan to do so in the next two years.¹⁶ Several firms have also expanded their manufacturing capacities or established operations in industrial zones in Qena and Luxor. This move enhanced their ability to access new markets, scale their manufacturing capabilities, improve their competitiveness, and benefit from financing schemes tailored to SME manufacturers.¹⁷ Some firms transitioned from primarily service providers to incorporating processing or manufacturing to supply the local industries; examples include Almohandes, a provider of technical support services and agricultural supplies; United, a solar service provider that expanded into manufacturing mounting structures; and Banana Kingdom, a producer of banana fibres.

IGGE-supported MSMEs and Universities contribute to growing and diverse employment opportunities. Most of the employment generation associated with the project is linked to the expansion of the IGGE-supported MSMEs. The growth of expansion of MSMEs has increasingly generated jobs in Luxor and Qena from 2021 to June 2024, with 2,233 jobs generated in 2024 (48% women). The project has also supported 6 local institutions in Qena and Luxor to provide employment services in the 3 target sectors. As of September 2024, these institutions have trained 2,155 job seekers on job preparation (74% women, 91% youth) and matched 844 job seekers (41% women) with 26 employers, of which 285 were placed. Of those job seekers placed, 62% were in intern positions, 21% full-time, and 16% part-time. Most of the placements (94%) are in the SAFF sector. In addition to the contributions of the GO/GROW/EXPAND programmes to the generation of local jobs, the programmes have also introduced MSME leaders to concepts and practices related to social responsibility, including the benefits to employers and employees as well as the value of full-time employment. In one MSME visit during the evaluation field mission, the streamlining of roles and job descriptions to employees was showcased, which helped clarify their roles

¹⁶ Firms that are expanding their export operations include: Teba for Ketchup (manufacturer of tomato-based added value products), Sanabel Elkhair (manufacturer of flour and other staple products), Arab Company for Investment and Agricultural Development (manufacturer and distributor of alternative animal feeds and liquid BBFs), and Banana Kingdom (manufacturer of fibers from banana waste that are used in textiles, fertilizers, and handmade products). The following firms reported to the IGGE PMU that they plan to expand exports over the next two years: Roka Foods (producer of alternative healthy sweeteners from dates and spice mixes), Mozna (manufacturer of organic fertilizers from bio digestate), Mac (producer of industrial and cosmetic oils), Mataena for Development (manufacturer of alternative fuel from biomass residues), and Albasem (manufacturer of halva as retail and bulk products).

¹⁷ Examples include El-Bedaya (compost and alternative fuels), Teba for Ketchup (tomato-based retail products), Mozna (bio-based fertilizers), Almotahida Foods (packager and distributor of foodstuff), Arab Company for Investment and Agricultural Development (alternative animal feeds and liquid bio-based fertilizers), Twins for Sweets (manufacturer of food retail products using by-products of dates), The Star (packaging material provider), and Al-Hinnawi (producer of molasses from sugarcane).

and responsibilities; workers, on the other hand, benefited from more stable salaries. IGGE is also supporting curricula development and research capacities in local universities to meet the vocational labour requirements of the emergent industries in the region. These universities mix practical and theoretical training and are increasingly establishing links to local industries.

Table 7: Jobs generated by 142 IGGE-supported MSMEs

Programme	2021	2022	2023	2024
GO 1	37	59	41	35
GO 2	NA	141	172	155
GO 3	NA	NA	239	372
GROW1 & EXPAND	327	419	669	634
GROW 2	NA	455	576	519
GROW 3	NA	NA	574	518
Total	364	1,074	2,271	2,233

Source: IGGE monitoring

Contributions to an inclusive green growth culture supportive of the expansion of MSME development

There is a growing awareness and engagement from market actors in promoting green growth opportunities across sectors and levels. Culture refers to the beliefs, values, symbols, rules, and practices that enable social groups to function. When asked about the project's contributions to their lives and organizations, all stakeholders interviewed (in all sectors and at all levels) responded that it was the rise of awareness of the opportunities in green growth. This was the most consequential contribution of the project because it led to a cognitive shift in the perception of waste as a resource. An important aspect of this cultural shift was the project's efforts to provide stakeholders with reliable information on concrete green growth opportunities available in ways that they could understand. The progress achieved in the removal of regulatory, administrative, and financial barriers, the access to knowledge, business skills, technology, and access to buyers and suppliers have also contributed to a growing perception among MSMEs that these opportunities are within their reach.

Businesses are mainstreaming inclusive green values and circular economy in their operations beyond the activities directly carried out by the project. Earlier, this report indicated how national level institutions are mainstreaming green growth concepts and tools. In a similar way, awareness-raising is becoming an aspect of the business strategies of the MSMEs, NGOs, and CDAs participating in the project. Several have included information dissemination and awareness raising as part of their marketing activities or of their efforts to expand their supply networks. Some are educating their customers on the benefits of sustainable services and products while also assisting them in improving farming and manufacturing practices. This indicates that the project catalysed a cultural change that supported the expansion of green growth in Luxor and Qena among participating regional institutions. Companies that provide solutions such as irrigation systems, solar irrigation, land plowing, laser land levelling, compost, BBFs, and alternative feeds often conduct information sessions for clients. These sessions, frequently organized in collaboration with NGOs and CDAs, not only explain the features and benefits of their products but also highlight the business case for adoption. Additionally, they cover topics such as good farming practices, the environmental and economic advantages of sustainable solutions, and market access opportunities, raising awareness on sustainable practices and economic activities. For example, Mozna's (provider of BBFs) technical support and marketing teams have carried out multiple awareness activities in partnership with agriculture and development NGOs to raise awareness among farmers on the benefits of using organic fertilizers as well as integrated pest management techniques to enhance crop care and improve productivity. Al Shorouk (provider of alternative feeds from sugarcane waste) has also implemented numerous awareness activities, with several focus on women with poultry and duck breeding activities, focused on waste

recycling (including UNIDO's mapped BOs) and environmental sustainability in general, in addition to the benefits of alternative feeds on improved poultry production.

The project promotes a collaborative culture among institutions. While typically partnering with institutions with respective mandates and capacities to address specific regulations, the project also invited other institutions with relevant mandates or overlapping mandates to the process. For example, the project organized consultative workshops for review of strategies and regulations. This engaged relevant institutions and departments which greatly facilitated the approval process. This also enhanced inter-governmental coordination and helped prevent overlapping regulations. The interactions established during project meetings also helped staffers develop personal relationships that has facilitated communication across institutions and departments. Thus, one stakeholder, the Egyptian Organization for Standardization and Quality (EOS), remarked that the approach followed by the project was so effective that while in the past it would have taken more than one year to adopt one regulation or legal definition, with the project, they accomplished nine regulations in just over one year.

IMC, IDA, CFI, SVU, Employment Service providers, and NGOs have updated and improved their processes which enhanced their services or increased traction in the case of NGOs and employment companies.

Specifically, with CFI, a Vision Paper was developed with IGGE support, covering the most common RECP opportunities in the Food and Beverage (F&B) industry, followed by the development of an Energy and Resource Efficiency Guide to conduct audits to food factories. Accordingly, CFI now disseminates these concepts to their members to join their vision and utilizes the developed checklist by IGGE in merging both services of the National Food Safety Authority (NFSA) with RECP in their visits. The chamber started updating their process by providing such services independently by conducting free technical site visits to their members with plans to have a dedicated department with trained staff to support their members on this topic.

Roaa NGO also clarified that although employment and recruitment services were not operating before IGGE interventions, the NGO is now using the job preparation training introduced by IGGE as an add-on service, where it started mainstreaming the recruitment services in their processes by conducting the related trainings and advertising for employment opportunities. This has yielded a positive result on their partnership with the Ministry of Education, clarifying that since 2007, the dual education system existed but was lacking the link with employment. Now, as a result of IGGE's interventions, employment is linked to and available for the three related sectors of SAFR, WM, and SE.

IMC, given its mandate, has been providing services in the RE sector. However, each department was referred to by the institution as an isolated island. Now, after working on the green technologies local manufacturing roadmap for solar PV with IGGE, IMC has connected its various departments in order to be able to network with the key market players, e.g., with El Sewedy and El Araby groups' research and development (R&D) centres for the manufacturing of solar PV inverters & electrical equipment, which according to IMC, was highlighted as a big step that helped them build a holistic approach for a green economy.

Multiple options and flexibility allow market actors to choose innovative options compatible with their conditions and culture. At the micro level, the flexible approach to the promotion of innovations allowed MSMEs, NGOs, and farmers to choose changes or technologies with the levels of complexity and financial or technical requirements that they felt were appropriate for their conditions, thus reducing the risks and opening the possibility for gradual change. During field visits, the evaluation team found indications that MSMEs and farmers are adopting modern business practices and behaviours promoted by the project in ways compatible with local socio-cultural presents and responsibilities. For example, earlier in the report, we mention a case of the MSME leader who reported making his employees full-time and having developed job descriptions for them. The same person indicated that all of his employees (over 100) were from the same locality, who were people whom he knew and with whom most likely he was bound

by mutual social responsibilities. This was a win-win arrangement: workers had access to full employment, and he got workers he could trust and on whom it made sense to invest in training.

The project is providing viable income-generation opportunities for women. The project has promoted women's work and income-generation opportunities in different ways. According to the project's M&E records, 35% of the 141 firms that graduated from the project's start-up and enterprise support programmes GO/GROW/EXAPAND are led by women, 50% of business development services providers and ideation trainers are women, close to 50% of teaching staff capacitated by the project in Luxor and Qena are women, and 35% of market actors engaged in policy dialogue are women. Moreover, the project's M&E records indicate that overall, there has been an average of 11% rise in female employment in GROW firms and a 42% rise in GO firms in 2024. The project employment promotion programmes focus on recruiting women. Several firms participating in the programme have also carried out specific initiatives that target women. Among the rural populations, the MSMEs, CDAs and NGOs often support income generation activities that women can take place in or near their houses and are also compatible with domestic responsibilities. For example, 1) Maan, an installer of biogas units, has established home-based businesses and group projects that incorporate women, 2) Estinbat, a provider of barley sprouting units and alternative animal feeds, in collaboration with the National Council for Women (NCW) and ABE, trained 500 women in producing barley, corn, and poultry feed, 3) Hekaya, the manufacturer of pickles and spreads, hires and trains women to become independent marketers and sellers of pickles in their communities, 4) Al-Metwaly, the provider of integrated agricultural support services, launched an initiative to empower women and train agricultural graduates through workshops on good practices. At the Luxor Mango Festival, the firm formed partnerships with the Luxor Governorate and Housing Unit, leading to training sessions for 400 women on small-scale gardening and field visits to equip students and graduates with technical skills for the job market.

VII Management of Emergent Mismatches

Effects of Mismatches Emergent from System Change

IGGE has contributed foundational elements for transitioning to a green, inclusive economy in Luxor and Qena. This was accomplished by working with stakeholders to bring about changes in multiple domains and levels. At the centre of such changes is the development of a market system that expands green economic opportunities and employment for women and youth. The overall strategy of the IGGE has been to integrate the new circular economy and inclusivity principles, tools, and processes to support the emergence of new agents and to help expand the links and integration among agents, entities, and processes. A key factor in the project's success in phase I has been the excellent match of the innovations and changes promoted by the project with the policy goals and aspirations of participating key stakeholders. This was most apparent in how awareness of green growth opportunities resonated across domains, levels, and stakeholders in the market system.

Yet, the entities engaged are systems with specific histories and ways of doing things, formal procedures, and culture. The changes promoted by the project required these systems to adapt to the requirements of the new trajectory. As this process reverberates through the system, mismatches can occur between some elements or components of the established system. Mismatches are expected, given the many interactions taking place in complex systems. Internally generated mismatches can occur across domains, stakeholders, and system levels. Mismatches can be difficult to predict and only become apparent over time. Yet, once identified, it is possible to understand what caused them. While all mismatches are likely to generate stress in the system, some are sorted out as part of the process. An example of mismatches between the cultural and economic domains identified during the evaluation refers to the hiring criteria followed by an MSME leader who privileged trust and social criteria over the paradox business criteria of hiring qualified applicants. In this case, the MSME leader mitigated the tension between his preference for workers he

trusted and the more business conventional approach of hiring qualified workers by investing in employee training to ensure the required skills. Mismatches between domains also can generate tensions that interfere with the new trajectory. For example, licenses require clearing by several authorities with different requirements, making the licensing process cumbersome. This indicates that there might be an opportunity for IGGE to support the national authorities regulating land ownership to streamline the licensing process.

An example of a mismatch that is likely to play out over time refers to the geographical boundaries of the project and the boundaries of the socio-economic region. The current geographical boundary of the project includes Qena, Luxor, and Beni Suef. Yet, the natural socio-economic region includes other governorates. While testing the IGGE approach and tools in a manageable geographic area (mostly Luxor and Qena) has been critical step to learn, in the long run, it is highly likely that IGGE process will naturally extend to the rest of the region.

Some mismatches can develop to a point where they become disruptive to the intended development trajectory. In the case of IGGE, progress to the conditions supportive of green markets has given rise to mismatches in the times it takes for different processes to reach maturity. In a paradoxical way, it is precisely in the financial domain, where meaningful progress and achievements have occurred, where mismatches are emerging. With IGGE's support, NBE has trained staff on green BOs, has aggressively promoted its financial services, and has considerably expanded its reach and lending operations among green MSMEs in Luxor and Qena. NBE is also about to approve a financing product that will allow it to meet the specific financing needs of green MSMEs further, whereas BM is initiating work with IGGE to improve its acceleration program. However, despite these achievements, some MSMEs, who are highly motivated to expand their green operations, feel that banks tend to be slow to respond. MSMEs reported that the cycle for loan approval can be too long, MSMEs also reported bank officials have required unreasonably high collateral for loans and two loan guarantors, or that loan officers in Luxor and Qena required permits (such as permits for drilled wells). MSMEs also indicated that branches in other regions do not have such requirements. Some also indicated that loan officers inflate the amount of loans beyond that solicited and required by the MSMEs. CAPEX loans for solar systems require 40% upfront payment at the time of the loans are issued. Others who seek loans for irrigation systems complained that bank officials set as a loan requirement the invoice from suppliers as proof of their modern irrigation system while refusing to conduct field inspections, which MSMEs consider to be a more reliable way to verify the installed systems.

While MSMEs have become more familiar with the requirements of FIs, it is highly likely that some of the farmers and MSMEs still have much to learn about how banks operate and to develop a culture of disclosure to facilitate interactions and develop trust with loan officers. Yet, it is also likely that bank officials might not have developed sufficient skills or tools to assess the financial viability and risk of green MSME loans and look for ways to reduce the risk of their portfolios. Furthermore, loan officers are not always aware of the bank's green loan facilities. Loan officers frequently operate under an incentive structure that rewards more extensive portfolios. Some loan officers may give lower priority to green MSMEs as they are considered too small, more time-consuming, and risky. The stress is partly related to the fact that it takes longer for a bank to define guidelines and procedures of a new operation than an MSME to be motivated by newly realized BOs. NBE, as other banks, have been working on financing products that will make transparent requirements and procedures. The financing products that banks will soon implement are likely to clarify loan requirements and procedures. However, banks might still need to address other aspects, such as modification of the incentives to loan officers to make it more attractive to operate green MSME loans.

Effects of Mismatches Emerging from Contextual Conditions

One of the analytical postulates of this evaluation is that systems are embedded and interconnected. Thus, all systems are linked to other systems, some of which are broader in reach and can exert a strong influence and stress. Yet, the impact on the receiving system will also depend on the resilience of the receiving system

(resilience is the ability of the system to maintain its functions and objectives under stress) and on the capacity of system elements to adapt. The green market system promoted by the project is strongly linked to the broader national economic system through exchange rates, interest rates, and capital controls. Through VCs, the system is also linked to national and international markets through which goods and services are exchanged. In Egypt, a low exchange rate following the recent currency devaluation has led to a high price and the scarcity of imported goods. This has translated challenges and opportunities to MSMEs in Upper Egypt. On one hand, the low exchange rates led to the high prices of agricultural machinery and parts for solar energy systems for MSMEs engaged in recycling biomass residue and renewable energy sectors. Firms adapt to these external stresses by seeking opportunities to expand into new markets and diversify production. On the other hand, the high prices of agrochemicals in the world markets have opened a window of opportunity for firms working on biomass residue to expand their production of organic fertilizers and animal feed. Some firms in this sector have diversified into alternative fuels like Refuse-Derived Fuel (RDF) or alternative feeds, while others, such as Biomassr, support farming communities with export-oriented initiatives like tomato drying. Arab Company for Investment and Agricultural Development (manufacturer and distributor of alternative animal feeds and liquid BBFs) has expanded its portfolio by adding new products, including dried vegetables specifically prepared for export, and Tabarak, a manufacturer and distributor of fertilizers as well as agro-nutrients, has also expanded its portfolio by adding new products and ventured into a new VC as a manufacturer of organic and BBFs.

As a group, the participating MSMEs have stayed in business and grown despite the stresses stemming from the national and global markets. These are conditions under which MSMEs and the project have very little control. While other regional firms are struggling under this stress, only three of the MSMEs in the GROW programme have stopped their production. Factors that have contributed to the MSMEs' ability to adapt and grow under such stress are their knowledge of business systems and the availability of diverse BOs with growth potential in the region¹⁸, and the extensive network of links to local, regional, and international market actors. IGGE has also helped MSMEs through GO/GROW/EXPAND business advisory to pivot their business models and reach optimal product mixes/pricing for enhanced cash flow and turnover, weathering their business challenges and economic crisis at large.

VIII Lessons in Sustaining a Green Growth Development Trajectory

Facilitating interactions and information flow across sectors (domains), levels, and stakeholders. The IGGE experience and results clearly show that engaging institutions and decision-makers at the national level, in addition to the governorate level, is paramount. The removal of barriers to the expansion of green MSMEs in Upper Egypt required changes in national-level standards and other regulations. It was also IGGE's engagement of the different relevant agencies and stakeholders across sectors that led to the approval of a relatively large number of regulatory reforms and definitions in a relatively short time. IGGE also helped bridge gaps between central-level entities and regional entities. One example is the closer collaboration between the governorates and central agencies in supporting MSMEs and the Luxor Governorate ordinance prohibiting the burning of agricultural waste. Another example is IGGE's support to NBE in testing financial products to support MSME green growth in its Luxor and Qena branches, intending to derive lessons for its operations in other areas of rural Egypt. IGGE has also worked jointly with both MoI and MoE in the development of the green pillar of the national industrial development strategy, which is likely to have a lasting impact on the trajectory towards inclusive green growth if duly implemented. The inter-institutional training workshops on circular economy, RECP and TEST as well the

¹⁸ The PMT estimated that 75% of the firms supported by the GO/GROW/EXPAND programmes operate under BOs identified by the project.

PSC meetings held by IGGE help stakeholders from different sectors get to know one another, which has opened avenues for communication and coordination in other settings.

IGGE-UNIDO played an important role in establishing links among stakeholders and processes taking place across domains which have been essential for setting the foundations for inclusive green growth. One example is the identification of BOs that rested on an analysis of the interactions between seven prominent VCs in Upper Egypt. IGGE's promotion of linkages between MSMEs and suppliers and buyers outside of the region has been an important factor in the rapid expansion of green MSMEs in Luxor and Qena. By linking processes and stakeholders, and particularly by facilitating links between regional and national level processes, IGGE has helped to incorporate diverse perspectives and expanded the reach of interventions while also facilitating access to information that otherwise would not be available to stakeholders. Moreover, because partner agencies and participating stakeholders understand that they have ownership and support these processes, results are also likely to be sustained.

Supporting capacities to continue generating conditions conducive to a green growth development trajectory. A key aspect of the IGGE approach is to carry out activities jointly with partner agencies and organization operating in different domains and levels as a way to help build capacities to carry out and support the roles and behaviours conducive to inclusive green growth, in addition to its technical contributions. IGGE has also helped link agencies and organizations across levels and sectors. While undertaking regulatory reforms and guidelines, the project supported partner institutions (national and regional) in building capacities to integrate the principles and practices of circular economy and green growth into their operations. In this process, staff in partner agencies acquired new skills and knowledge and, in most cases, maintained green growth concepts and tools in their operations. However, the extent of such integration differs and is often related to the institution's conditions when the collaboration with UNIDO began (the initial conditions). In the cases in which institutions have a track record, robust technical capacities and resources, institutions have developed the capacity to continue expanding the circular economy and green growth principles and tools to new areas. One example is Central Laboratory for Organic Agriculture (CLOA), which initially had very strong technical capacities and has mainstreamed tools and approaches related to the circular economy and green growth in its programming. IMC also has mainstreamed knowledge from IGGE's workshops on circular economy and bioeconomy and the TEST tools developed by UNIDO. IMC also made an important contribution to green technologies local manufacturing roadmaps and to the Green Industry Pillar of IDTES. CFI regularly visits industries and provides RECP assistance and advice. Another example is the TTU at Luxor, which incorporated circular economy and green growth approaches into the vocational curriculum. The applied approach of the TTU is likely to make a sustained contribution to expanding a trained labour force on circular economy and green growth in the region. While proficient in aspects of green growth, these agencies and organizations continue to see promising potential in widening the collaboration with IGGE. Other partner agencies and organizations interviewed during the evaluation (operating at different levels) indicated that while the process has been highly beneficial, they need more assistance to apply concepts and tools independently from IGGE. While UNIDO has contributed to building capacities in many institutions and sectors, there is still room for further UNIDO support to accelerate the development of local capacities to expand conditions conducive to green growth.

Supporting adaptive capacities of MSMEs and other market agents to contribute to a resilient economy and society. The transition to a green growth development trajectory ultimately implies changes in the VC and the spread of new technologies. These are emergent expressions of the aggregated behaviour of market agents. This report has documented how conditions in the broader system interact to influence the behaviour of market agents. Two critical factors affecting the response of market actors to other agents and their environment are the information they control and their position in the system, particularly important in this regard are the resources to which they have access. At the micro level, the GO/GROW/EXPAND programmes provided MSMEs with knowledge and tools to develop their capacities in business management. Yet, beyond the capacities to manage a firm, the project also provided access to

information and supported developing linkages across domains, scales, and types of stakeholders. Combining these three approaches has been critical for MSMEs' behaviours that have translated to the region's expansion into a green economy. The information provided by the project on the local BOs helped MSMEs identify areas for business expansion. Moreover, the information on BOs was presented in ways that matched the diverse stakeholder capacities and conditions (financial and technical), including MSMEs, NGOs, and farmers, which helped identify opportunities for stakeholders across the social spectrum. The project's promotion of links across sectors and VCs anchored to defined geography (Luxor and Qena) provides market agents with avenues to tap into national and international markets. Moreover, many of the BOs identified take place within Upper Egypt. This approach sets the foundations for a more diversified and interconnected economy. This, coupled with the support mechanisms that the project is helping strengthen at the national and regional level over time, is providing market agents with more options and support to adapt to unexpected changes. As the adaptive capacity of market agents increases and support mechanisms get strengthened, so will the resilience of the regional economy and society, it will be better equipped to adapt to internal disruption and external shocks.

Choosing options compatible with stakeholder interests and culture. Attention to stakeholder interests and culture reduces stakeholder resistance and enhances the likelihood of sustainability. Promoting an informed new outlook that raised awareness of the value of green BOs and a circular economy was fundamental for stakeholder buy-in and behavioural change across sectors and levels. The project proposed win-win options that increased value and opportunities across the board. Also, the multiple options and support provided MSMEs, NGOs, CDAs, agricultural associations, and farmers with a flexibility that facilitated their engagement in the VCs in ways compatible with their needs, resources, and culture. This approach is highlighted by the project accomplishments mentioned earlier in reaching the rural poor and women. For example, IGGE supported Al Shorouk NGO in creating a feed and fertilizer unit to produce organic animal feed from agricultural waste and provide feed in quantities and affordable prices for rural households. At the same time, IGGE facilitated contracts between duck suppliers and NGOs to provide mallard duck breeds to 20 women who supplied agricultural waste to the Al Shorouk feed and fertilizer unit in exchange for animal feed. Including the jobs in the feed and fertilizer unit, the duck growers, and other farmers that supplied agricultural waste, the initiative generated income for 120 farmers. Most income came from occupations perceived as very convenient for women because they allowed them to work from home while caring for their children, provided their household with protein, and could derive income from selling ducks. This compatibility with the needs and culture of local people made the innovations supporting the green growth trajectory highly sustainable and with a high replication potential. Given rural Upper Egypt's characteristics, socio-cultural precepts will continue to be critical while expanding green opportunities in rural Upper Egypt.

IX Recommendations: Transitioning IGGE from Demonstrations & Capacity Development to Strengthening System Level Mechanisms or a Green Growth Development Trajectory

During phase I, the project, in its catalytic role, interacted directly with stakeholders across levels and domains to build awareness, remove regulatory and financial barriers, build capacities, and demonstrate and test technologies for a transition to inclusive green growth in rural Egypt. However, the transformation into an inclusive green economy in rural Egypt is best conceived as a path rather than a destination. This path's construction will require an increasing number of agencies, organizations, and stakeholders to assume roles and behaviours consistent with a green growth development trajectory.

A dynamic catalytic role for IGGE that learns and changes as partner entities develop capacities. The long-term and complex nature of developing a green and inclusive economy will require IGGE-UNIDO

and other partner institutions to adapt and learn to address new challenges. There are now indications that agents are assuming roles that promote conditions supporting green growth and MSME development. CLOA and IMC, for example, are able to continue to apply circular economy principles when developing regulations. MoE has embraced the principles of bioeconomy. With IGGE support, the banks and creditors are developing more financial products tailored to green MSMEs. MSMEs, NGOs, and CDAs have independently expanded their links with buyers and suppliers and incorporated green growth in their outreach to suppliers and clients. Universities are close to establishing their curricula and training programmes in green growth, which will contribute to the skilled labour force needed in the region. These achievements by partner entities allow UNIDO-IGGE to redefine its roles and shift attention and resources to address remaining and emerging challenges.

Recommendation: UNIDO, SDC AICS, MoI, MoE, and other partners adopt a learning strategy that periodically revises the capacity development across partner institutions and encourages partners to occupy roles that UNIDO now fulfils in the IGGE initiative, while allowing UNIDO to address emerging challenges. In this context, UNIDO should continue to engage with stakeholders across the ecosystem, particularly with national-level institutions and processes, cultivating its role as a facilitator of connections and interactions. This should be approached as a process that evolves and is jointly carried out with key partners and with a more direct role of the PSC members in leading and implementing changes, with the PSC becoming a function for learning and decision-making in addition to its current reporting role.

Gradually expand the geographical reach of the IGGE initiative to incorporate the economic region.

The project demonstrated the important role of green BOs across VCs in constructing a vertically and horizontally diversified, well-connected, and resilient local economy. The clear definition of the sectoral boundaries and stakeholders targeted by IGGE (the WM, RE, and SAFP sectors and MSMEs) was a factor contributing to identifying opportunities in the VCs. Having tested a set of approaches and tools, the project is well positioned to expand its reach of the IGGE initiative to encompass more of the natural, socio-economic region in which it operates.

Recommendation: UNIDO, SDC, AICS, MoI, MoE, and other partners should gradually expand the geographical reach of the IGGE initiative to include the governorates in the relevant socio-economic region in Upper Egypt.

Build a lasting and broad coalition to support a long-term and expansive process. While the aggregate product of the IGGE-supported MSMEs remains small compared with the product of Luxor and Qena, the IGGE initiative has demonstrated tools and approaches to shift the region's development trajectory to a green, inclusive economy. Yet, the widespread adoption of the practices demonstrated will require time and will entail a diverse coalition to provide the financial, technical, and political support required along the way.

Recommendation: UNIDO, SDC, AICS MoI, MoE, and the governorates of Luxor and Qena should jointly look for additional financial and technical partners to ensure that the green growth development momentum in Egypt is sustained in the long term.

Expand the engagement in IGGE by the relevant governorates in Upper Egypt. The governorates of Luxor and Qena have played an essential role in implementing specific aspects of the project. The results and accomplishments of IGGE make it apparent that the IGGE approach has a distinct potential for green, inclusive regional economic development. This emphasizes the need for close IGGE engagement with the regional development strategies of Luxor, Qena, and any new governorate to which IGGE expands.

Recommendation: IGGE and the governorates should explore ways of collaborating closer and, whenever possible, joint efforts and coordinating resources in regional economic development that expand opportunities for green MSMEs.

Address emerging mismatches. The challenges NBE and other FIs face are in part related to the temporal mismatches between the rapid adoption of opportunities by MSMEs and the time it has taken for banks to go through the required steps to develop financing products and other guidance for loan officers. Once in operation, the financial products developed by the banks will very likely help clarify conditions and processes for accessing specific types of loans. However, it is also likely that there is a perception among loan officers that MSMEs in Upper Egypt represent a high risk. The evaluation has also documented some indications that banks might not be providing sufficient incentives to loan officers to engage in time consuming smaller loans. Other banks and FIs will likely face similar challenges as their green MSME portfolios grow.

Recommendation: NBE and other FIs should take quick action in communicating their financing products to MSMEs, seeking to clarify misunderstandings that have emerged as loan operations expand. Similarly, the evaluation recommends that FIs review the performance criteria applied to loan officers to determine extent of incentives and rewards for portfolios that include green MSMEs, women and youth. IGGE could assist this process by hosting meetings where bank officials can explain the process and loan requirements to MSMEs. IGGE could also assist FIs by FGDs with loan officers to identify the factors (and possible solutions) influencing the processing of green MSMEs loans in Upper Egypt, and in Egypt at large.

Adopting systems-based monitoring to support adaptive management. The evaluation has documented how the project has systematically addressed system change and ways in which the project is contributing to the conditions for a green and inclusive market system in Luxor and Qena. The monitoring records of the project have done an excellent job of capturing information on the project activities and accomplishments using the project's logical framework and focusing on the links between project inputs, outputs, activities, and outcomes. By contrast a systems approach focuses on how the project interacts with the phenomena to bring about system change. Such a system-driven monitoring system would 1) identify the system conditions likely to contribute to the desired system change or transformation, 2) determine the extent to which those conditions change from their starting condition, and 3) assess the extent and ways in which the project contributed to such changes also considering what other factors could have also contributed to the observed changes. By shifting the focus from the projects cause-effect logical sequence to changes on the state of the system that is targeted for change, this approach takes a much broader view of the process and is better tooled to identify unexpected developments and thus to adjust interventions in line with the desired system trajectory.

Recommendation: Building on the work carried out for this evaluation, IGGE should develop a model of the conditions contributing to an ecosystem conducive to inclusive green economic development in Upper Egypt and rural Egypt at large. This model would then be used to identify indicators that allow for the trace of changes in such conditions. This model should be periodically revised with the participation of partners and stakeholders to review the model in the light of new developments and to adjust project interventions in response to emerging challenges and opportunities to drive the system in the desired trajectory.

Annex 1: Indicators of the Project Logical Framework (3 Outcomes)

IMPACT	KEY PERFORMANCE INDICATORS (KPI)	KPI's DEFINITION	BASELINE	TARGETS	PROGRESS TO DATE	SOURCES/MEANS OF VERIFICATION
IMPACT To contribute to a resilient and inclusive Micro Small and Medium Enterprises (MSMEs) ecosystem that is more conducive to entrepreneurship , growth and to job creation in the green economy.	1. CO ₂ and other GHG emissions prevented in Luxor and Qena governorates (tons, disaggregated by sector)	This indicator measures to which extent IGGE helped in the action of preventing and/or reducing the production and discharge of CO ₂ and GHG in Luxor and Qena governorates. This indicator will look into the emissions per ton and sector.	53,110 tons of CO ₂	8,000 tons of CO ₂	205,655 tons	Project's reports, specialized analyses (if needed)
	2. CO ₂ and other GHG emissions prevented in Beni Suef governorate (target to be determined)	This indicator measures to which extent IGGE helped in the action of preventing and/or reducing the production and discharge of CO ₂ and GHG in Beni Suef governorate. This indicator will look into the emissions per ton.	1,512 tons of CO ₂	1,515 tons of CO ₂	0	Project's reports, specialized analyses (if needed)
	3. Tons of biomass used for productive uses in Luxor and Qena governorates	This indicator measures the use of waste produced from agricultural operations (including waste from farms, poultry houses, and slaughterhouses) into any agricultural, commercial and industrial activities in Luxor and Qena. The indicator will look into the agricultural waste per ton.	663,878 tons	100,000 tons	342,599 tons	Project's reports, specialized analyses (if needed)
	4. Tons of solid waste used for productive uses in Beni Suef governorate (target to be determined)	This indicator measures the use of waste produced from the operation of the biorefinery plant. The indicator will look into the agricultural waste per ton.	485,900 tons	1,320 tons	0	Project's reports, specialized analyses (if needed)
	5. Number of Government and non-Government institutions supporting green enterprises and jobs (disaggregated by type and role)	This indicator captures all kinds of support provided by national/sub-national governmental bodies, policy making entities and NGOs to green enterprises and jobs. Support could be in the form of capacity building, advice	19	60	91	Project's reports, specialized analyses (if needed)

		and networking. Green enterprises: The term "green enterprise" refers to services, products, and jobs from a number of sectors that focus on sustainability, fewer emissions of greenhouse gases, and slowing climate change Green jobs: All decent jobs that contribute to preserve or restore the environment, be they in traditional sectors such as manufacturing and construction, or in new, emerging green sectors such as renewable energy and energy efficiency.				
	6. Percentage of surveyed beneficiaries reporting improved ability to cope with economic challenges	The indicator measures to what extent the project's beneficiaries acquired new means and/or skills to deal effectively with economic challenges such as economic shocks/crisis/income instability and unemployment.	0	80	94%	Project's reports, specialized analyses (if needed)
	7. Number of firms with economic gains (additional sales, savings)	This indicator measures the impact of IGGE's interventions on firms' economic gains as a proxy for increased value addition. An increase in an industrial firm's sales and/or savings shall count towards this indicator.	0	56	104	Project's reports, specialized analyses (if needed)
OU1 Vulnerable communities, especially young women and men, gain access to capacity building opportunities and jobs thanks to green growth approaches for start-ups and	1. Number of market actors reached (by kind of actor)	This indicator measures the number and category of actors reached by IGGE's interventions (people, firms, intermediary institutions, government bodies and global actors). The distinction between engagement and reach is the unidirectional flow of communication (reach) vs interaction between IGGE and the actors (engagement).	0	1,500	2,211 market actors • 1,799 people (32% women, 26% youth) • 9 gov. bodies • 154 intermediary institutions • 230 firms • 19 global actors	Project's report, project's tracking system, independent review of target group, surveys

MSMEs in target VCs	2. Number of market actors engaged (by kind of actor)	This indicator measures the number and category of actors engaged by IGGE's interventions. Engagement: Bidirectional communication (e.g., training session, workshop, etc.), that can normally result in both improved awareness/knowledge and/or skills/capacity.	0	75	7,667 market actors • 6,985 people (45% women, 59% youth) • 5 gov. bodies • 294 intermediary institutions • 381 firms (17% led by women and 28% led by youth) • 2 global actors	Project's report, project's tracking system, independent review of target group, surveys
	3. Number of firms with improved management practices	This indicator captures innovation of firm/business processes that results from IGGE's interventions. Items under this indicator include firms with new or improved management practices, and/or newly complying with or accredited to policy, regulations and standards, and/or firms introducing new business models or new business plans.	550	150 (of which 20% are women / the majority of employees are women)	147 (35% led by women and 56% led by youth)	Project's report, project's tracking system, independent review of target group, surveys
	4. Number of business and investment opportunities for value addition in the green economy unleashed	This indicator will look into the promotion of BOs that are financially viable and have a positive economic, social and environmental impact.	19	30	72	Project's report, project's tracking system, surveys
	5. Number of market actors gaining awareness, knowledge and skills for new or better employment in the green economy	This indicator measures the number of actors who acquired awareness, knowledge and skills to create and retain jobs that contribute to preserve or restore the environment, be they in traditional sectors such as manufacturing and agribusiness, or in new, emerging green sectors such as	3,115	1,000	3,973 market actors • 3,838 people (71% women, 88% youth) • 2 gov. bodies	Project's report, project's tracking system, surveys

		renewable energy and energy efficiency.			• 31 intermediary institutions • 102 firms (29% led by women and 41% led by youth)	
	6. Number and type of financial and non-FIs established or strengthened	This indicator measures institutional building and coordination that results from IGGE's interventions. It includes entities/bodies that are newly established or significantly strengthened in their functions and capacities, institutional coordination mechanisms and/or replication by intermediary institutions/service providers of IGGE-supported practices or programmes for coordination. In more detail, the indicator will look into the number and type of service providers (Government and non-Government) that extended outreach, offer new/improved services in line with the needs of green start-ups and MSMEs, promote green business and investment opportunities in the target sectors and VCs.	14	10	9	Project's report, project's tracking system, surveys
	7. Number and type of training and employment service providers established or strengthened	This indicator measures institutional building and coordination that results from IGGE's interventions. It includes entities/bodies that are newly established or significantly strengthened in their functions and capacities, institutional coordination mechanisms and/or replication by intermediary institutions/service providers of IGGE-supported practices or programmes for coordination. In more detail, the indicator will look into	10	10	10	Project's report, project's tracking system, surveys

		the number and type of service providers (Government and non-Government) that extended outreach, offer new/improved training and employment services in line with the demand in the target VCs, promote green jobs in the target sectors and VCs.				
	8. Number of established start-ups	This indicator measures the creation and/or strengthening of (new businesses that is in the first stage of its operations) which results from IGGE's interventions. All start-ups and/or spin-offs that register, improved their likelihood of reaching commercialization, grow in size and/or scale up their business by having their development process accelerated through IGGE's TA count towards this indicator.	0	50	59 (51% led by women and 64% led by youth)	Project's report, project's tracking system, surveys
	9. Number of investment-ready proposals elaborated	This indicator measures the development of investment proposals by beneficiaries or stakeholders as a result of IGGE interventions. All proposals that are investment grade, i.e., in a shape and form that a prospective financier needs to enter into consideration, shall count towards this indicator (including for grants, concessional financing, bi/multi-lateral donor funding).	0	50	115 (37% led by women and 54% led by youth)	Project's report, project's tracking system, surveys
	10. Number of market actors participating in enhanced collaboration settings (clusters, networks)	This indicator measures improved firm-level coordination that results from IGGE's interventions. It includes changes in the governance structure of the system at hand, based on improved information sharing, joint planning, improved coordination and similar improvements between actors (firms and/or institutions). Strengthening of	0	100	1,472 market actors • 1,234 people (17% women, 27% youth) • 3 gov. bodies • 74 intermediary institutions	Project's report, project's tracking system

		single institutions shall not count towards this indicator.			• 161 firms (8% led by women and 22% led by youth)	
	11. Number of supported firms who gained awareness and knowledge on resource efficiency and cleaner production practices	This indicator measures increased awareness and knowledge of firms on resource efficiency and cleaner production practices, so as to offset any negative environmental impacts of industrial growth (increased CO ₂ eq emissions and increased air and/or water pollution).	0	30	101 (3% led by women and 2% led by youth)	Project's report, project's tracking system, surveys
OU2 The Government of Egypt includes evidence based inclusive green growth elements in its policies and legislations, and develops incentives for them.	1. Number of new or revised policies adopted by policymakers	This indicator measures policy adoption that results from IGGE's interventions. Items under this indicator include all new and/or revised policies (strategy, law or regulation as defined below) that are adopted, ratified, and/or approved by policymakers / governments. A policy is any document that spells out the broad framework of values and objectives, within which government decisions are taken to solve a problem (henceforth referred to as strategy) and/or the specific measures to be pursued in relation to such a problem.	0	4	11	Project's report, project's tracking system
	2. Number of market actors reached (by kind of actor)	This indicator measures the number and category of actors reached by IGGE's interventions (people, firms, intermediary institutions, government bodies and global actors). The distinction between engagement and reach is the unidirectional flow of communication (reach) vs interaction between UNIDO and the actors (engagement).	0	80	613 market actors • 394 people (31% women) • 11 gov. institutions • 96 intermediary institutions • 92 firms • 20 global actors	Project's report, project's tracking system

	3. Number of market actors engaged (by kind of actor)	This indicator measures the number and category of actors engaged by IGGE's interventions. Engagement: Bidirectional communication (e.g., training session, workshop, etc.), that can normally result in both improved awareness/knowledge and/or skills/capacity. This indicator will also capture # of individual and institutional stakeholders that have responded positively to disseminated approaches, methodologies and tools	0	70	602 market actors • 421 people (34% women) • 7 gov. bodies • 35 intermediary institutions • 132 firms • 7 global actors	Project's report, project's tracking system
OU3 Rural communities gain access to new income generation opportunities and improved living conditions thanks to new green technologies and products.	1. Number of market actors reached (by kind of actor)	This indicator measures the number and category of actors reached by UNIDO's interventions (people, firms, intermediary institutions, government bodies and global actors). Indicator REA.1 can only lead to KASA.1 indicator (not KASA.2). The distinction between engagement and reach is the unidirectional flow of communication (reach) vs interaction between UNIDO and the actors (engagement).	0	80	95 market actors • 56 people (27% women) • 1 gov. body • 18 intermediary institutions • 20 firms	Project's report, project's tracking system
	2. Number of market actors engaged (by kind of actor)	This indicator measures the number and category of actors engaged by IGGE's interventions. Engagement: Bidirectional communication (e.g. training session, workshop, etc.), that can normally result in both improved awareness/knowledge and/or skills/capacity.	0	30	271 market actors • 221 people (10% women) • 1 gov. body • 25 intermediary institutions • 24 firms	Project's report, project's tracking system
	3. Number of market actors gaining awareness/knowledge on green industry and circular economy	This indicator measures the number and type of market actors who gained awareness and knowledge in relation to adoption of inclusive green growth BOs.	0	80	271 market actors • 221 people (10% women) • 1 gov. body	Project's report, project's tracking system

					• 25 intermediary institutions • 24 firms	
	4. Number of market actors gaining skills on green industry and circular economy	This indicator measures the number and type of market actors who benefitted from capacity building activities in relation to adoption of inclusive green growth policy BOs. Capacity building will be assessed by acquiring skills. Skills are gained by successfully participating in training programmes that include a validation of the skills acquired, e.g. through a final exam/grading and/or issuance of a certificate/qualification.	0	30	0	Project's report, project's tracking system
	5. Number of firms with improved management practices	This indicator captures innovation of firm/business processes that results from IGGE's interventions. Items under this indicator include firms with new or improved management practices, and/or newly complying with or accredited to policy, regulations and standards, and/or firms introducing new business models or new business plans.	0	9	0	Project's report, project's tracking system
	6. Number of investment-ready proposals elaborated	This indicator measures the development of investment proposals by beneficiaries or stakeholders as a result of IGGE's interventions. All proposals that are investment grade, i.e. in a shape and form that a prospective financier needs to enter into consideration, shall count towards this indicator (including for grants, concessional financing, bi/multi-lateral donor funding).	0	7	0	Project's report, project's tracking system

	7. Number of new technologies adopted	This indicator measures the adoption of new technology by relevant actors as a result of IGGE's interventions. All instances in which new technologies are deployed/adopted by relevant actors (firms, associations, services providers, bodies) shall count towards this indicator.	0	1	0	Project's report, project's tracking system
	8. Number of market actors participating in enhanced collaboration settings (clusters, networks)	This indicator measures improved firm-level coordination that results from IGGE's interventions. It includes changes in the governance structure of the system at hand, based on improved information sharing, joint planning, improved coordination and similar improvements between actors (firms and/or institutions). Strengthening of single institutions shall not count towards this indicator.	0	15	0	Project's report, project's tracking system
OP1.1 Start-ups and MSMEs in the target sectors, including but not limited to the 5 target VCs are trained to implement green growth models	1. Number of community members sensitized about innovative viable green BOs	This indicator measures raising of awareness and dissemination of knowledge as a result of IGGE's interventions. Awareness and knowledge are gained by attending/participating in conferences, workshops, awareness raising or outreach events, short training sessions and similar instances that do not provide a qualification.	0	1,500	3,255 (17% women, 31% youth)	Project reports, project's tracking system, meeting attendance records, evaluation forms
	2. Number of new enterprises and agro-producers trained to enter the market	This indicator measures the number of new enterprises and agro-producers that acquired sufficient knowledge through IGGE interventions to develop new business plans.	550	60 (of which 20% are women-led / majority of employees are women)	90 (51% led by women and 60% led by youth)	Project reports, project's tracking system

	3. Number of existing enterprises trained to leverage investment and grow	This indicator measures the number of existing enterprises trained to develop investment proposals as a result of IGGE interventions. Such skills are gained by successfully participating in training programmes that include a validation of the skills acquired, e.g., through a final exam/grading and/or issuance of a certificate/qualification.	550	75 (of which 20% are women-led / majority of employees are women)	87 (20% led by women and 53% led by youth)	Project reports, project's tracking system
	4. Number of business linkages facilitated within green VCs and clusters	UNCTAD's 2001 world investment report and the UK's department for international development (DFID) use the following categorization of forward, backward and horizontal linkages: - Vertical backward linkages: These exist when foreign affiliates or domestic companies acquire good and services from small enterprises (i.e. through procurement, sub-contracting or outsourcing arrangements) - Vertical forward linkages: These occur when foreign affiliates or domestic companies sell goods and services to small enterprises or distribute goods and services through small enterprises (i.e. under franchise or retailing arrangements) - Horizontal linkages: These involve interactions or cooperation between small enterprises, often engaged in competing activities (i.e. sharing production of large orders, bulk purchasing, group leasing of equipment). Such linkages often provide the impetus for the development of industrial clusters.	0	30	116	Project reports, project's tracking system
OP1.2 Financial and non-financial	1. Number and type of Government and non-Government stakeholders gaining	This indicator measures the number and type of Gov and non-Gov actors benefitting from awareness activities	14	100	652 stakeholders	Project reports, project's tracking system

services offered by Government and non-Government institutions in the target sectors, including but not limited to the 5 target VCs are upgraded in line with green growth models	awareness / knowledge on financial and non-financial services for green MSMEs	and dissemination of knowledge in relation to the financial and non-financial services needed by green MSMEs. Awareness and knowledge are gained by attending/participating in conferences, workshops, awareness raising or outreach events, short training sessions and similar instances that do not provide a qualification.			• 486 people (26% women) • 46 intermediary institutions • 118 firms • 2 global actors	
	2. Number and type of Government and non-Government stakeholders gaining skills on financial and non-financial services for green MSMEs	This indicator measures the number and type of Gov and non-Gov actors benefitting from capacity building activities in relation to the financial and non-financial services needed by green MSMEs. Skills are gained by successfully participating in training programmes that include a validation of the skills acquired, e.g., through a final exam/grading and/or issuance of a certificate/qualification.	14	40	277 stakeholders • 260 people (27% women) • 17 intermediary institutions	Project reports, project's tracking system
OP1.3 At least 1,000 young people (50 % of which are women) in the target governorates are trained to access green jobs, based on market research and MSMEs' consultations	1. Number and type of technical skills programmes developed / updated in line with market demand	This indicator captures the number and different types of new or existing programmes developed or updated by the project to equip job seekers and employees with technical skills required by the private sector in the green economy	0	6	7	Project reports, project's tracking system, testing/certification
	2. Number of individuals that acquired technical competences in line with market demand (disaggregated by sex, age, type of support received)	This indicator measures the number of individuals who gained awareness, knowledge and skills in line with demand of the market. Awareness and knowledge are gained by attending/participating in conferences, workshops, awareness raising or outreach events, short training sessions and similar instances that do not provide a qualification. As for the skills, they are gained by successfully	3,115	1,000 (of which 50% are women)	3,757 (71% women, 89% youth)	Project reports, project's tracking system, testing/certification

		participating in training programmes that include a validation of the skills acquired, e.g., through a final exam/grading and/or issuance of a certificate/qualification.				
	3. Number and type of Government and non-Government stakeholders gaining skills on training and employment services	This indicator measures the number and type of Gov and non-Gov actors benefitting from capacity building activities in relation to training and employment services.	14	20	173 stakeholders • 161 people (51% women) • 11 intermediary institutions • 1 firm	Project reports, project's tracking system, meeting attendance records, evaluation forms
OP2.1 The awareness of relevant stakeholders, including private sector, civil society, MoTI and MoE on the green growth model and needed legislative, regulatory and financial improvements is enhanced	1. Number and type of dissemination measures and tools devised and implemented for piloted approaches, methodologies and tools	This indicator measures the number of and type of measures and tools for the management and dissemination of knowledge related to the approached, methodologies and tools implemented by the project.	0	5	7	Project reports, project's tracking system
	2. Number of relevant stakeholders aware of needed improvements in the current legislative, regulatory and financial instruments	This indicator measures the number of stakeholders who acquired sufficient awareness and knowledge on the gaps and related needed improvements to advance green growth. Awareness and knowledge are gained by attending/participating in conferences, workshops, awareness raising or outreach events, short training sessions and similar instances that do not provide a qualification	0	30	558 stakeholders • 379 people (34% women) • 7 gov. bodies • 33 intermediary institutions • 133 firms • 6 global actors	Project reports, project's tracking system
	3. Type of consultative mechanisms established for public private consultation for policy formulation	This indicator captures the different categories of advisory communication between private and public sectors in the drafting of policies. A policy is any document that spells out the broad framework of values and objectives, within which government decisions are taken to solve a problem (henceforth referred to as strategy) and/or the	0	2	5	Project reports, project's tracking system

		specific measures to be pursued in relation to such a problem.				
OP2.2 Capacity of MoTI and other relevant stakeholders such as MoE and affiliated institutions on how to include evidence based green growth elements in relevant Government's policies and strategies is strengthened.	1. Number of relevant stakeholders gaining skills to apply best practices on inclusive green growth	This indicator measures the number and type of stakeholders who benefitted from capacity building activities in relation to adoption of inclusive green growth policy interventions. Capacity building will be assessed by acquiring skills. Skills are gained by successfully participating in training programmes that include a validation of the skills acquired, e.g., through a final exam/grading and/or issuance of a certificate/qualification.	0	15	160 stakeholders • 130 people (43% women) • 6 gov. bodies • 18 intermediary institutions • 6 firms	Project reports, project's tracking system, meeting attendance records, evaluation forms
	2. Number of analytical publications and policy recommendations prepared and submitted/proposed to MoTI and other relevant stakeholders	This indicator measures the number of policies and strategies prepared by IGGE and submitted/proposed to a relevant Ministry. Drafting of strategy and policy documents for counterparts intending to inform the industrial strategy or industrial policy shall count towards this indicator. Policy documents and strategy documents in this category must include a component targeted towards policy makers, not private entities. This indicator measures also the number of analytical and statistical publications produced by IGGE. Production of documents to advance knowledge on industrial development count towards this indicator, including: a) journal articles; b) research and statistics working papers; c) policy and/or statistical briefs; d) reports with analytical content; excluding purely promotional material, such as brochures, flyers, newsletters and all materials counted under other indicators.	0	15	20	Project reports, project's tracking system

OP3.1 A waste-to-energy demonstration plant is developed and implemented in the Beni Suef governorate in close collaboration with market actors from the public and private sector.	1. Number of capacity building activities provided	This indicator includes all outputs provided by IGGE that aim at building capacity as defined below, such as fellowships, trainings, workshops, lectures (including lectures given by UNIDO experts), delivered under project budget or regular budget.	0	3	0	Project reports, project's tracking system, meeting attendance records, evaluation forms
	2. Value of assets provided (target: 350,000 EUR)	This indicator measures the value in EUR of assets (e.g. equipment/technologies) procured for beneficiaries during implementation of the IGGE project. Centralized and decentralized procurement to be included. Equipment like office equipment, laptops, office supplies shall not be counted.	0	350,000 EUR	0	Project reports, project's tracking system
	3. Number of business plans developed	This indicator measures the number of business plans developed by IGGE for beneficiary (pilot) companies, and/or the contribution through IGGE interventions towards the development of new business plans.	0	1	0	Project reports, project's tracking system
OP3.2 Capacities of green MSMEs operating in the municipal and agricultural waste VCs in the Beni Sweif governorate to grow and innovate are enhanced.	1. Number of capacity building activities provided	This indicator includes all outputs provided by IGGE that aim at building capacity as defined below, such as fellowships, trainings, workshops, lectures (including lectures given by UNIDO experts), delivered under project budget or regular budget.	0	2	0	Project reports, project's tracking system
	2. Number of business plans developed	This indicator measures the number of business plans developed by IGGE for beneficiary (pilot) companies, and/or the contribution through IGGE interventions towards the development of new business plans.	0	9	0	Project reports, project's tracking system

Annex 2: Project Budget and Expenditures

Table 1: Project Financing Plan by Outcome

Project outcomes	SDC (\$)	AICS (\$)	UNIDO (\$)	Total (\$)
Outcome 1	\$3,402,672	N/A	N/A	\$3,402,672
Outcome 2	\$675,455	N/A	N/A	\$675,455
Outcome 3	N/A	\$767,404	N/A	\$767,404
Outcome 4	\$560,712	N/A	\$39,890	\$600,602
Total (\$) (excl. support costs)	\$4,638,839	\$767,404	\$39,890	\$5,446,134

Table 2: Project SDC funds spent to December 19th, 2024

Project outcomes	SDC (\$)
Outcome 1	\$3,358,671
Outcome 2	\$665,253
Outcome 3	N/A
Outcome 4	\$574,168
Total (\$) (excl. support costs)	\$4,598,092

Annex 3: Barriers and Challenges to Inclusive Green Growth and Green MSMEs

	SAFP Sector	WM Sector	SE Sector
Financial	Limited access to finance Limited sector knowledge	Limited access to finance, Limited MSME awareness of diverse financial instruments	Limited access to finance Limited MSME awareness of diverse financial instruments End-user financial solutions not available Absence of formal land ownership (guarantees)
Knowledge	Limited access to technical labour and sector-related data Limited access to services Lack of access to qualified agricultural engineers Absence of accreditation scheme	Limited access to specialized and competent experts Limited access to specialized vocational programmes Limited presence of formal or vocational training programmes	Limited sector-related knowledge available Limited formal and vocational specialized programmes Absence of regulation and certification
Market	Limitations in infrastructure and supply chain Limited access to principal firms and markets Difficulty in accessing maintenance services and suppliers Limited access to technology Absence of high-grade and cost-effective material Absence of product specifications and standardization	Uneven competition over waste tenders Limited access to raw materials and equipment Informality of MSMEs and suppliers Limited market trust and quality of products Absence of product specifications and standardization	Little to no access to local system suppliers and service providers Difficulty of marketing and financing off-grid systems
Policy	Lack of clarity on land use (zoning)	Difficult Ag waste collection due to Ag fragmentation Lack of designated recycling areas (zoning)	Absence of policies to encourage local manufacturing of RE systems and components Vague definition of biogas systems
Source: Barriers to Green Enterprise Growth and Competitiveness Document, June 2021			

Annex 4: IGGE Contributions to Policy Interventions

IGGE Contributions to Policy Interventions (WM)

Policy Interventions	Accomplishments	Stakeholders Involved
Interventions For IGGE to Directly Support		
Intervention 1. Develop a clear waste definition & classification	Bio-based Economy Strategy	MoE (WMRA)
Intervention 2. Establish a national waste information system	Bio-based Economy Strategy	MoE (WMRA)
Intervention 3. Adapt compost and feed standards & specifications to remove barriers to bio-products	9 BBFs standards	EOS
Interventions Selected Based on Feasibility & Impact		
Intervention 4. Develop a clear definition of certain recycling businesses to ease registration	5 registration codes for specific recycling businesses	IDA
Intervention 5. Create designated recycling areas in IZs (land for Agri-waste)	BBFs' registration guidelines (work in progress)	CLOA, IDA, Local Authority
Intervention 6. Develop industrial waste collection as main service for IZs	Not directly addressed by project	
Intervention 7. Restrict public auction to recyclers	Not directly addressed by project	
Intervention 8. Provide testing facilities for compost & feed	Green Tech. Local Manufacturing Roadmaps (Agri-waste recycling machinery), Mapping of available testing laboratories	WE4F IMC

Policy Interventions	Accomplishments	Stakeholders Involved
Additional Suggested Interventions		
Intervention 1. Streamline registration of recycling firms	BBFs registration guidelines (work in progress)	CLOA, IDA, Local Authority
Intervention 2. Develop technology transfer, extension programs & awareness	Awareness sessions of farmers on Agri-waste recycling, capacity building of firms, bio-refinery demo plant in Beni Suef	Agri Directorates, MSMEDA, IMC, banks, NGOs, private firms
Intervention 3. Develop vocational training & mainstreaming of WM education & business skills	Food processing waste management academic programme	TTU
Intervention 4. Develop market studies & project briefs	Investment opportunity mapping & mapping of available testing laboratories	MoE WE4F
Intervention 5. Promote market trust through technical assistance to key clients	9 BBFs standards, awareness raising of farmers, NGOs, firms, bio-refinery demo plant in Beni Suef	EOS, Agri Directorates, MSMEDA, IMC, banks, NGOs, private firms
Intervention 6. Incentivize firms to segregate or collect waste	Not directly addressed by project	
Intervention 7. Develop special finance programs for selected technologies	Agri-waste recycling machinery and sustainable energy financial products (under finalization)	NBE, ADCB

IGGE Contributions to Policy Interventions (SAFP)

Policy Interventions	Accomplishments	Stakeholders Involved
Interventions For IGGE to Directly Support		
Intervention 1. Adapt compost and feed standards & specifications to remove barriers to bio-products	Admin. Order to ban burning of sugarcane residues	Qena Gov.
Intervention 2. Review definition of activities on farms to include agro-processing	Not directly addressed by project	
Interventions Selected Based on Feasibility & Impact		
Intervention 3. Dedicate land for cold storage	Not directly addressed by project	
Additional Suggested Interventions		
Intervention 4. Build awareness & capacities of farmers around advanced practices, new technology & quality control measures	Awareness raising of farmers on cultivation with seedlings, solar & rain irrigation, capacity building of firms	Agri Direct., IMC, MSMEDA, banks, private firms, NGOs
Intervention 5. Improve access to service providers	Info sessions, training workshops, Expo, study tours	IMC, IDA, MSMEDA, CFI, banks
Intervention 6. Provide technical assistance to financial institutions	Capacity building on green BOs & facilitation & assessment of referrals	NBE, ABE, MSMEDA, ADCB
Intervention 7. Develop special finance programs for selected technologies	Capacity building on green BOs & facilitation & assessment of referrals	NBE, ABE, MSMEDA
Intervention 8. Develop standards and specifications for organic products	9 BBFs standards	EOS
Intervention 9. Develop accreditation scheme for food safety advisors	Training/ToT workshops on food safety, study tours, short-term courses, facilitation of referrals for CFI	CFI, SVU, TTU

Instrument/activity directly supporting intervention
Progress towards intervention (contributes to intervention)
Not directly addressed by project

IGGE Contributions to Policy Interventions (RE)

Policy Interventions	Accomplishments	Stakeholders Involved
Interventions For IGGE to Directly Support		
Intervention 1. Develop clear definition of biogas systems	Not directly addressed by project	
Intervention 2. Develop national roadmap for manufacturing of RE systems	Green Tech. Local Manufacturing Roadmap (solar PV)	IMC
Additional Suggested Interventions		
Intervention 3. Build awareness and capacity of farmers around advanced practices, new technology & quality control measures	Awareness raising of farmers on solar irrigation, capacity building of firms, promotion of NBE's solar irrigation financial product	MSMEDA, IMC, NBE, private firms, NGOs
Intervention 4. Facilitate dialogue between the Ministry of Electricity and Renewable Energy (MoERE) & private sector to develop reasonable tariffs	Not directly addressed by project	
Intervention 5. Provide financial institutions with technical assistance	Capacity building on green BOs, development &/or promotion of solar PV financial product	NBE, MSMEDA, ADCB
Intervention 6. Develop off-grid PV sector standards and certifications (for firms)	Green Tech. Local Manufacturing Roadmap (solar PV)	IMC
Intervention 7. Develop certification for solar PV engineers	Green Tech. Local Manufacturing Roadmap (solar PV)	IMC
Intervention 7. Integrate solar irrigation sector with irrigation modernization	Awareness raising of farmers on solar irrigation, promotion of NBE's solar irrigation financial product	NBE, private firms, NGOs

Annex 5: BOs Supported by IGGE and Other Agents

Sub-Market	Business Opportunities Supported by IGGE and Other Agents
Dried Products	Dried dates from fresh dates for local markets
	Dried fruits and vegetables for export
	Dried tomato for consumers and retailers
	Dried fruits and vegetables for local markets
	Dried aromatic plants and spices for local markets
	Sun-dried tomatoes for consumers and retailers
Bio-fertilizers & Animal Feed	Animal feed from sugarcane straw for cattle breeders
	Vermi-compost from food waste and agricultural waste for farmers
	Animal feed from sugarcane bagasse for cattle breeders
	Animal feed from barley for cattle breeders
	Animal feed supplement from tomato waste for cattle breeders
	General fermented animal feed from agricultural waste for cattle breeders
	Biochar from sugarcane waste for farmers
	Animal feed from date pits for retailers
Renewable Energy Solutions	Vermi-worms for vermi-compost manufacturers and fisheries
	Solar PV pumping for farmers
	Solar PV powered lighting systems for poultry farms
	Solar PV powered ventilation for poultry farms
	Solar thermal heating for poultry farms
	Biogas units for livestock and poultry farms
	Biogas/compost from animal waste for households, poultry, husbandry
	Biomass pellets and heaters from agriculture waste for poultry farms

Sub-Market	Business Opportunities Supported by IGGE and Other Agents
Handmade Accessories	Fibers from banana waste for handmade products
Food Retail Products	Traditional food retail products such as baked goods and ready-made meals for local markets
	Black honey products from sugarcane for consumers and retailers
	Packed frozen agriculture products for small scale markets
	Packaging of dried aromatic plants for local markets
Technology/Equipment Manufacturing	Agricultural machinery for recycling businesses (shredders, crushers, trucks, loaders, date palm trimmers)
	Efficient animal feeder system for rabbit's production and poultry farms
	Pheromones bio pest control traps for farmers
	Advanced irrigation system components for farmers
	Manufacturing of fruit and vegetable dryers
	Farm bedding from wood waste for poultry and livestock farms
Intermediary Products to Industries (including food, pharmaceuticals, wood and paper)	Date syrup/dips from second grade dates for food and feed industries.
	Dates to powder (not instant) from second grade dates for food and dairy industries
	Tomato paste from second grade tomatoes for packaging facilities
	Tomato/mango concentrates from second grade tomatoes/mangoes for food industry
	Jam manufacturing from fruits for packaging facilities (Confectionary)
	Untraditional agricultural marketing services for retailers and small-scale markets
	Aromatic plant oil extracts for perfumes, cosmetics, and food
	Farming practices services for palm date farmers
	Sugarcane straw collection and baling service (service)
	Pulp from sugarcane bagasse for paper industry
	Ethanol from sugarcane molasses for pharmaceutical industry
	Medium-density fiberboard (MDF) from agricultural waste for wood industry
	Services for date palm farmers including trimming, collection, and treatment

BOs implemented by IGGE-supported MSMEs

BOs for which development is supported by IGGE

Annex 6: Buyers and Suppliers of IGGE-Supported MSMEs

Buyers and Suppliers of IGGE Supported MSMEs				
Programme	Buyers and Suppliers 2021	Buyers and Suppliers 2022	Buyers and Suppliers 2023	Buyers and Suppliers 2024
GO 1	20	142	67	26
GO 2	N/A	512	3,803	1,552
GO 3	N/A	N/A	584	906
GROW 1 and EXPAND	3,467	8,172	9,014	2,167
GROW 2	NA	5,923	13,421	1,102
GROW 3	N/A	N/A	5,106	2,300
Total	3,487	14,749	31,995	8,053

Annex 7: System Approach Developed by Evaluation Team and PMT

Table 8: Conditions Enabling an Ecosystem Conducive to The Expansion of Green MSMEs

#	Label	Type	Tags
1	Ecosystem conducive to the expansion of green MSMEs	System objective	Macro Meso Micro
2	PRODUCTION Higher green MSMEs productivity and woman and youth employment	Production	Meso
3	Willingness to take informed risks	Production	Micro
4	Fair gender and youth employment	Production	Macro Meso Micro
5	Green MSMEs adopt efficient business models	Production	Micro
6	Green MSMEs access cost effective equipment and inputs	Production	Micro
7	POLICY and INSTITUTIONS National Capacity to Develop & Implement policies supportive to Green MSMEs	Policies and regulations	Macro Meso Micro
8	Streamlined import/export procedures	Policies and regulations	Macro Meso Micro
9	Clear standards, definition and regulations (product, zoning, etc.)	Policies and regulations	Macro Meso Micro
10	National strategies in support of green MSMEs implemented	Policies and regulations	Macro Meso Micro
11	Political and economic stability	Policies and regulations	Macro Meso Micro
12	B2G and G2B coordination	Policies and regulations	Macro Micro Meso
13	Gender and youth labour regulations (clear and enforced)	Policies and regulations	Macro Meso Micro
14	Robust green MSME organization (e.g., lobbying power)	Policies and regulations	Meso
15	Inter-ministerial and sectoral coordination	Policies and regulations	Macro Meso Micro
16	MARKETS Green MSMEs access markets- international, national, and local	Market	Meso Macro Micro
17	Expansion of business partnerships, incl. foreign investors	Market	Meso
18	Ability to satisfy market demand	Market	Micro
19	Market information available and used by green MSMEs	Market	Micro
20	Market trust (supply and demand sides)	Market	Micro Meso

21	Green MSMEs comply with market requirements	Market	Micro
22	Available info on green MSMEs businesses/ operation	Market	Meso
23	Effective infrastructure	Market	Macro Meso Micro
24	TECHNOLOGY Green MSMEs access technology and technical knowledge	Knowledge and technology	Micro
25	Availability of and access to non-financial services e.g., RECP, business dev., food safety	Knowledge and technology	Meso
26	Improved image of green economy sectors and occupations, e.g., WM	Knowledge and technology	Micro Meso
27	Green MSMEs access qualified labour and technical specialists	Knowledge and technology	Micro
28	Quality specialized and vocational programmes	Knowledge and technology	Meso
29	FINANCE MSMEs obtain adequate green financing	Financing	Micro
30	Tested and reliable models and requirements for green MSME financing	Financing	Macro Meso Micro
31	FIs serving MSMEs with robust green capacities	Financing	Meso
32	MSMEs knowledge of financing requirements	Financing	Micro
33	MSMEs meet green financing requirements	Financing	Meso
34	CULTURE Robust green MSME culture	Culture	Macro Micro Meso
35	Gender responsive culture	Culture	Macro Meso Micro
36	Woman aware green economic opportunities	Culture	Macro Meso Micro
37	Growing stakeholder participation	Culture	Macro Meso Micro
38	Broad stakeholder IGG awareness	Culture	Macro Meso Micro

Figure-11 shown earlier in the report includes a diagram of the conditions color-coded by domain, subject to additions based on the second round of circulation among key stakeholders. Arrows connecting (a total of 197) the conditions indicate links and feedback among conditions across the system. The theory of change postulates that the state of these conditions emerges from the aggregated interactions of agents in the system. The theory also postulates that as these conditions and their interaction are strengthened, the behaviour of the agents or stakeholders in this system will be more consistent with the expansion of green MSMEs and the improvement of conditions for women and youth labourers.

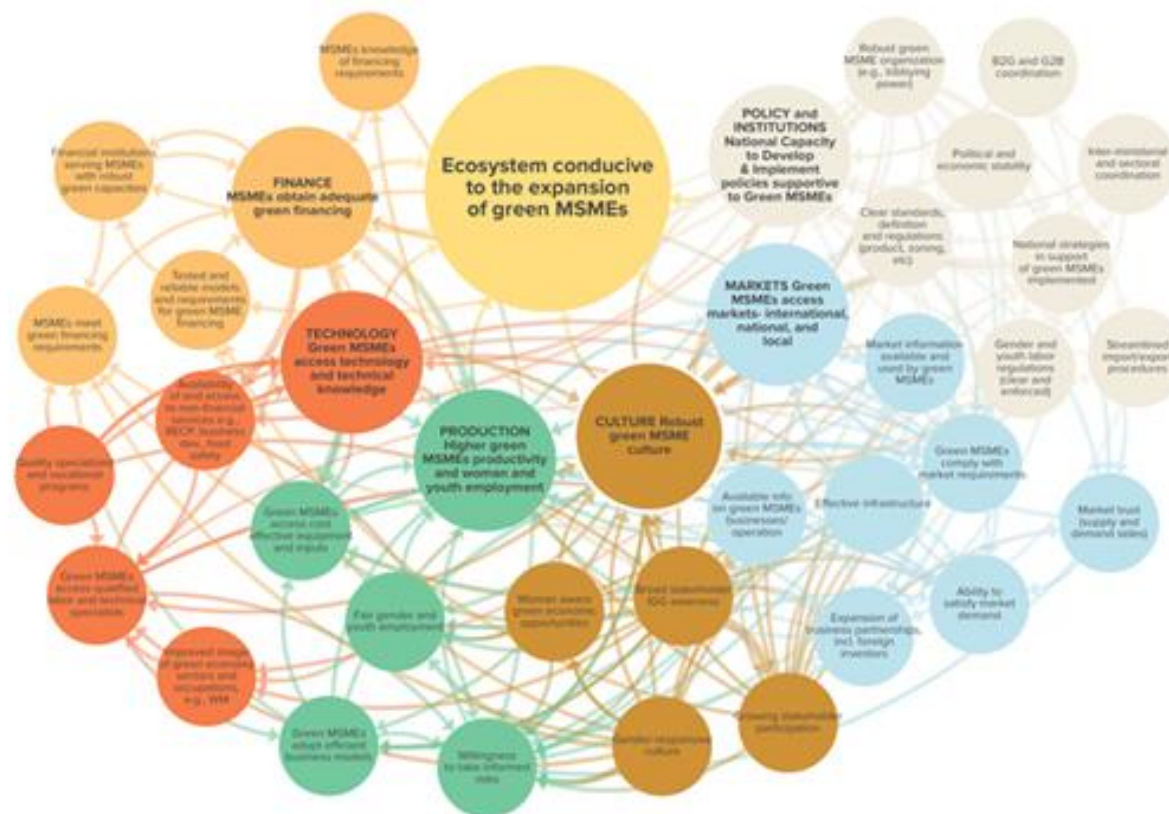


Figure 11: Model of enabling conditions in an ecosystem conducive to expansion of green MSMEs in Egypt

Assumptions of systems-based theories of change:

- Change takes place through agents adapting to each other's behaviours and changes in the environment. Examples of key agents in the targeted VCs in Upper Egypt include MSMEs, primary producers, service providers, buyers, labourers, providers of raw materials, industry associations, national and international buyers, CDAs, NGOs, diverse government ministries and agencies, local and provincial governments, universities, and research institutions.
- System interactions take place across domains, space, and time. Examples of relevant scales in space include 1) administrative/geographic divisions such as sub-districts, districts, provinces, nations, and the globe, 2) Market scales can include MSMEs, producer associations, local

markets, national markets, regional markets, and global markets). Relevant scales in time include short-term, mid-term, and long-term effects, speed of technology adoption, production cycles, delays in system response to interventions, and tipping points.

- The time elapsed between an input to the system and the system response can be linear or non-linear and thus varies greatly. This is particularly true for complex systems in which multiple elements interact. For example, in cases of interventions that seek to increase the supply of qualified labour, even if training and vocational programmes are established in a few years, it will take several years for students to graduate and additional years for sufficient technicians to be trained before the effects of a qualified labour force is felt in the market. Similarly, while governments can quickly adopt standards or zoning regulations, the institutional capacity to enact such regulations and to put in place the necessary mechanisms to implement regulations is likely to take years.
- The multiple interactions of domains, conditions, scales, and agents make complex systems highly unpredictable. Unforeseen developments require a constant adjustment of interventions along the way (adaptive management).

Annex 8: Project Evaluation Ratings

#	Evaluation criteria	Mandatory rating
A	Impact	6
B	Project design	6
1	• Overall design	6
2	• Logframe	6
C	Project performance	6
1	• Relevance	6
2	• Effectiveness	6
3	• Efficiency	6
4	• Sustainability of benefits	6
D	Cross-cutting performance criteria	6
1	• Gender mainstreaming	6
2	• M&E: ○ M&E design ○ M&E implementation	6
3	• Results-based Management (RBM)	6
E	Performance of partners	6
1	• UNIDO	6
2	• National counterparts	6
3	• Donor	6
F	Overall assessment	6

Rating system (reference)

Score	Definition	Category
6	Highly satisfactory Level of achievement presents no shortcomings (90% - 100% achievement rate of planned expectations and targets).	SATISFACTORY
5	Satisfactory Level of achievement presents minor shortcomings (70% - 89% achievement rate of planned expectations and targets).	
4	Moderately satisfactory Level of achievement presents moderate shortcomings (50% - 69% achievement rate of planned expectations and targets).	
3	Moderately unsatisfactory Level of achievement presents some significant shortcomings (30% - 49% achievement rate of planned expectations and targets).	UNSATISFACTORY
2	Unsatisfactory Level of achievement presents major shortcomings (10% - 29% achievement rate of planned expectations and targets).	
1	Highly unsatisfactory Level of achievement presents severe shortcomings (0% - 9% achievement rate of planned expectations and targets).	