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PROSPECTS

A photograph showing a group of people, including men and women wearing headscarves, working in a large greenhouse. They are tending to rows of cucumber plants that are supported by vertical strings. The greenhouse has a curved metal frame and a translucent covering. The ground is covered with brown mulch. In the bottom right corner of the image, there is a decorative graphic consisting of a grid of colorful triangles in shades of blue, yellow, and maroon.

# ► Unlocking opportunities for decent job creation in Lebanon's horticulture sector

A market systems analysis of the horticulture sector with a view to promoting livelihoods of Lebanese host communities and Syrian refugees

Conducted on behalf of the ILO  
by the Springfield Centre



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First published (2020)

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ISBN: 978-92-2-032098-3 (print)  
ISBN: 978-92-2-032099-0 (web pdf)

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Printed in Switzerland

## ► Foreword

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The recently launched “Partnership for improving Prospects for forcibly displaced persons and host communities” (PROSPECTS), spearheaded by the Government of the Netherlands, brings together five agencies (IFC, ILO, UNHCR, UNICEF and the World Bank) to devise collaborative and innovative approaches for inclusive job creation, education and protection in contexts characterized by forced displacement. The programme operates in eight countries across the Middle East and North Africa (MENA) and the Horn of Africa, employing a holistic approach whereby each partner focuses on their area of expertise to collaboratively enhance access to education, protection schemes and decent jobs for both forcibly displaced persons and host communities.

In Lebanon, the ILO’s focus in the Partnership is on enhancing resilience of Lebanon’s crisis-hit labour market and creating better livelihoods for both Lebanese host communities and Syrian refugees. It will do so by promoting the development of market-relevant skills, enhancing employment placement services and labour market governance, strengthening social protection schemes, and promoting micro, small and medium sized enterprises (MSMEs) and sectors with potential for decent job creation. Amongst other tools and approaches, the ILO will use its Approach to Inclusive Market Systems (AIMS) to unlock opportunities for decent job creation in the horticulture sector. AIMS was developed in 2013 in close collaboration with the UNHCR to make livelihood interventions for host communities and forcibly displaced persons more sustainable and holistic. In doing so, AIMS applies the market system development approach (also called Making Markets Work for the Poor, or M4P) to the context of forced displacement.

This Market Systems Analysis entitled “Unlocking opportunities for decent job creation in Lebanon’s horticulture sector” was conducted by the Springfield Centre, and forms the basis for the ILO’s intervention strategy to create and retain decent jobs for host communities and forcibly displaced persons in the sector. The AIMS strategy in Lebanon, which was developed on the basis of this analysis, foresees targeted interventions to increase economic opportunities and benefits for Lebanese farming households whilst also improving job prospects, working conditions and incomes for refugees in Lebanon’s horticulture sector.

Special thanks are due to Springfield Centre consultants Mr. Roger Oakeley and Ms. Jane Gisin who conducted the analysis and produced this report, and to the economist Ms. Hania Chahal who conducted the rapid market appraisals and interviewed stakeholders, shaping the present market systems analysis. Thanks are also extended to the ILO Regional Office for Arab States team comprised of Enterprise Development Specialist Ms. Rania Bikhazi, AIMS Technical Officer Ms. Nadja Nutz, and SME Technical Officer Mr. Rayann Koudaih, who technically backstopped the analysis process, and facilitated and participated in the field missions despite the challenging circumstances facing Lebanon at the end of 2019.



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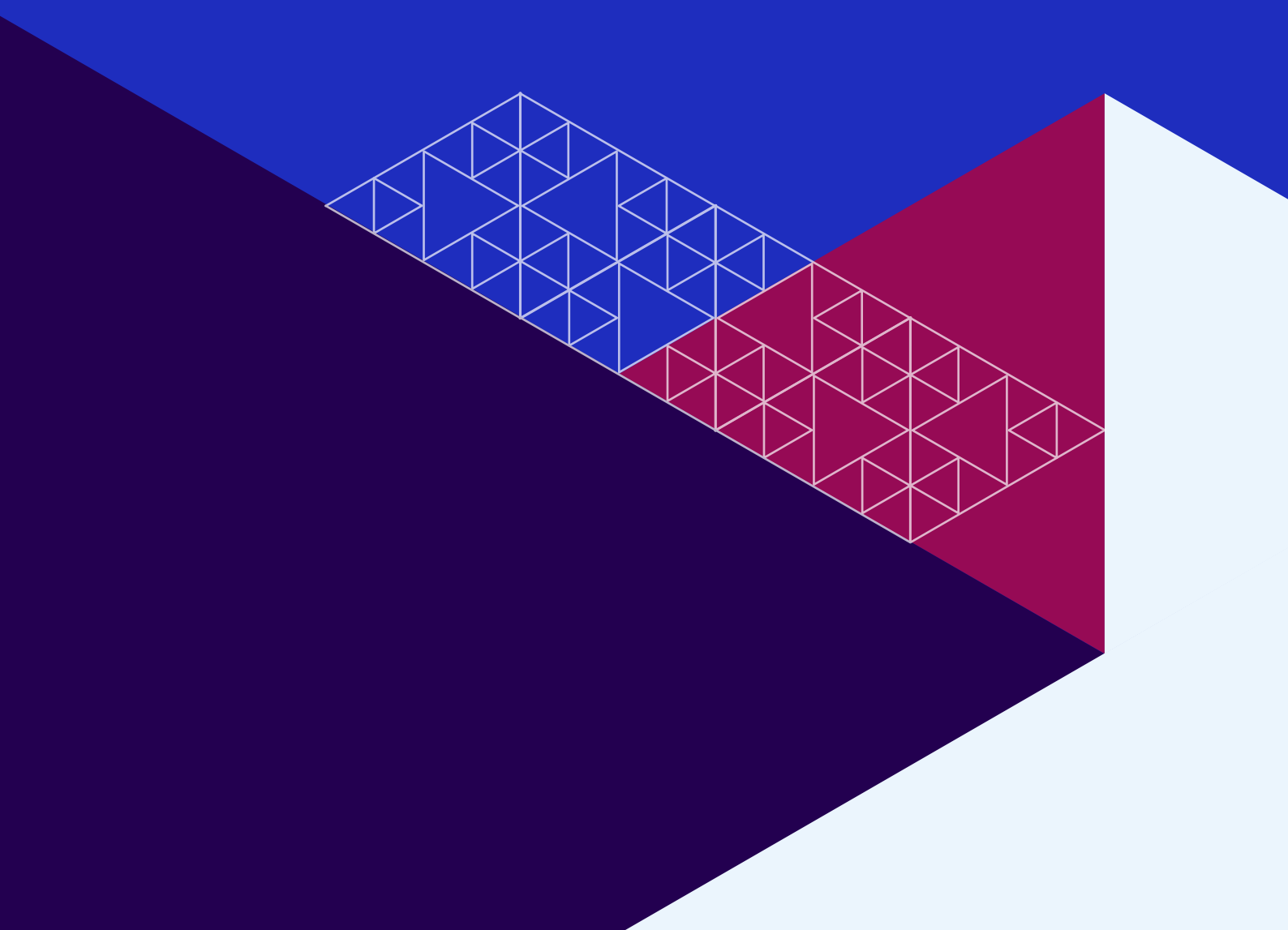
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# 01

## ▶ Context

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## 1.1 Scope of this report

This report summarizes the key findings of the covered (or greenhouse) horticulture market assessment and seeks to inform and provide recommendations for programme design. As such, it does not represent a final programme design, but sets out the strategic direction and scope for more detailed intervention design. It focuses on key functions and the underlying reasons for underperformance in the greenhouse horticulture market and its supporting functions which hinder employment and income growth for refugees and host communities. The report identifies tentative entry points for interventions and opportunities for practice change but does not elaborate on intervention tactics, instruments or partners.

This market assessment was a continuation of a rapid market appraisal (RMA) that sought to assess quickly twelve sectors, with regards to their potential for growth, profitability and inclusive employment creation for both communities. It also sought to highlight key challenges for growth in the four selected agricultural value chains – table grape, olive, cherry and greenhouse horticulture.<sup>1</sup>

## 1.2 Project context

In 2018, the Government of the Netherlands joined forces with ILO, IFC, UNHCR, UNICEF and World Bank through a partnership focused on reducing multidimensional vulnerabilities and increasing social stability for both Syrian refugees and Lebanese host communities. The aim is to improve prospects of vulnerable host communities and refugees with a focus on employment, education and vocational training and (social) protection.<sup>2</sup>

In Lebanon, ILO's focus in this partnership is on promoting access for Syrian refugees and vulnerable host communities to decent work opportunities (rights to work). This includes enhancing employability, supporting business start-ups and micro and small enterprises, and ensuring that while working, the workers from these communities have safe working conditions and social protection (rights at work), in line with International Labour Standards. It will do so through:

- ▶ Enhancing labour market governance supporting transition and entry into formalization;
- ▶ Supporting micro-, small and medium sized enterprises and start-ups to create and retain decent jobs and improve incomes, including in the agriculture sector;
- ▶ Enhancing capacity to protect labour rights and promote safe and secure working environments for.

Within the employment pillar, ILO will place a specific focus on horticulture, as a sector with potential for inclusive growth and job creation. Using the market systems development approach, actions of ILO to improve livelihoods in the horticulture sector will aim to:

- ▶ Increase economic opportunities and benefits for Lebanese farming households and, where possible, agriculture related sectors;
- ▶ Improve employment-related job stability, working conditions and incomes for Syrian refugees while they are living in Lebanon.

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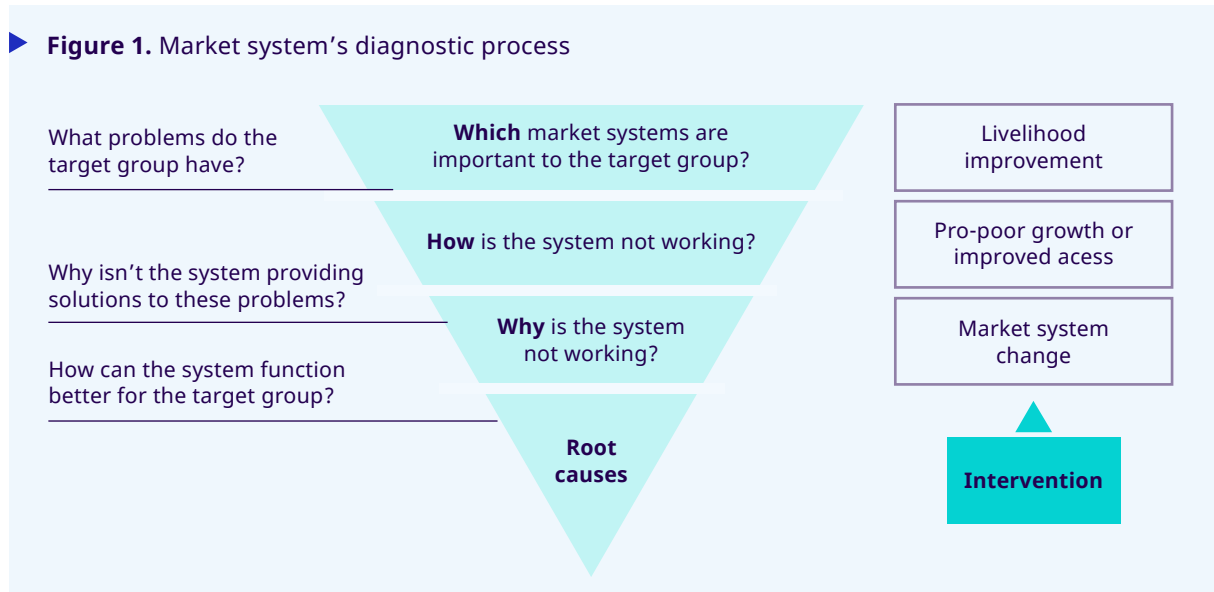
<sup>1</sup> Chahal, H. 2019. Promotion of refugee livelihoods, rapid market appraisal, ILO Lebanon PROSPECTS.

<sup>2</sup> <http://www.dutchdevelopmentresults.nl/countries/libanon>.

### 1.3 Analytical framework

In the pursuit of finding sustainable and lasting solutions, the ILO has chosen to apply a market systems development (MSD) “lens” to its work with host and refugee community livelihoods. The market assessment follows the diagnostic process of the MSD approach and the UNHCR/ILO Guide to market-based livelihood interventions for refugees.<sup>3</sup>

The diagnostic process (see Figure 1 overleaf) sets the foundation for strategy and intervention planning and follows four broad steps. These iteratively proceed into a detailed analysis of the reasons underlying the continued disadvantage and constraints facing the target groups in a specific (market) system. The MSD analysis seeks to pinpoint what is responsible for maintaining the target group’s disadvantage (so-called “root causes”) and identifies and prioritizes where intervention is most needed.



Although the diagnostic process is never entirely linear, it begins by identifying the systems that are impacting on aspects of the target groups’ livelihoods and the disadvantages they face. It helps to assess those different systems in view of their relevance, opportunity and feasibility for intervention.

Having prioritized those systems of importance to the poor, the market system structure is then mapped, and its operations, dynamics and key challenges are analysed. This process seeks to identify how the system is not working for the target group. These “symptoms” are then explored in more detail to understand why the system is not working, taking account of supporting systems and constraints where the root cause of dysfunction lies. A final step is the prioritization and sequencing of root cause issues and their potential solutions, in order to determine which ones can be feasibly addressed.

<sup>3</sup> The Springfield Centre. 2015. The operational guide for the making markets work for the poor (M4P) approach, 2nd edition funded by SDC & DFID. This was adapted by the ILO and UNHCR in their Guide to market-based livelihood interventions for refugees.

## 1.4 Research methods and framework

The in-depth market assessment used mixed research methods. Secondary data and literature were consulted to inform quantitative aspects of our research, where possible, and to build a general understanding of the systems or sectors. The Rapid Market Assessment is of particular importance here, and this document should be read with reference to that assessment.

Based on this desk review, information gaps related to relevance, opportunity, feasibility and key systemic constraints were identified and informed a series of research questions and objectives. Owing to the short time span and the emerging protests during the field research in October 2019, a limited number of interviewees were selected per group, allowing for in-depth qualitative information as well as triangulation. The consultants used semi-structured interviews to ensure the best qualitative information whilst keeping flexible to follow leads.

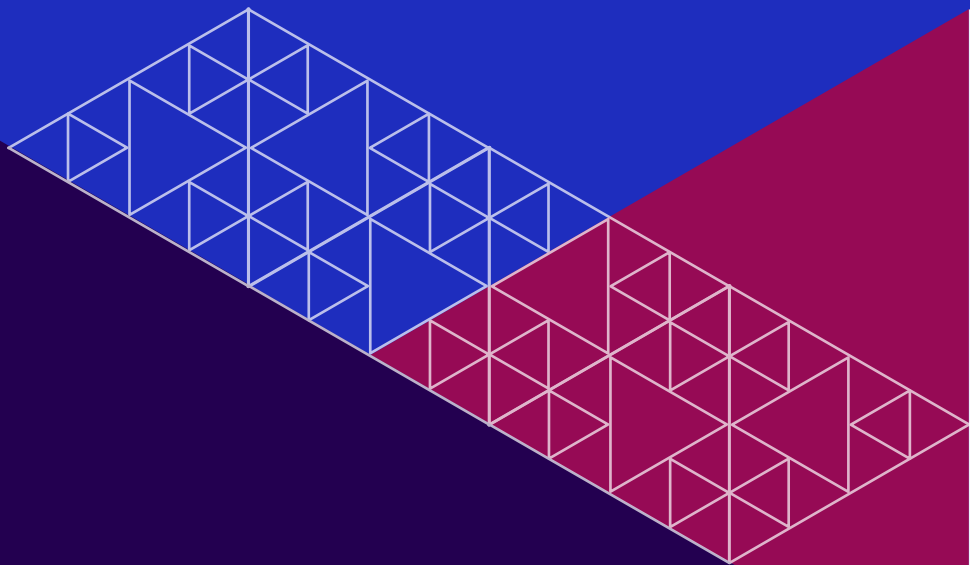
The qualitative information was analysed together with the ILO programme team that participated in the field visits. We identified and discussed the most common responses, patterns and variations to answer our research questions and translated this into findings described in this report.



# 02

## ▶ Introduction

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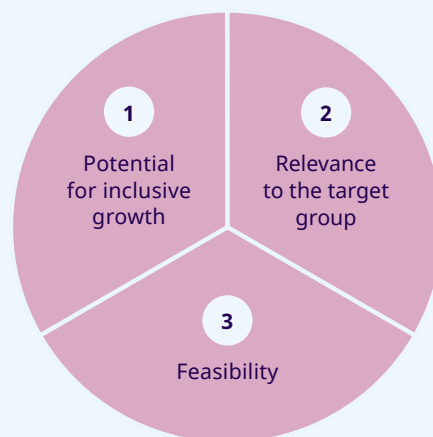
## 2.1 Diagnostic process

### Step 1 – Initial sector scope

The programme mandate is to support livelihood development in both host and refugee communities. The legalities around foreign workers in Lebanon, and the jobs to which they are limited, reduced the initial scope of potential sectors for the RMA to three – agriculture, construction and environment. These were further divided into specific value chains.<sup>4</sup> The ten sub-sectors were assessed according to the following three criteria (see Figure 2 below).<sup>5</sup>

► **Figure 2.** Sector selection criteria

- 1** Based on the potential for upgrading and integration of technology and innovation (business or product innovation) to access new markets, capacity to improve competitiveness of the chain vis-à-vis other players in the market, and potential creation of new job opportunities, strengthening value chain performance across all levels.
- 2** Employment potential for both Syrian refugees and host communities, whereby the former are either currently working in the sector or at least legally have the permission to do so.
- 3** Alignment with other organizations that are either preparing for projects or already implementing projects in the different regions, and for which opportunities for collaboration can occur for improved results and achievement of overall objectives.



With the information of the desk review, the programme team selected agriculture as the most relevant and opportune sector for both communities and whittled it down into four sub-sectors on which to focus further research.

### Step 2 – Research into selected sectors

The shortlisted sectors – grape, greenhouse horticulture, cherry and olive – were investigated further through a mix of quantitative and qualitative primary research and secondary sources. The RMA report revealed key constraints in the various value chains and issues in related supporting functions. Based on the preliminary findings of the RMA, and taking into account the selection criteria previously used, greenhouse vegetable production was selected as the sub-sector for further investigation. Background data on opportunity and relevance of the greenhouse horticulture sector can be found in the Annex.

### Step 3 – Converging on greenhouse horticulture

The diagnostic process then sought to better understand how these key constraints form, and what incentives and capacities are present among the key stakeholders involved that may support or inhibit more inclusive practice and behaviour change. This report is the primary output of that third step.

<sup>4</sup> Agriculture = avocados, greenhouse vegetables, olive oil, oregano, cherries, grapes, small ruminants. Construction = public infrastructure. Environment = solid waste recycling, renewable energy.

<sup>5</sup> Criteria based on the M4P approach, see The Springfield Centre. 2015. The operational guide for the making markets work for the poor (M4P) approach, 2nd edition funded by SDC & DFID. This was adapted by the ILO and UNHCR in their Guide to market-based livelihood interventions for refugees.

## 2.2 Rationale for greenhouse horticulture focus

### Target group

The programme aims to benefit two target groups: Syrian refugees and Lebanese host communities. These are materially different with regard to their access and engagement in the labour market and therefore face different challenges and opportunities.

#### Lebanese farming livelihoods

The Lebanese host communities in rural areas, where agriculture is still the major household income, are experiencing pressure on their livelihoods, community infrastructure and public services such as education and health because of the geopolitical instability and the refugee influx. Lebanese farming incomes, in particular, face various key challenges that impact negatively on their livelihoods:

- ▶ household income from horticulture production is subject to unpredictable (daily) demand and prices;
- ▶ investment to increase productivity and quality is critical for maintaining incomes, yet constrained by the economic downturn and related credit squeeze;
- ▶ the horticulture market is supply driven and poorly coordinated and the burden and risks associated with price fluctuation fall primarily on producer households;
- ▶ producer access to markets is limited, and information asymmetries disadvantage them.

#### Lebanese workers

Competition for jobs, particularly unskilled and skilled manual work, has increased and accelerated unemployment levels as the economy has stagnated and even declined. Young and low-skilled Lebanese men are most affected by reduced economic opportunities, and this is impacting directly on many rural household incomes. Since the beginning of the Syrian crisis, poverty in Lebanon has been on the rise and with it the fear of radicalization and unrest.

#### Syrian livelihoods

The livelihoods of Syrian refugee communities are challenged by a multitude of social and economic vulnerabilities. Many refugees remain unregistered, and economic opportunities are limited by law, leaving some people to depend on cash and food handouts from UN agencies, INGOs and CSOs which are not always sufficient to cover their basic needs. The key livelihood challenges for Syrian refugees include the following factors.

- ▶ The lack of formal status (residency and/or registration) restricts refugees' mobility, denies them access to work permits, and makes them vulnerable to security checks and potential harassment by officials and communities. It also limits their access to social welfare and refugee support and is a potential threat to their ability to secure "decent" work.
- ▶ The access of refugees to jobs and work permits is complicated by changing labour regulations and inconsistent implementation by state institutions, exacerbated by capacity constraints at the Ministry of Labour. Many are forced into the informal sector where they are more exposed to exploitation and/or harassment.

The major livelihood sources for refugees, usually working as day labourers, are agriculture, including fruit and vegetable production, and construction. This has been the case for decades, particularly in farming, where Lebanese farmers traditionally draft in seasonal Syrian workers for harvesting, and to a lesser degree planting and crop maintenance during the summer season. Women play an important role as seasonal workers, albeit often with lower wages. Syrian agricultural labourers face several specific constraints that impact negatively on their livelihoods.

- ▶ Salaries are relatively low, and payment is often delayed or can on occasion be withheld.
- ▶ Working conditions are arduous, impacting health. The work is physically demanding, often in

uncomfortably high temperatures (particularly in greenhouses), and the handling of various pesticides, some of them formally banned, exposes labourers to potentially harmful and toxic substances.

- ▶ Workload and income are irregular as employment follows the various crop cycles. More stable job opportunities are rare and difficult to access for those without local contacts or networks.
- ▶ The lack of more formal brokering mechanisms makes it challenging to access labour opportunities consistently. The dependence on the brokerage function of the *shaweesh*<sup>6</sup> system, while providing refugees with access to jobs, nevertheless also exposes them to risks of exploitation.

## Opportunity

Agriculture contributes about 5 per cent of national GDP, although in poorer regions such as Akkar, Bekaa and Baalbek-Hermel, agriculture-related activity accounts for as much as 80 per cent of the local GDP. Land allocation patterns are also shifting, impacting availability and diversity of agriculture produce and income opportunities in the long run. Greenhouse production remains relatively small despite higher productivity levels and its opportunities for more regular employment.

Lebanon remains a net importer of agriculture products, and consumer prices have increased over time, indicating scope for import substitution or even export growth, assuming that production standards can be met. However, domestic and foreign investment in the agriculture sector remains modest.

Value addition to horticulture is provided by the agri-food industry, which accounts for another 5 per cent<sup>7</sup> of the GDP and has shown important growth in recent years. The agri-food processing industry is also an important employer in the Lebanese economy, employing roughly 20,000 people in 2007,<sup>8</sup> of whom more than 10 per cent are directly attributed to processing and preserving fruit and vegetables.

## Feasibility

Only a few donors have supported the greenhouse horticulture industry directly. Many of these interventions did not progress beyond the pilot phase, and few have seen impact emerging, at any scale. There are, nonetheless, some dynamic private sector input suppliers and supply chain actors who continue to invest in product development and marketing.

The government acknowledges agriculture as a crucial sector for employment and income, and in the past, it has provided support through various initiatives. However, the recent demonstrations have led the government to undergo change, which has yet to wholly satisfy the demonstrators. The current unrest will have an impact on the political agenda on how to address the economic and refugee crisis, but the direction of travel remains uncertain.

The economic crisis is undoubtedly affecting actors' ability and willingness to invest and innovate. Hence, intervention results can be expected to unfold more slowly, and any interventions will need to be flexible in terms of delivery and the partnerships built to facilitate them.

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<sup>6</sup> The traditional brokerage system by which Syrian labourers are organized by a member of their community who acts as go-between with potential employers for an agreed commission.

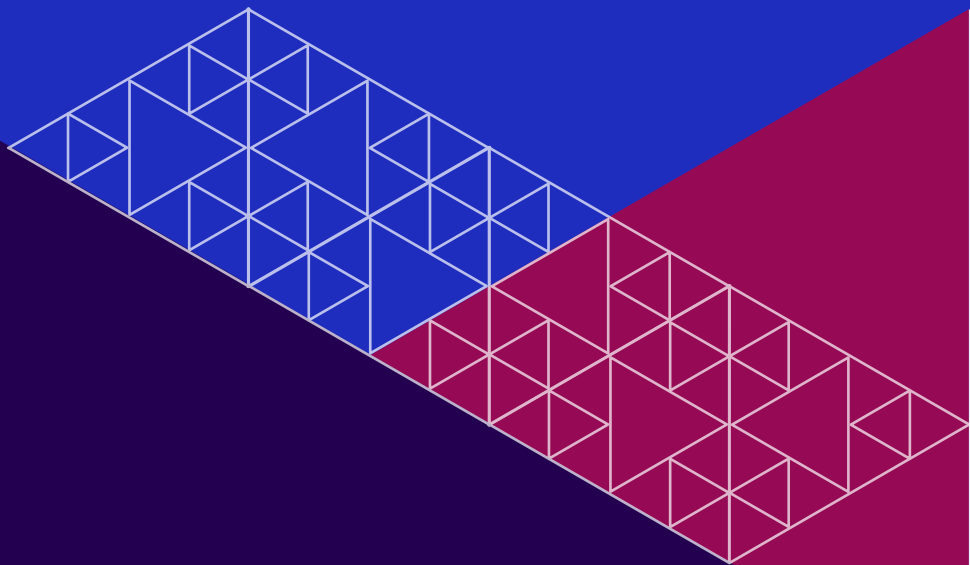
<sup>7</sup> <http://www.fao.org/lebanon/fao-in-lebanon/lebanon-at-a-glance/en/>

<sup>8</sup> Ministry of Industry. 2010. The Lebanese Industrial Sector – Facts and Findings 2007. pp. 35, 83.

# 03

## ▶ The Covered Horticulture System

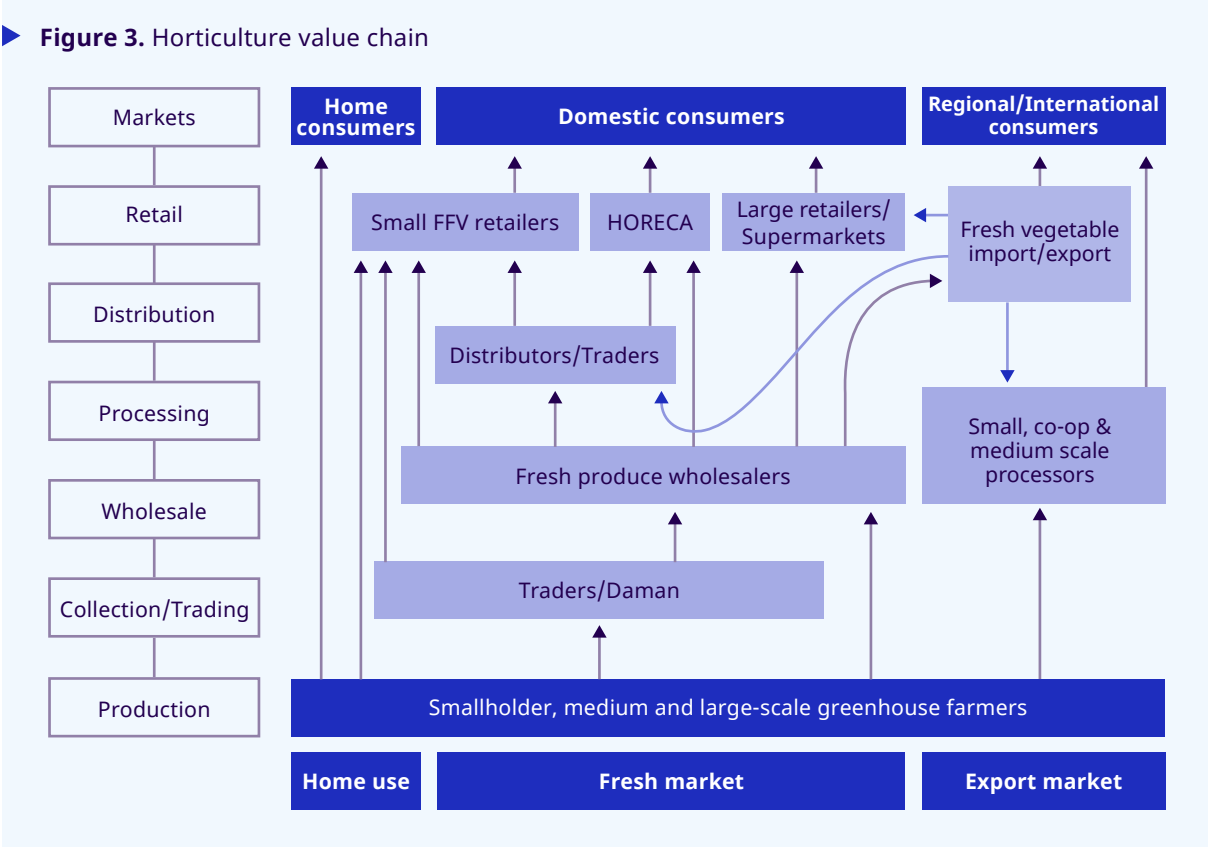
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The horticulture sector in Lebanon grew rapidly in the period leading up to 2013. Since then the Syrian crisis has impacted negatively and significantly on access to both input and export markets. Notwithstanding slowed growth, the sector today is characterized by increasingly intensive and market-oriented production. Both open-field and covered (polythene greenhouses) production systems are found across Lebanon, with the latter previously growing rapidly to meet strong demand locally and regionally for Lebanese vegetables in place of other crops, such as citrus orchards in Akkar.

Figure 3 below provides a schematic of the horticulture value chain and key stages within it. Building on this, the following section seeks to characterize the covered, or greenhouse, horticulture “system”.

**Production** of vegetables in greenhouses can be found across all farm types, including hobby, small, medium and large enterprises and comprising both owner-operated and rental-based business models. In 2010, there were approximately 170,000 farms, of which 8.6 per cent were headed by women, accounting for 230,995 ha nationally and with an average size of 1.36 ha. Greenhouses make up 3,800 ha or 1.6 per cent<sup>9</sup> of the agriculture land and are mainly located in Akkar (1574 ha).<sup>10</sup> About 70 per cent of farms are smaller than 1 ha. The average farm owner’s age is 52 years, slightly higher for women farmers (CBI, 2018). Most medium and large enterprises rely on paid labourers to cultivate, tend and harvest crops, the majority of whom are Syrian.



The sector and its producers are market-oriented and driven primarily by the market for fresh vegetables in Lebanon itself and, to a lesser extent at the current time, regionally. Greenhouse production enables producers to grow a wider variety of vegetables over a longer season<sup>11</sup> than open-field production. Production is broadly seasonal, with different vegetables dominating at different times of the year. Some varieties enable producers to extend the growing season and/or meet niche demand for specific products.

<sup>9</sup> This would translate as roughly 11,446 greenhouses in 2010 (3,800,000 m<sup>2</sup>/332 m<sup>2</sup> per greenhouse).

<sup>10</sup> MOA, 2010. Agriculture in Lebanon Facts and Figures. Core Module of Census of Agriculture 2010 – Main results.

<sup>11</sup> Greenhouses extend the growing season up to ten months compared to approximately six months for open-field production.

Input and technology use are relatively uniform. Only a few large-scale producers have invested in higher-end, sophisticated greenhouse, hydroponic and automated irrigation technologies. Most producers, however, rely on the basic single tunnel non-ventilated greenhouse design and install manual drip irrigation systems. This equipment, together with the land itself, constitute the bulk of capital costs of greenhouse production. The primary recurrent costs consist of labour and production inputs – mainly seeds, fertilizers and pesticides.

**Trading** in harvested vegetables occurs in two main forms. A significant number of producers, particularly larger ones, deal directly with wholesale markets, providing or hiring transport themselves. Many, however, deal through dedicated traders and/or larger-scale producers with direct trade links. These traders and producers are collectively referred to as *daman*<sup>12</sup> and work on a fixed commission basis, selling on to the wholesale market or, less commonly, directly to retailers.

**Wholesale markets** for fresh vegetables dominate the sector. There are about seven, in regional and city locations, the main ones located in Beirut, Tripoli and Bekaa. They can be of varying size (ranging from a few dozen to several hundred wholesalers operating from a single “market” location). These markets provide the primary conduit to the various domestic and export end markets for fresh vegetables, as well as the relatively modest domestic processing businesses that also source directly from larger producers. Wholesalers work on a commission basis (from 7 to 10 per cent of sales price), recording volumes supplied by each producer and reconciling sales value at the end of each day according to prices secured, less commission. Wholesalers sell to a variety of buyers but are usually not organizing logistics or transportation.

**Distribution** of vegetables from the wholesale markets is managed primarily by independent and “agent” traders and distributors as well as some wholesalers themselves who deal directly with buyers. These distributors provide a regular (daily or several times a week) sourcing and distribution service primarily to hotel, restaurant and catering (HORECA) and fresh fruit and vegetable (FFV) retailers. In addition, some distributors import produce, particularly off-season and niche products. A small number of distributors, mostly located in Beirut or Tripoli, operate on a 10 to 15 per cent commission (RMA, 2019). While distributors have traditionally offered customers 30-day payment terms, these grew longer with increased level of competition among distributors and the recent economic climate, to an extent which is now financially challenging to manage<sup>13</sup> for distributors. Hence, payment terms have been greatly reduced recently, in response to increased incidences of default.

**Vegetable processing** remains a small and often small-scale function in the Lebanese vegetable sector. Of the 736 registered<sup>14</sup> Lebanese food processing companies in 2007, almost 30 per cent<sup>15</sup> were involved in vegetable processing. These range from localized artisan processing by producer groups and cooperatives<sup>16</sup> to larger-scale and more formal processing factories. Artisan processing is relatively basic in nature and focuses on a limited range of preserves and ingredient products. More formal processing produces similar products at a greater scale, alongside canned products and prepared meals and

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12 The *daman* system is particularly common in fruit production.

13 Payment terms put significant pressure on distributor cash flow, making it challenging to maintain a viable trading business, particularly if formal financing instruments are expensive and difficult to access currently.

14 Ministry of Industry. 2011. The Lebanese Industrial Sector. Facts and Findings 2007.

15 See Ministry of Industry. 2011, p. 83: Processing and preserving fruit and vegetables: 70, Manufacture of other food products: 136

16 The Syndicate of Lebanese Food Industrialists estimates that there are another 1,300 unregistered, mostly small-scale and artisan food processing enterprises operating (DAI. 2014. Processed Foods Value Chain Assessment Report. Lebanon Industry Value Chain Development (LIVCD) Project. Beirut: USAID Lebanon).

dishes<sup>17</sup> for local consumption and export. Lebanon remains a net importer of processed foods.<sup>18</sup>

Processing companies often source from a few large farmers with whom they had long-term relationships. The wholesale market is only used when suppliers cannot respond to processors' demands of volumes, timing or variety. A tighter supply model, the contract farming model, has been used in the potato chips industry, but it seems to be challenging to apply to other industries as it requires large investments.

**Vegetable markets**, both domestic and export, remain fresh produce oriented. For the domestic market, three main types of buyer are significant:

- ▶ **Fresh fruit and vegetable (FFV) retailers** are commonplace, serving rural and urban consumers, including more formal shop-based businesses as well as mobile stalls and vendors during peak seasons. Lebanese consumers still prefer these smaller vendors to supermarkets, although that has been changing over the past years.
- ▶ **Hotels, restaurants and cafes (HORECA)** collectively represent an important catering industry demand for fresh vegetables, albeit a highly heterogeneous one in terms of actors, business models, capabilities and needs. Most caterers purchase daily, either directly from wholesalers or through an established distributor relationship.
- ▶ **Supermarkets** and hypermarkets have multiplied over the last decade and spread rapidly through increasing numbers of retail outlets and branches (RMA 2019). The bigger brands (Bou Khalil, Carrefour, Fahed Supermarkets, Le Charcutier, Monoprix and Spinneys) are concentrated in Beirut, Mount Lebanon and Tripoli where most of the Lebanese population lives. Two distinct models operate: a few supermarkets manage, source and sell products themselves, but most give a concession to an entrepreneur or small business to run the fruit and vegetable department within one or several stores.

**Export** (and import) of vegetables is managed by a limited number of specialist aggregators and traders. While the export trade to regional markets (particularly the Gulf) have been their traditional focus, these markets have suffered since the Syrian crisis with a number going out of business. In 2016, there were close to 80 exporters dealing with vegetables<sup>19</sup> among other produce. Now only a handful remain in business. Few comply with the operational and traceability standards required by alternative markets such as Europe (for example HACCP, GMP, Global GAP). Furthermore, relatively high bacteria and pesticide levels are one of the inhibiting factors to penetrate alternative export markets.<sup>20</sup>

Most exporters work independently, buying and packing to consignment orders from established regional customers. Traditional road export routes have become much more expensive since the Syria crisis started and have been replaced by more expensive air and sea freight once the borders closed. Operating models vary, with some providing both export and import services, storage and/or packing functions. For most, however, export purchase agreements are invariably informal and non-binding, often oral, "gentlemen's agreements".<sup>21</sup>

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17 These products correspond to International Standard Industrial Classification (ISIC) 1030 – Processing and preserving of fruit and vegetables: Pickled vegetables (cucumbers, gherkins, carrots, cauliflower, sweet and hot peppers, olives, eggplant, turnips), pumpkin and eggplant preserves; 1075 – Manufacture of prepared meals and dishes: Ready-to-eat meals, dried, powdered and frozen products (fresh cut), tomato prepared and preserved (for example sauce); 1079 – Manufacture of other food products: Baby food.

18 USAID. 2014. Processed Foods Value Chain Assessment Report, Lebanon Industry Value Chain Development (LIVCD) programme, February 2014.

19 IDAL Export Directory 2016.

20 RMA, 2019.

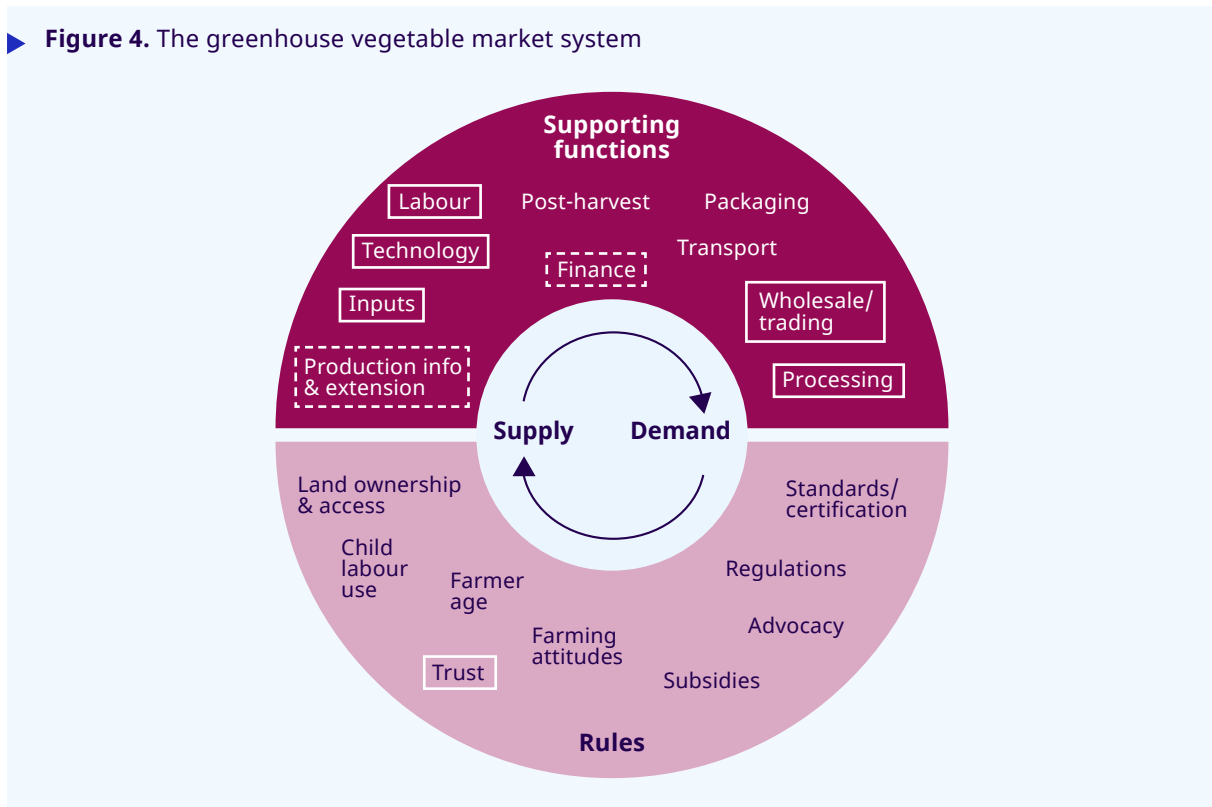
21 *ibid.*



### 3.1 Signs of dysfunction in the horticulture system

Slowing growth and weak investment in the greenhouse horticulture sector are symptomatic of a sector that is underperforming, more specifically challenging productivity and market access. The incomes of Lebanese horticulture farmers are increasingly under pressure and, as a consequence, so too are the jobs and livelihoods of the many Syrian labourers who depend on the sector.

► **Figure 4.** The greenhouse vegetable market system



The reasons for the sectors' underperformance and declining competitiveness regionally are myriad. Figure 4 identifies the supporting functions, rules and norms that are essential to the efficiency and inclusivity of the system, while highlighting those that more immediately constrain system competitiveness for further discussion below.

Specifically, analysis suggests that both supply- and demand-side challenges persist. Weakening productivity levels can be traced back to the efficacy and quality of prevailing **greenhouse technologies** and **key inputs** (particularly agro-chemicals) used by many producers, exacerbated by the ongoing squeeze on **credit and liquidity** in the sector. Sub-optimal input use is also, potentially, linked to poor **information flows** and **extension services**.

On the demand side, market access has been negatively impacted by the Syrian crisis, and the sector has been slow to respond. An unpredictable fresh produce **wholesale and trading** system has further undermined **trust** between buyers and sellers, exacerbated by the paucity of **processing** and other alternative market options available to both.

#### 3.1.1 Challenges to improving greenhouse productivity

While productivity is a function of multiple factors (such as inputs and their combination, production and harvesting techniques, skills and so on), the covered vegetable sector in Lebanon is increasingly falling behind in terms of its investment in key inputs and, in particular, greenhouse infrastructure and some of the more critical agro-chemical inputs.



**Greenhouse production** accounts for 3800 ha<sup>22</sup> or 1.6 per cent of the agricultural land, almost half of which is found in Akkar. The benefits of greenhouse over open-field production, whilst crop-specific, include productivity gains, efficient land use and extended season. Currently, most greenhouses in Lebanon are of single tunnel design (8 x 41.5 x 3 m) which allows for only limited ventilation, negatively affecting the microclimate and thus both productivity and working conditions in the greenhouse.<sup>23</sup> Recent research suggests that upgrading from tunnel design to the multi-span chapel design technologies available could increase productivity by up to 50 per cent.<sup>24</sup> Nevertheless, the popularity of the tunnel design is linked to its affordability compared with the more modern and better ventilated designs. Depending on the quality of the frame and plastic, a single tunnel greenhouse can cost between 2,000 and 2,500 US\$ – equivalent to \$6,000–\$7,500 per dunam<sup>25</sup>. Several branded multi-span technologies are available from three large wholesalers and some smaller distributors, costing between \$16,000 and \$20,000 per dunam. However, the limited number of brands available on the Lebanese market offers few options in terms of mid-range upgrades and/or scope for staged/incremental investment strategies.



**Finance** remains a key constraint for most greenhouse operators. While investment is regularly made to replace plastic (every 3 to 4 years), the costs of upgrading to new designs remains prohibitive. Credit options have been, and continue to be, offered to some, although both terms and accessibility have become more restrictive because of the recent credit squeeze. In response, various government and donor-supported initiatives have sought to improve access to formal finance for farmers and agricultural SMEs. These have focused on the provision of specific credit lines and guarantees, supported by Business Development Services (BDS) for loan applicants. In practice, however, many of those initiatives favour larger investors. Smallholder farmers remain poorly served by bank terms,<sup>26</sup> inflexible collateral requirements, complex administrative procedures and significant waiting times.<sup>27</sup> During 2019, the ongoing economic crisis and associated regulatory changes affecting US dollar transactions led to a significant reduction in liquidity and increasing interest rates. Lending has been greatly curtailed beyond some micro-credit from microfinance institutions and NGOs. However, the scale of this lending available to agriculture is also very limited, and regulatory changes are set to transform the way MFIs and NGOs operate and handle clients, forcing them to partner with banks in the future.

The primary source of investment for farmers is now credit lines offered by a combination of input providers and vegetable wholesalers. Input suppliers are the most common source for informal credit for seeds, fertilizer, pesticides and technologies such as irrigation systems or greenhouses. The level of credit a supplier is willing to provide depends on the size of the farm, the farmers' reputation and their past relationship and credit history with the supplier. Supplier credits (amounts of up to \$5,000 are not uncommon) are more convenient for most farmers compared with bank loans; they offer greater terms, payment schedule flexibility, and many do not incur interest. The terms of non-formal credit lines have changed with the economic crisis, and many suppliers have ceased offering instalment plans.

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22 Total numbers of greenhouses (extrapolated):  $38,010,000 \text{ m}^2 / (41.5 \text{ m} \times 8 \text{ m}) = 114,488$  greenhouses (47,409 in Akkar; 2,500 in Bekaa; 8,825 in Baalbek-Hermel).

23 RMA 2019.

24 These productivity improvements were commonly established under controlled conditions.

25 1 dunam equals 1,000 m<sup>2</sup>

26 Such as grace period, tenor, loan size or repayment schedule. Loans of \$10,000 are considered as microloans, whereas the loan amount can be significantly less with MFIs. Smaller loans are not considered lucrative for banks, as they incur the same administrative costs for less return.

27 For more details see RMA 2019.

Another common form of finance is drawn from wholesalers and traders. For larger producers and those with strong relations with buyers, advances on produce can be secured and repayment made through subsequent product sales. Whilst convenient and highly flexible, varying interest rates can be applied, making such arrangements potentially less financially favourable (RMA 2019).



**Inputs** including seeds, fertilizers and pesticides are also critical to vegetable production and to the greenhouse sector, especially to its productivity. Together, these constitute a significant cost element for the system and consequently are subject to the pressure to minimize costs for many producers. Anecdotally at least, the incidence of misuse of pesticides and/or the use of banned products available across the border in Syria or Turkey appears significant. The major impact of suboptimal practices is felt at the processing or exporting stage, where bacteria and pesticides levels are checked and end up being higher than permitted or desired. Price is a major determinant of farmers resorting to banned or counterfeit products. Nevertheless, a general lack of awareness of the benefits of appropriately applied, quality products versus cheaper or adulterated products also contributes to these prevailing practices.



**Water** quality and availability impact significantly on the productivity of crops, not only in greenhouses. Water availability has been degrading in some regions, particularly in Bekaa, leading to ever higher costs for irrigation. Over-irrigation, even when utilizing drip irrigation, remains an issue, further accelerating water scarcity and lowering plant productivity. Pollution of some Bekaa water sources has been noted as a significant issue for agriculture. Although greenhouses provide a means for better standards of water utilization, the project will need to be sensitive to regional differences in water supply, quality and irrigation practices when planning interventions.



**Extension information** as to the production practice implications or commercial benefits of improved greenhouse technologies remains scarce. Many farmers are unaware of the potential value of new greenhouse designs and/or the relative benefits of quality agrochemicals, and few have access to credible data as to the returns on investment. In the absence of convincing commercial information, few farmers are aware of any potential practice implications of different designs, either. The sales and marketing efforts of the main suppliers appear relatively passive, in large part a function of the economic downturn reducing demand and increasing risks for credit-based sales.

From the private sector, larger input providers for fertilizer, pesticides and other agricultural technologies often have (a few) agricultural engineers who advise larger clients as part of their sales and post-sales services. While there is a mix of product-related and wider information exchange, the focus remains product-based, limited in scope and relevance to wider production practices.

In the absence of good information and awareness amongst farmers, it is less clear to what degree production practices and capacities amongst producers and their labourers may also constrain technological change and productivity improvements. Farmers access technical support and knowledge from a range of players, including public agricultural extension through 28 agriculture service centres. These enjoy only limited funding from the Ministry of Agriculture and are, in practice, heavily reliant on supplementary funding from donors and projects, as are similar services provided through some chambers of commerce. Research information is provided by the Lebanese Agriculture Research Institute (LARI) which undertakes research and development and disseminates knowledge for agricultural innovation as well as providing services such as weather alerts and forecasts.<sup>28</sup> In addition,

seven technical schools of agriculture provide education for school graduates, although they do not offer shorter courses or workshops for already experienced farmers (RMA 2019).

Overall, then, extension and information flows from both public and private sources remain limited, particularly for smallholders, and can be assumed to be a constraining factor. This is a special concern, given the context in which most production and harvesting is undertaken by Syrian labourers who have little or no direct contact with either input supply companies or government/NGO extension initiatives, and who are therefore unlikely to benefit from these conventional sources of information and skills development.

### 3.1.2 Challenges to strengthening market access

The dependence of the sector on the fresh market is at once an opportunity and a threat. At times, strong demand for quality Lebanese vegetables provides for favourable prices. The lack of alternative market outlets, however, renders producers highly vulnerable to market and price fluctuations, product wastage and the vagaries of informal cross-border trade, particularly from Syria.



**Wholesale market models** in Lebanon have evolved to deal with the dual challenges of demand unpredictability and supply perishability inherent in the fresh vegetable market. Albeit complex and at times opaque, the market is essentially a buyer's one, characterized by an established but relatively "closed" trade and wholesale system, operating from a limited number of central market locations around the country. The prevailing model, whereby producers deliver produce "on account" and accept the sales volumes and prices that wholesale traders can secure for them, means that producers retain many of the risks of competition and price fluctuation, a problem that is exacerbated by weak information flows, limited trust and few market options.



**Market information** flows remain limited, and this reinforces the vulnerability of producers vis-à-vis the wholesale market system. The demand in terms of volumes and prices fluctuates almost daily, making investment and planning decisions difficult and high risk for producers and, to a lesser extent, wholesalers. This is both a cause and effect of many farmers producing the same, often low-value, vegetable products at the same times through the season. There is little but simple product differentiation in terms of uniformity in colour and form.<sup>29</sup> Only a few producers and wholesalers appear to actively target niche or off-season vegetables, despite the apparent demand locally and regionally.

There are, however, signs of improved information flows and recognition of the benefits for both parties. In some cases, the relationship between farmer and buyer has become more intensive and informative, enabling farmers to adjust what and how they produce, and buyers to secure more reliable and cost-effective local produce.



**Trust**, or the lack thereof, is inextricably linked to the dysfunction in the market model. Market unpredictability and inconsistency is, or is perceived to be, associated with non-transparency and "sharp" practices by some wholesalers and traders. Incidence of effective "speculation" on the market is also observable, where trade flows between wholesale markets exist presumably to fill daily orders but also, for some traders, as an opportunity to capture temporary price differentiations between regions. The reputation of some traders, in addition to relationships between them and producers, has undermined confidence for some farmers in the trading system as a whole, leading to low incentives to invest in quality or productivity.

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<sup>29</sup> Quality is defined by how uniform produce looks in terms of size, shape and colour. It is not the taste which pays a mark-up.

Wholesalers themselves also lack trust in their own weak and inconsistent relationships with end buyers. Whilst some buyers, particularly those with more specific requirements,<sup>30</sup> deal regularly with the same wholesalers, the nature of contract relationships is invariably informal and equally unpredictable. Neither party appears willing to invest in more formal buyer-supplier contracts<sup>31</sup> or more sophisticated relationships, for example involving market advice and information, or pre-financing.

The recent economic downturn has also seen a number of businesses fold, leaving some wholesalers with significant outstanding debts they are unlikely to recoup. This has prompted some larger, more exposed wholesalers to review their operating model and the nature of their buyer relationships. Some signs of improved communications, contractual arrangements and records can be seen amongst larger wholesalers in Bekaa, buyers in Beirut and more sophisticated wholesalers in Akkar.



**Vegetable processing**, and thus opportunities to access more diverse and value-added markets, continues to be relatively small in Lebanon. The industry remains relatively unorganized, much of it based around small-scale family-operated micro-enterprises and cooperatives,<sup>32</sup> unlikely to grow or scale their production significantly. The economic crisis has inevitably dampened investment in the agro-processing industry, and its weak growth offers only localized opportunities for more consistent and diverse vegetable production. Importantly, the industry is only able to absorb a fraction of the lower quality and/or perishable produce left unsold at the end of each trading day, and hence much of that produce continues to go to animal feed or is thrown away.

Despite modest growth for a handful of larger, more professional processing factories in recent years, Lebanon remains a net importer of processed foods and is currently unable to take advantage of the local undersupply as well as export opportunities. According to a recent report,<sup>33</sup> the industry remains relatively uncompetitive owing to a number of issues that include: low productivity and factory efficiencies leading to high costs of production; limited destination marketing knowledge and weak market linkages; inadequate supplies of vegetables and supply chain management inefficiencies; limited research and development; low compliance with international food safety and hygiene standards.

The exception is the open-field production of potatoes that has recently benefited from the emergence of contract farming models led by the chip (French fry) industry. These tighter contractual models have led to scaling of better-quality potato production and investment in the supply chain by various actors and demonstrate the positive impact this can have on stabilizing production and prices in a vegetable sub-sector. However, reproducing this model might be financially challenging.



**Standards and Certification.** To be able to export horticulture products to new, more sophisticated markets, producers will need to conform to compulsory production and marketing standards (general and at times product-specific) that legally define key requirements such as commercial quality and labelling standards, food safety controls, environmental protection and phytosanitary regulations. Similar requirements exist for manufacturers and other value chain actors to export processed food products.

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30 In terms of volumes or quality such as HORECA, HORECA suppliers, exporters/importers.

31 Investments are most likely within the extended family but less frequent among pure business relationships.

32 Many of which are unsustainable, subsidized by a string of donor and NGO initiatives.

33 DAI. 2014. Processed foods value chain assessment report. USAID Lebanon, LIVCD Project.

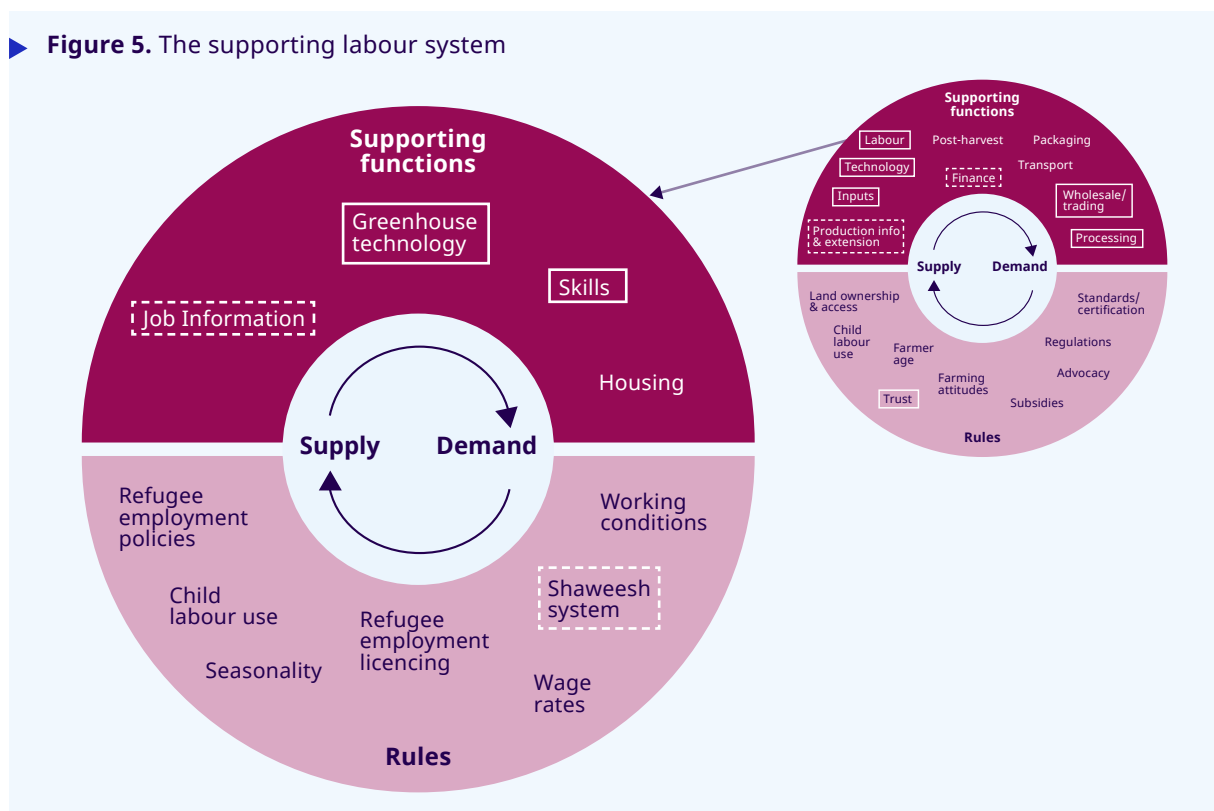
Private and national certification schemes were initially developed to provide assurance to international buyers that certain aspects of the imported product or its production method follow specified standards and requirements (mandatory and/or additional).<sup>34</sup> Although certification schemes remain voluntary, international players are increasingly requiring certification to access markets. There are three broad groups of certifications.<sup>35</sup>

- ▶ Food safety and liability schemes at post-farm gate level to ensure the food industry and retailers of product safety, to reduce reputation and legal risks (for instance HACCP, ISO, SQF, IFS, BRC).
- ▶ Food assurance schemes at pre-farm gate level and/or whole food supply chain are more consumer-facing, providing assurance about product safety and compliance with good production methods (for example GLOBALGAP).
- ▶ Differentiation schemes<sup>36</sup> are also consumer-facing and aim at helping consumers to make better purchase descriptions, by distinguishing certified products through particular product or process features such as organic, animal welfare, climate change considerations or social standards (for example Fair Trade, Demeter and so on).

A few larger agri-food manufacturers and other supply chain actors have started to adopt good manufacturing practices through certification that requires heavy financial and organizational investments, particularly if sourcing directly from farmers. Certification remains a major financial and organizational challenge for many smaller agri-food companies; implementing the required standards among smaller farmers has proved to be almost impossible, as highlighted in the RMA.

### 3.1.3 Constraints facing Syrian labourers working in the greenhouse sector

▶ **Figure 5.** The supporting labour system



34 For some schemes, compliance with International Standards Organization (ISO) Guide 65 is a statutory obligation.

35 [https://ec.europa.eu/agriculture/quality/policy/com234\\_2009/ia\\_annex\\_d\\_en.pdf](https://ec.europa.eu/agriculture/quality/policy/com234_2009/ia_annex_d_en.pdf).

36 The largest group in terms of number of existing schemes.

Labour is a critical input for the greenhouse sector. Rarely is labour drawn from the Lebanese community outside the labour of farmers and their families. Instead, the bulk of the workforce is drawn from Syrian refugee communities, many of whom have supplied labour to the Lebanese fruit and horticulture sectors during peak periods for multiple generations.

Despite the historic link between Lebanese farmers and Syrian workers, the refugee crisis has disrupted many established working arrangements. The presence of so many refugees in Lebanon provides a ready and cheap source of labour, but their status as refugees means that many lack adequate employment and wage protection and security. This is sensitive since it links to the longevity of their presence in Lebanon and the interests of both communities for them to resettle in Syria as soon as the security situation allows it.



**Decent work**, in terms of secure, longer-term employment arrangements as well as good working conditions in the horticulture and agriculture sectors, is variable and disadvantages the more vulnerable and less well networked within the refugee community. The shaweesh system, which emerged to afford protection to Syrians seeking work, has rapidly evolved into a rent-seeking function that as often as not exploits rather than facilitates access to employment.

That said, the shaweesh system is strongest in the seasonal work sector (particularly fruit, but also open-field vegetables such as potatoes) and less significant in the greenhouse sector, where the predominant model is for extended families to live and work on farms where the employment relationship is direct with the farmer. Greenhouse labour is characterized by longer-term, often full-time employment over multi-year periods and thus, by definition, represents for many a better employment opportunity than seasonal harvesting work.

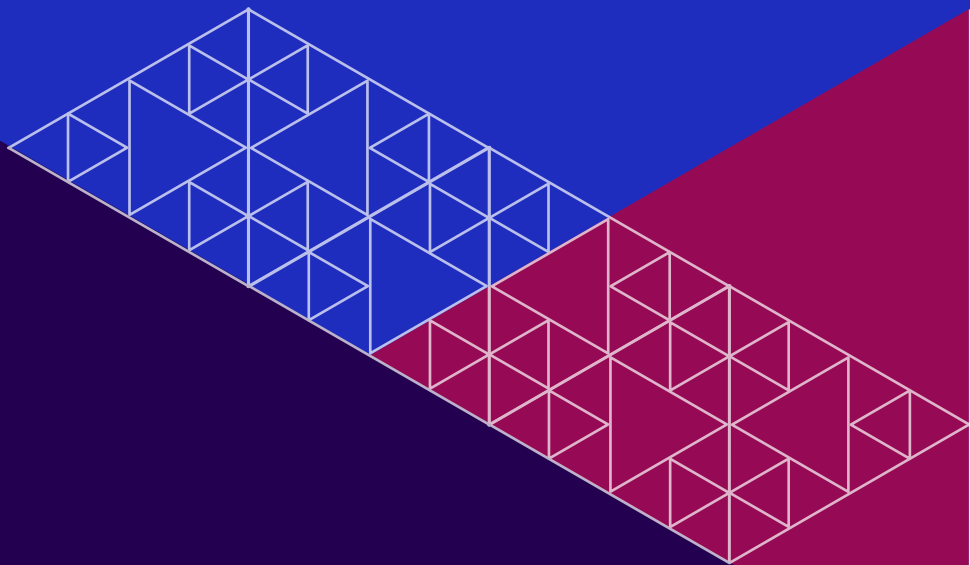


**Working conditions**, particularly in traditional design greenhouses, are poor. Temperatures and humidity levels can be extremely high, making the job difficult, if better paid. Working in greenhouses is also related to several health risks such as repetitive strain injuries, exposure to toxic plant material and chemicals, heatstroke, and so on. The majority of greenhouse labourers are women, with a limited number of “heavy” roles for men transporting produce and the like. There is also a reported incidence of child labour, where family children are used at peak times and/or for specific jobs to support their mothers or sisters when required.

# 04

- ▶ **Income and Employment Opportunities in the Greenhouse Sector**

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Section 3 has highlighted a number of critical constraints facing the greenhouse horticulture sector and identified some of the root causes of those constraints. While not all these challenges are addressable with the resources available, it nonetheless provides the ILO with a point of departure for planning its proposed programme of intervention.

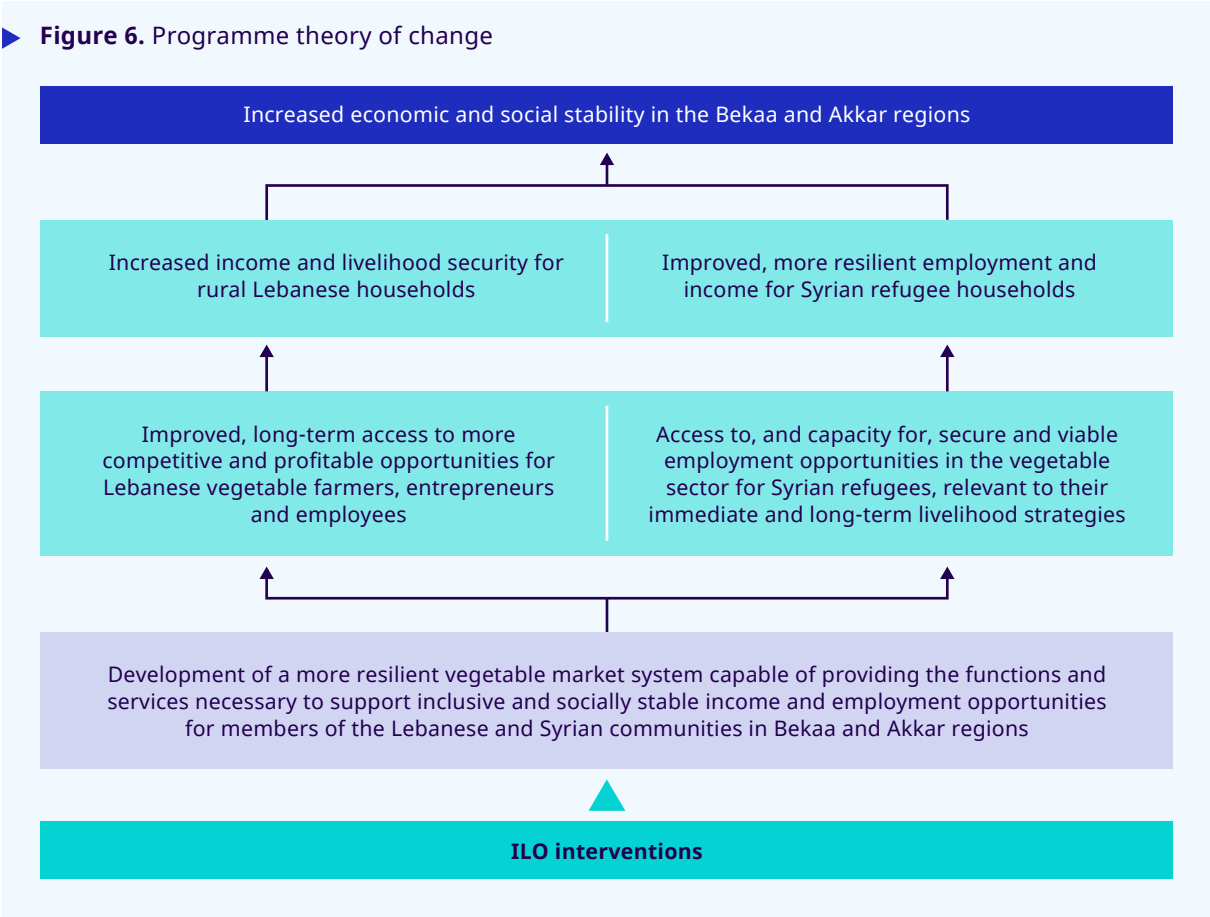
The following section builds on the previous sections to set out a tentative intervention strategy aimed at dealing with some of the more pressing barriers to a more competitive covered horticulture sector delivering incomes and jobs for Lebanese and Syrian communities.

### 4.1 The case for ILO engagement

#### 4.1.1 A vision for a more inclusive horticulture sector

Despite the challenging economic and social context in Lebanon, the horticulture sector, and in particular the covered horticulture sector, offers a tangible opportunity for improved livelihoods and employment for both host and refugee communities. Figure 6 below sets out a strategic framework through which the ILO can seek to impact economic and social development and stability in Lebanon.

► **Figure 6.** Programme theory of change



Economic growth and stability is a critical driver not only of poverty alleviation but, importantly, of social stability in Lebanon. However, the opportunities apparent in the horticulture sector are different for the Lebanese and Syrian communities, and consequently, targeted intervention strategies are needed to ensure that sector growth and development is inclusive of both those communities. For Lebanese farmers, the opportunity lies in strengthening horticulture as a business and unlocking potential for increased competitiveness, profitability and thus income. But for the sectors’ Syrian labourers, it remains imperative that the form and direction of sector growth should afford them new opportunities

for long-term, as opposed to seasonal, employment for fair wages and under conditions that are conducive to their health and well-being.

The following sections set out in more detail an intervention strategy for the ILO which aims to ensure that development of the horticulture sector delivers benefits for both entrepreneurs and employees.

#### **4.1.2 Improving Lebanese incomes in the greenhouse sector**

Three potentially addressable challenges face rural Lebanese businesses and entrepreneurs in benefiting more from the horticulture sector:

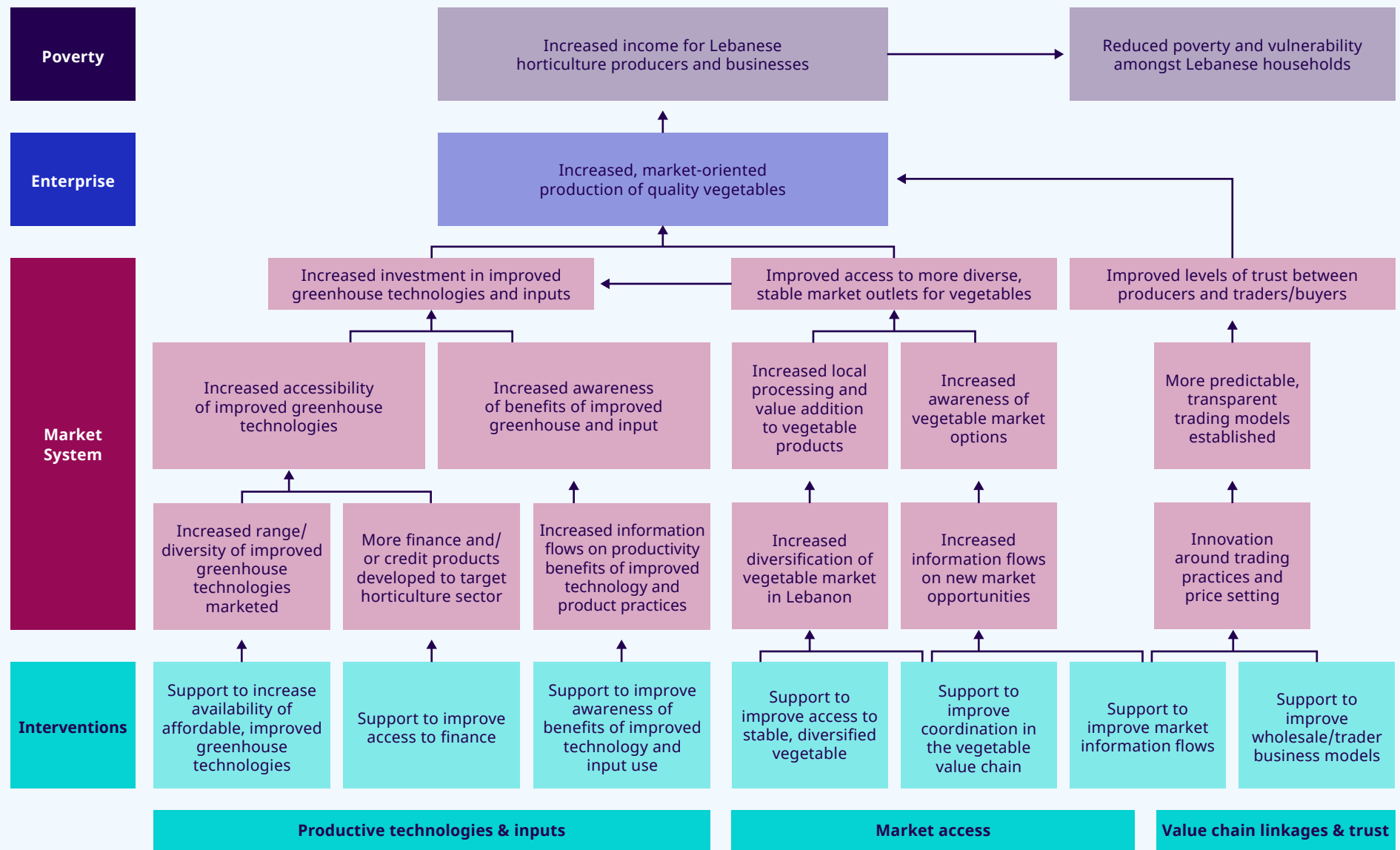
- ▶ more effective use of more productive technologies and inputs;
- ▶ better access to more stable markets; and
- ▶ improved trust and linkages with product wholesalers.<sup>37</sup>

Figure 7 overleaf summarizes the theory of change behind proposed interventions in these three areas and the interface between them. The following sections provide a more detailed rationale for intervention.

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<sup>37</sup> Better relationships between farmers and wholesalers are prioritized initially, as wholesalers continue to be the principal outlets for medium and small farmers. Nonetheless, results are likely to depend on the form and depth of relationships that can be forged with other players higher up in the value chain. Therefore, the intervention should remain flexible to accommodate learning and changes.

► **Figure 7.** Theory of change: Increasing productivity and income from the covered horticulture sector



## 4.2 Intervention strategy

### 4.2.1 Intervention Area 1: Productive technologies and inputs

#### Vision

The ILO's intervention in this area will aim to strengthen both the supply of new and improved, affordable greenhouse technologies and quality agro-chemicals in conjunction with more informed demand, and thus greater uptake amongst greenhouse producers. This will build upon improved marketing, promotion and information strategies and provision by key input suppliers and the development of more innovative financing and credit models to facilitate greater uptake.

#### Strategy

Three core interventions will support this vision.

1. Support to one or more technology providers in the identification, marketing and distribution of affordable greenhouse technologies.

In order to stimulate a more active strategy for developing the market for appropriate greenhouse technologies, the programme will work with one or more suppliers or distributors to research the availability of alternative greenhouse technologies. This support will explore more diverse, innovative and cost-effective technology options, with the aim of incentivizing both suppliers and customers to invest in improved technologies.<sup>38</sup> Support is anticipated in the form not only of produce research and supply brokerage, but also in the development of more active marketing and post-sales support models seeking to both inform and incentivize potential customers.

2. Support to one or more technology providers and their finance service providers to develop and market viable credit and/or financing options, targeting new or existing greenhouse producers wishing to invest in improved technologies and infrastructure.

Declining access to credit will be addressed by supporting the development and potential underwriting of more flexible credit and/or finance products. This will need to be linked to the specific technology solutions identified, as well as a rigorous cost benefit analysis, to verify viability for producers. Subject to the needs of both supplier and customers, this will need to explore the potential of formal and informal mechanisms, including credit lines through the supply chain, starting with international suppliers. It must also explore the potential for linking repayment mechanisms to product sales and those wholesalers historically providing lending services. Sustaining access to finance in the longer-term will almost certainly necessitate the development of wider partnerships with government (for example Kafalat) and donor-funded financial organizations aimed at improving liquidity in the agriculture sector and addressing the short-term costs of finance.

3. Support to private and public partners in strengthening both commercial marketing and public information services aimed at raising awareness of the benefits of appropriate use of quality agro-chemical products in the greenhouse and horticulture sector.

To increase the uptake and appropriate use of quality agro-chemical inputs will require a multi-pronged effort to improve production practices and to raise awareness of the production and economic benefit of better-quality products. This will entail working with input suppliers in developing and delivering more and better information targeting farm owners and managers, as well as those Syrian workers more directly involved in applying pesticides and chemical fertilizers. Furthermore, public partners will need to be supported to provide extension messaging targeting farm owners and managers to encourage more quality-oriented buying habits.

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<sup>38</sup> Most producers replace plastic every three to four years and rotate location of houses every seven to eight years; investment points offer opportune, if periodic, scope for upgrading.

## Risks and assumptions

Several assumptions and associated risks have implications for this intervention area, which include the following:

- ▶ that appropriate greenhouse technology options are available on the regional or international market offering the potential for affordable investment for Lebanese producers;
- ▶ that the Lebanese economy can be stabilized and eventually recovered in order to facilitate the availability of affordable finance for investors, including those in agriculture/horticulture;
- ▶ that banned and/or inferior quality agro-chemicals available on the Lebanese market will continue to be limited and ultimately reduced by more effective application of border regulations and control.

## 4.2.2 Intervention Area 2: Market access

### Vision

Long-term producer confidence, investment and diversification will be driven by the development and accessibility of a greater diversity of market outlets and opportunities. A more dynamic and dependable vegetable-processing sector will help bring greater predictability to the wholesale market and trade in vegetables and provide a driver in reducing price instability. The processing sector and potential investors in it need encouragement to establish more consistent and formal buying and contracting models with wholesalers and/or producers to stimulate greater demand for and reliance on the domestic vegetable supply chain.

### Strategy

Three interventions will seek to realise this vision.

#### 1. Support to sales channel diversification in the vegetable product market.

In order to reduce the sectors' reliance on the volatile fresh market, current and new processing businesses and entrepreneurs require encouragement to expand product ranges and their use of domestic supplies. Support is needed for processors to develop strategies to exploit the growing demand for processed products nationally and regionally, as well as to target the substitution of specific imports for local products and production. More formal and recurrent contracting models between processors and wholesalers or large farmers will be critical, and both processors and their suppliers will be supported to establish more reliable and resilient relationships as a foundation for growing the processing sector.<sup>39</sup>

#### 2. Support to strengthen coordination in the vegetable market.<sup>40</sup>

Linked to efforts to support diversification is the need to strengthen organization and coordination in the value chain, and in the trading and wholesale segment in particular. While the appetite for greater collaboration between interest groups within the value chain remains unclear, the continued absence of dialogue and a shared vision for the sector hampers investment and the development of a more competitive industry as a whole. Further exploration and support to industry dialogue and organization will seek to mitigate and address the fragmented nature of the trade and wholesale market and to increase the level of coordination between multiple suppliers into both the fresh and processed markets. Mechanisms for improved policy discourse and collaboration between key stakeholders will seek to identify and exploit potential or emerging opportunities for re-opening access to important regional fresh markets as well as the needs of a growing, more diversified processing sector.

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<sup>39</sup> On the other hand, the contracting models between wholesalers and farmers will have to change to alleviate farmer's risk and give sufficient market confidence for them to make farm investments; see intervention area 3, "value chain linkages".

<sup>40</sup> This intervention still needs further analysis to determine how coordination could take place and who would "own" such a mechanism.

### 3. Support to improve market information flows

Improving market information flows is critical both to reinforce coordination efforts but also to better inform producers and enable them to respond in a more timely and effective manner to market needs. The emphasis will need to be on seasonal trends and predictions, working with key buyers (for example exporters, supermarkets, distributor), wholesalers and farmers or farmer groups to support greater analysis and prediction of market trends and forward planning. Greater information flow, likely through wholesaler operators, will be supported in conjunction with working with producers to make more informed seasonal decisions as to product and variety planting choices.

#### **Risks and assumptions**

This intervention area is impacted by the following assumptions and risks, among others:

- ▶ that the current economic downturn neither reverses the growing demand for processed foods nor prevents long-term investment in the vegetable processing sector in Lebanon;
- ▶ that processors do not face disproportionate cost disadvantages (such as sourcing costs) which would render their product uncompetitive and hence hinder growth;
- ▶ that the relationships throughout the value chain are solid enough to adapt to shifting incentives over time.

## **4.2.3 Intervention Area 3: Value chain linkages**

#### **Vision**

The prevailing business model among vegetable wholesalers becomes more transparent, and the risk profile is increasingly shared more evenly between producers, traders and buyers. Fixed price and supply contracts with farmers will become progressively more common for a variety of products entering both the fresh and processed markets. Producers, wholesalers and buyers will benefit from and thus honour more formal trade agreements and actively seek more reliable, trust-based arrangements and linkages with upstream and downstream partners.

#### **Strategy**

The primary focus of intervention will be on piloting, testing and refining more structured contracting models between producers and wholesalers. Support will be provided to initial partners to assess and understand the benefits of prevailing contract-based arrangements (for example potatoes) to inform testing of alternative contracting arrangements for other vegetable products and different wholesale models.

#### **Risks and assumptions**

The key assumptions and risks affecting this intervention area include the following:

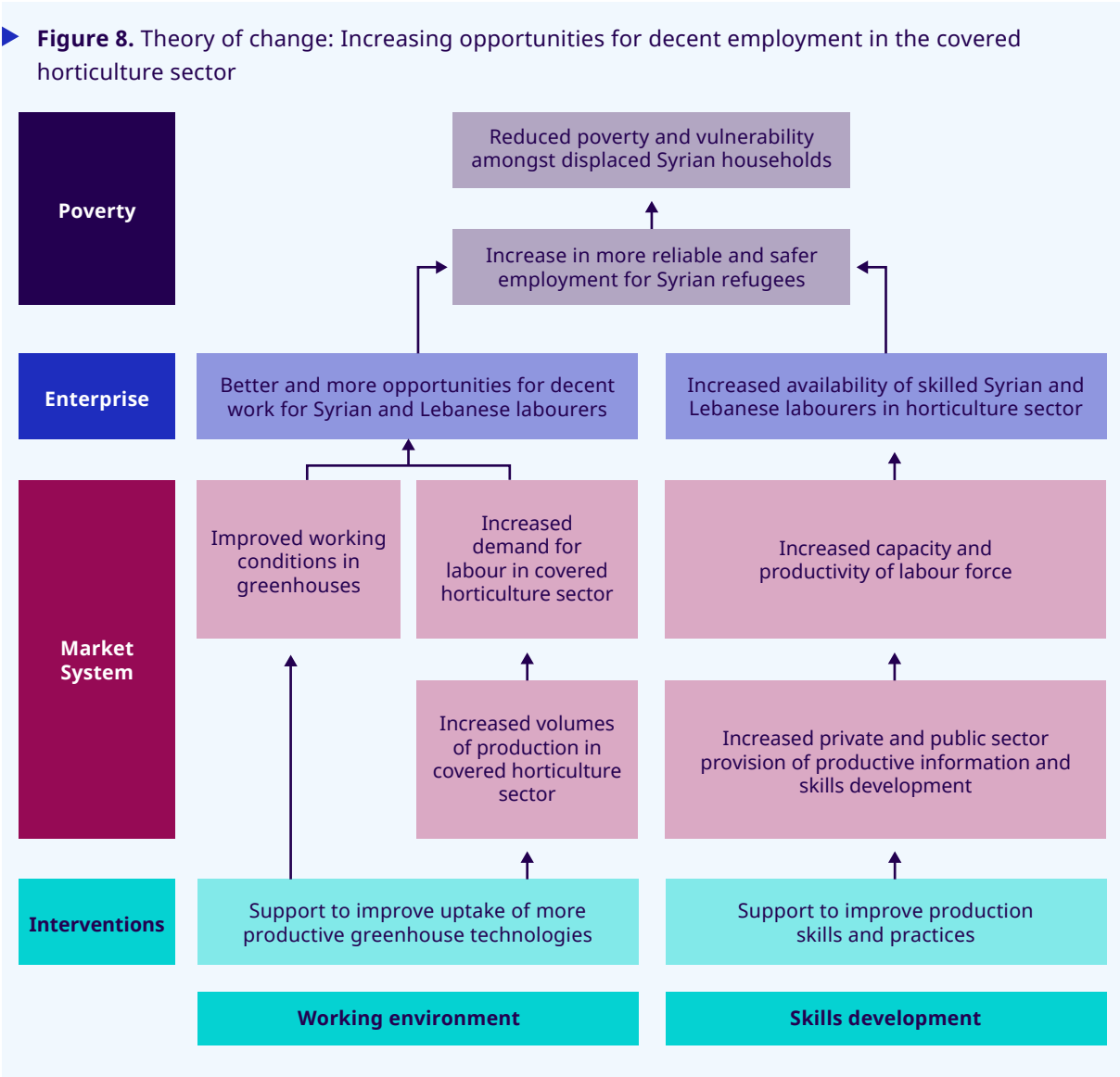
- ▶ that the financial incentives for more contract-based relationships are tangible, and that part of them can be realized by each party (buyers, wholesalers, producers);
- ▶ that each party is incentivized enough to adhere to the contract in the absence of realistic enforcement mechanisms;
- ▶ that wholesalers are willing and able to pass on more consistent buying and pricing options to producers;
- ▶ that buyers are increasing their sourcing for fresh vegetables as a sign of domestic and/or external demand for Lebanese vegetable growing.

### 4.3 Improving employment opportunities for Syrian refugees in the greenhouse sector

If the horticulture sector is to continue to grow to be inclusive of decent employment opportunities for Syrian labourers and their families in both the short and longer term, then two immediate challenges will need to be addressed:

- ▶ the improvement of prevailing working conditions within the current greenhouse sector;<sup>41</sup>
- ▶ the up-skilling of greenhouse workers to accommodate improved greenhouse production practices while in Lebanon and as or when the opportunity arises to return to economic employment in Syria.

Figure 8 describes the theory of change underpinning these proposed intervention areas, and the remainder of the section details further the rationale for intervention.



<sup>41</sup> Interventions in the labour market will need to be closely coordinated with wider residency and employment policy, regulation and enforcement impacting foreign workers and in which the ILO as an agency is already heavily involved.

### 4.3.1 Intervention Area 4: Working environment

#### Vision

Improved greenhouse technologies and pesticide utilization provide for a more comfortable, safer and productive working environment for the women and men working in them. Improved technologies will target improved ventilation and climate control functionality, both of which are critical to the control of temperature and humidity conditions in the greenhouses. Better and safer utilization of pesticides will help to mitigate health risks and related absences. Greenhouse owners will recognize the importance of improved working conditions for employee comfort, health and well-being and, importantly, for resultant outputs and productivity.

#### Strategy

This intervention links directly to efforts to increase the uptake of new greenhouse technologies and better pesticide utilization under Intervention Area 1 above. A key objective will be to work with suppliers and potential buyers to prioritize ventilation and climate control innovations among new technology options, as well as the better use of pesticides in order to improve working conditions and productivity. Support will include the assessment of technology, pesticides and health and safety options<sup>42</sup> and building awareness among producers and farm-owners of the long-term economic benefits of improving working conditions. If low-tech alternatives for climate control and management are available, options for scaling uptake of these will be considered, alongside investment in new greenhouse designs and technologies.

#### Risks and assumptions

The main assumptions associated with this intervention are:

- ▶ that improved labour conditions increase labour productivity;
- ▶ that the combined crop growth and labour-related productivity benefits of improved greenhouse technologies can be evidenced to outweigh the additional investment and running costs;
- ▶ that increased greenhouse production volumes require more full-time labourers.

### 4.3.2 Intervention Area 5: Skills development

#### Vision

Input providers, including suppliers of greenhouse technologies and agro-chemicals, will provide enhanced, embedded training and information services as part of more sophisticated marketing and post-sales business strategies. These services will explicitly target Syrian labourers alongside greenhouse owners to improve product application and effectiveness, and to provide a driver of improved sales and customer loyalty. Better informed and trained workers will secure greater productivity and commercial returns as a result of improved input utilization, as well as better health and safety standards.

#### Strategy

Support will be provided to key technology and input suppliers to enhance information and extension messaging and information flows, as well as post-sales support and training where appropriate. Trials will be carried out of models that seek to target more directly Syrian labourers (most of whom are women) in greenhouses and whose upskilling will have most immediate and substantive impact on productivity improvements.

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<sup>42</sup> Through the criteria of cost benefit and improved working conditions.



## **Risks and assumptions**

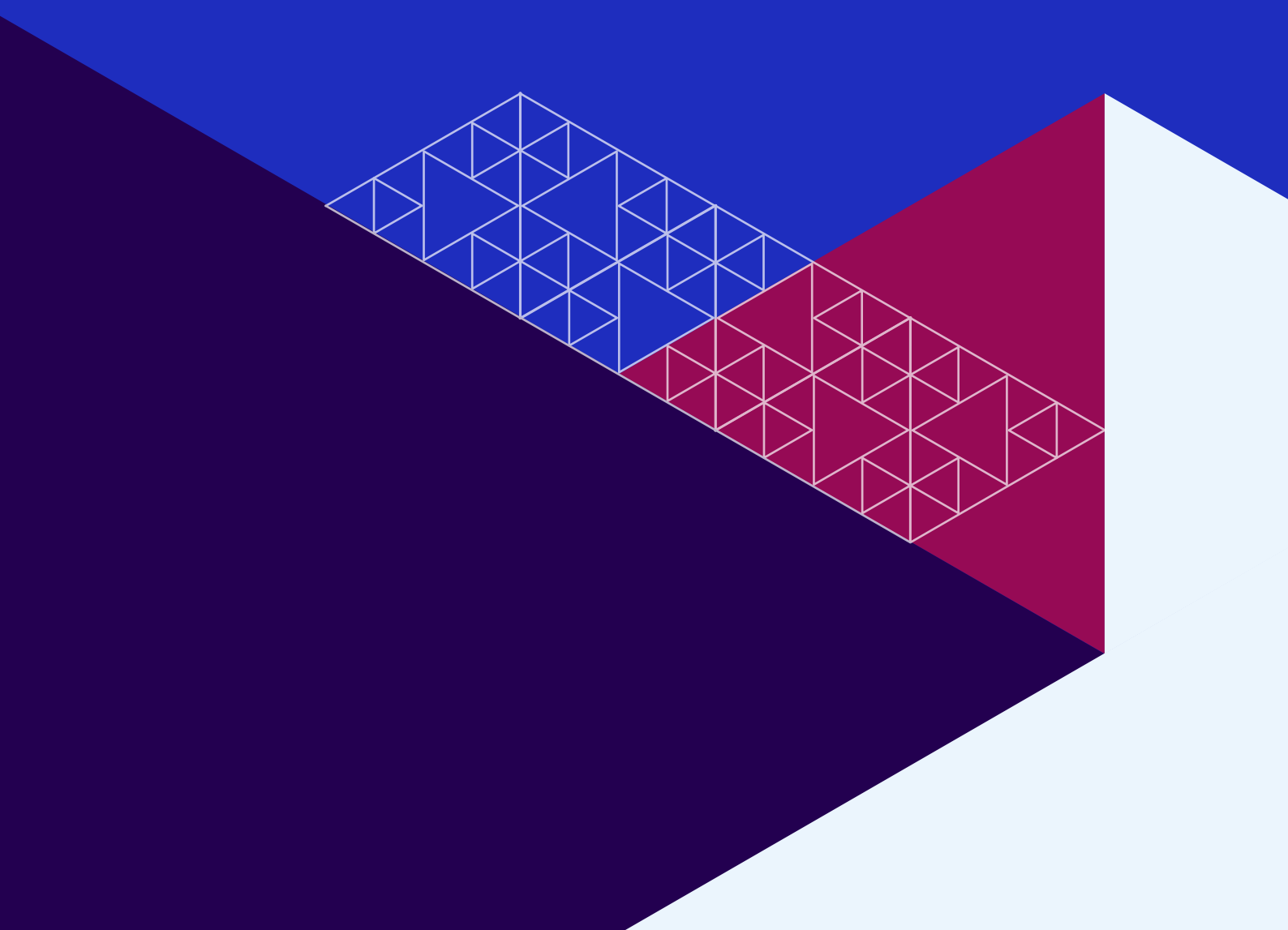
This intervention includes the following primary assumptions and associated risks:

- ▶ that input suppliers are willing and able to improve extension and training services as part of their business strategies;
- ▶ that Syrian labourers (particularly women) are accessible for extension and training service provision;
- ▶ that upon their return to their home country, Syrian refugees working in the horticulture sector in Lebanon are willing and able to apply the skills learned in their livelihood portfolios.

# 05

## ▶ Next Steps

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This report provides a proposed scope and strategic outline for the ILO's proposed market systems programme in support of livelihoods amongst rural Lebanese and Syrian refugee communities in the Bekaa and Akkar regions. The document aims to provide the ILO with a point of departure to secure funder support for its overall strategy and to provide the basis for detailed partnership development and intervention planning. In particular, the next steps to progress the initiative will be:

1. to secure consensus among key programme decision-makers on the proposed scope and direction of travel set out in this document, including agreeing the resource envelope and implementation model to be considered in light of the scope and ambition for the programme;
2. undertaking a detailed intervention planning exercise consisting of:
  - ▶ verifying assumptions and addressing any critical information gaps
  - ▶ confirming and procuring the preferred implementation model
  - ▶ identifying potential partners and probing for feasibility of the intervention strategies
  - ▶ selecting the most pertinent partners with whom to work on the various interventions outlined
  - ▶ planning and budgeting for detailed intervention activities in conjunction with partner negotiations, including development operational processes and establishing monitoring and results measurement indicators and protocol;
3. map and coordinate intervention areas and activities with other implementing partners as and where possible.

## Annex 1 – Background for Relevance and Opportunity for Greenhouse Horticulture

### Relevance

Agriculture remains a major source of livelihoods, particularly in rural areas, in the otherwise service-orientated economy. Of the 169,512 agricultural holdings in 2010, 9 per cent are headed by women. Akkar, Bekaa and Baalbek-Hermel account for 37 per cent of holdings.<sup>43</sup> The majority (55 per cent) are small farms with less than 1 hectare (10 dunum) followed by medium size farms (37.5 per cent) with 1 to 6 ha. Most of the large farms (>6 ha) are found in Baalbek-Hermel and Bekaa. Most farms are growing vegetables, resulting in vegetables making up 63 per cent of total agriculture production in Lebanon.<sup>44</sup> Greenhouses make up 1.6 per cent<sup>45</sup> of the agricultural land (3801 ha) and are mainly located in Akkar (1574 ha) followed by the South, Mount Lebanon, North (477ha), Baalbek-Hermel (293ha) and Bekaa (83ha).<sup>46</sup>

Approximately 20 to 25 per cent of the active Lebanese population is involved in agriculture on a full or part-time basis. Seasonal family labour accounted for 239,007 people in 2010.<sup>47</sup> The poorest households<sup>48</sup> rely heavily on agriculture for income and employment, whereas other farming households usually depend on non-agricultural income to make ends meet.<sup>49</sup>

Agriculture relies heavily on hired labour outside the family. Despite the lack of new data, the FAO<sup>50</sup> estimates that there are nearly 20,000 permanent jobs and more than 9.5 million days of seasonal labour.<sup>51</sup> Most of the seasonal labourers are and have historically been Syrians,<sup>52</sup> particularly women (51 per cent versus 45 per cent men). The Bekaa seems to rely more than any other region on hired seasonal labour outside the family.<sup>53</sup> In the Bekaa, almost 20 per cent of small and medium farms rely on migrant workers as fixed labourers with two to five workers per farm, and nearly 40 per cent of large, commercial farms hire fixed migrant workers with up to ten workers per farm. In the North, only 7 per cent of farms employ in average two to three fixed workers.<sup>54</sup>

Farmers with greenhouses usually have a certain number of longer-term employees per greenhouse, as the plants in greenhouses demand more regular maintenance. The working conditions in greenhouses are arduous and potentially hazardous: lifting heavy weights, working in uncomfortable positions

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43 Akkar 28,120; Bekaa 12,515; Baalbek-Hermel 21,569: total 62,204.

44 Potatoes are the main produce (25 per cent of the total production) followed by tomatoes (20 per cent), cucumber (11 per cent) and other vegetables (7 per cent). Fruit constitutes 31 per cent of agriculture production in Lebanon. IDAL. 2017. Agriculture Factbook.

45 This would translate as roughly 187,590 greenhouses in 2010 (62,280,000 m<sup>2</sup>332/ m<sup>2</sup> per greenhouse).

46 MOA. 2010. Agriculture in Lebanon Facts and Figures. Core Module of Census of Agriculture 2010 – Main results.

47 Ministry of Agriculture. 2010. Main Results of the Core Module of the Census of Agriculture 2010. <https://data2.unhcr.org/en/documents/details/44733>.

48 More than 20 per cent of households engaged in the agriculture sector are highly vulnerable.

49 <http://www.fao.org/lebanon/fao-in-lebanon/lebanon-at-a-glance/en/>. FAO. 2014, Impact of Syrian Crisis on Agriculture Food Security and Livelihoods.

50 FAO, unpublished statistics from 2016.

51 150 person days per year is equivalent of 1 permanent worker.

52 Seasonal workers: Syrians 88 per cent; others (mainly Palestinians, Egyptians and Bangladeshi) 8 per cent, and Lebanese 4 per cent (1.3 per cent men, 1.8 per cent women). Permanent workers: Lebanese 21.5 per cent (18.4 per cent men, 2.5 per cent women), Syrians 75 per cent (33 per cent women, 42 per cent men), others (mainly Palestinians, Egyptians and Bangladeshi) 3.5 per cent. At the end of 2019, UNHCR counted 914,648 refugees with about a third living in the districts of Zahle, Baalbek and Akkar, <https://data2.unhcr.org/en/documents/download/73287>.

53 Ministry of Agriculture. 2010. Main Results of the Core Module of the Census of Agriculture 2010. <https://data2.unhcr.org/en/documents/details/44733>.

54 Danish Refugee Council, Department for International Development, Oxfam, International Rescue Committee, Save the Children, 2013, Emergency Market Mapping and Analysis (EMMA) of the Agricultural Labor Market System in North and Bekaa, Lebanon, p. 15.

often in high temperatures with little ventilation, or being exposed to pests, plant materials and plant protection products.

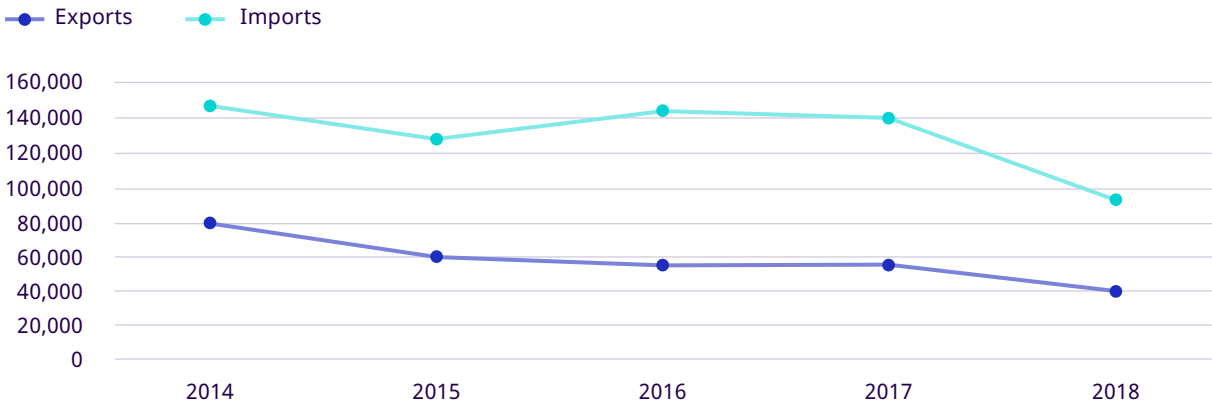
**Opportunity**

**Economic contribution.** Agriculture contributes about 5 per cent of the national GDP, although in poorer regions such as Akkar, Bekaa and Baalbek-Hermel, agriculture-related activity accounts for as much as 80 per cent of the local GDP. The agri-food industry accounts for another 5 per cent<sup>55</sup> of the GDP.

**Export/Import.** Agriculture exports constitute 24 per cent of total Lebanese exports, of which vegetables contributed 20.4 per cent or 277,336 tons<sup>56</sup> in 2018. Potatoes accounted for the highest share of vegetable exports, with 37 per cent of the total in 2018, followed by lettuce (23 per cent) and dried leguminous vegetables (18 per cent). Lebanon mainly exports to countries in the region, particularly the United Arab Emirates, Saudi Arabia, Syria, Oman and Turkey. Potatoes and lettuce or chicory make up 60 per cent of the vegetable exports, followed by dried leguminous vegetables (18 per cent), other fresh, chilled, frozen or cooked vegetables (13 per cent), alliaceous vegetables – onions, garlic and so on (2.2 per cent), tomatoes (1.9 per cent) and cucumber (1 per cent).<sup>57</sup>

In recent years, both exports and imports of fresh vegetables have decreased, but Lebanon remains a net importer.<sup>58</sup> In the same period, the consumer price index for food and non-alcoholic beverages increased by 44 per cent.<sup>59</sup> Despite lower production volumes, this indicates that there is scope to substitute vegetable imports at least for certain products.

**Lebanon imports and exports for edible vegetables, roots and tubers, in USD**



Source: ITC Trade Map <https://www.trademap.org/Index.aspx>

55 <http://www.fao.org/lebanon/fao-in-lebanon/lebanon-at-a-glance/en/>.

56 [https://investinlebanon.gov.lb/en/export/agriculture\\_and\\_livestock/agri\\_plus\\_reports](https://investinlebanon.gov.lb/en/export/agriculture_and_livestock/agri_plus_reports).

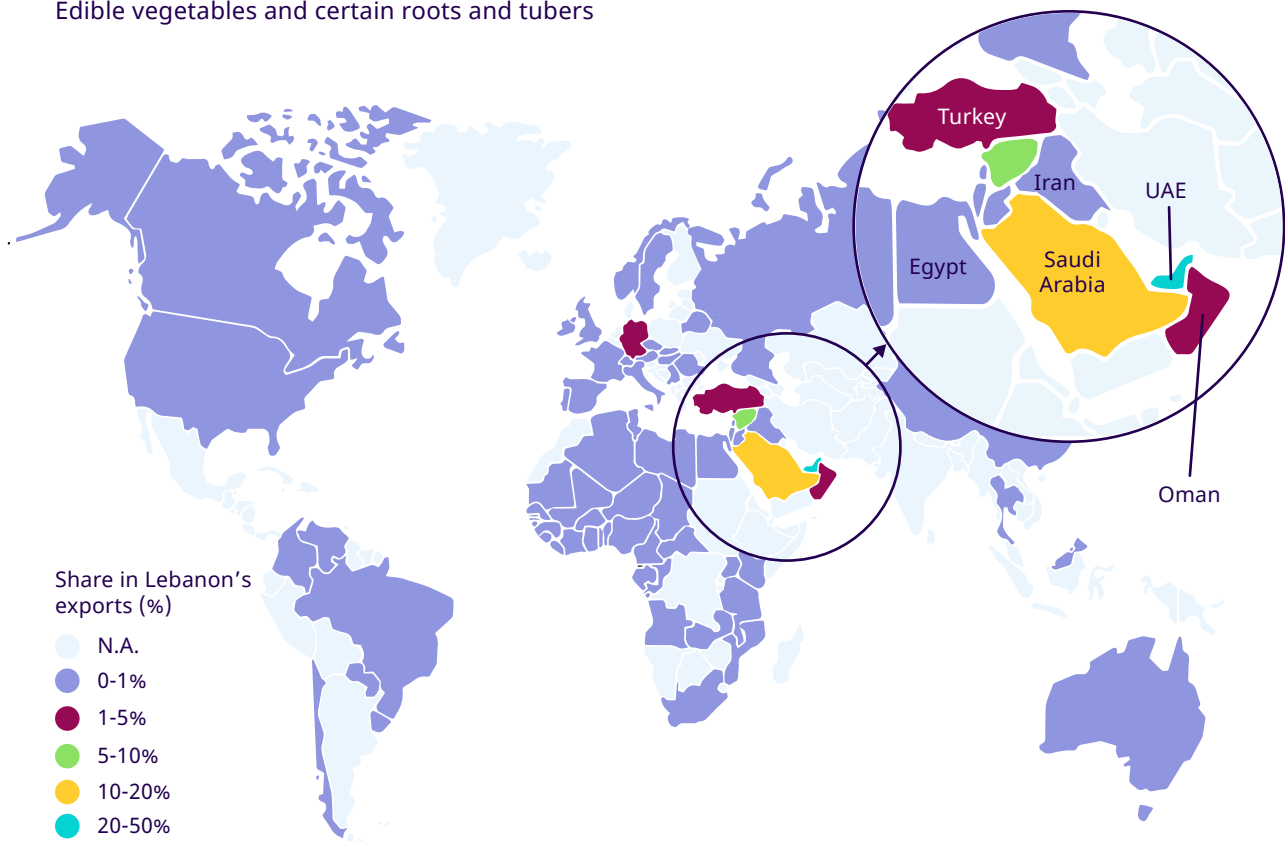
57 ITC Trade Map website, Lebanon vegetable exports 2018

58 Main importers are Egypt, EU (particularly Netherlands), China, Canada, Syria, USA, Mexico (in order). Source: ITC Trade Map website

59 Central Administration of Statistics Lebanon, <http://www.cas.gov.lb/index.php/economic-statistics-en?layout=edit&id=185>.

## List of importing markets for a product exported to Lebanon in 2018

Edible vegetables and certain roots and tubers



Source: ITC Trade Map <https://www.trademap.org/Index.aspx>

**Agricultural land.** An area of 332,000 ha is classified as agriculture land<sup>60</sup>. Nearly 70 per cent of it is used, and half is irrigated.<sup>61</sup> The Bekaa is the major region for agriculture production, with 40 per cent of the cultivated land, followed by Akkar and the Koura district. There are indications that agriculture land in general is diminishing because of population growth, a move away from agriculture production and repurposing of inherited land for living.<sup>62</sup> Furthermore, a shift of agriculture land towards potato production (+6,000 ha) was observed until 2014. This was mostly absorbed by diminished land allocation to other vegetable production.<sup>63</sup> Land availability and allocation is likely to have an impact on employment and income opportunities in communities as well as the availability and diversity of agriculture produce in the long run.

<sup>60</sup> Lebanon land area: 10,282 km<sup>2</sup>; 1 km<sup>2</sup> = 100 hectares.

<sup>61</sup> FAO. 2014. The Impact of the Syria Crisis on Agriculture, Food Security and Livelihoods in Lebanon. FAO Lebanon.

<sup>62</sup> However, there is a lack of updated data which could support this perception with quantitative data.

<sup>63</sup> Ruijs M. 2017, Value chain analysis of (greenhouse) vegetables in Lebanon, Wageningen: Wageningen Economic Research. Again, owing to a lack of newer quantitative data, the latest trends in agriculture land use cannot be triangulated.

## Production area of vegetables in Lebanon, 2010-2014

KPIs					
Area vegetables (ha)	2010	2011	2012	2013	2014
Chillies and peppers, green	809	705	417	428	422
Cucumbers and gherkins	4,175	3,461	3,066	3,137	3,124
Eggplants (aubergines)	2,072	1,557	1,043	1,005	958
Lettuce and chicory	2,592	2,700	1,392	1,391	1,417
Tomatoes	4,383	3,601	3,535	3,460	3,399
Potatoes	11,131	11,500	12,000	15,800	17,352

Source: FAO, 2017 in Ruijs, Marc, 2017. Value chain analysis of (greenhouse) vegetables in Lebanon; Strengthening Lebanese Water and Agriculture Sector; Component 5: Adaptive greenhouse; Work package. Wageningen, Wageningen Economic Research, Memorandum 2017-102. 28 pp.; 8 fig.; 4 tab.; 8 ref.

**Covered horticulture.** Greenhouses, as a particular form of horticulture production, make up 1.6 per cent of the agriculture land (3801 ha). Most of these are located in Akkar (1574 ha) followed by the South, Mount Lebanon, North (477 ha), Baalbek-Hermel (293 ha) and Bekaa (83 ha).<sup>64</sup> Most are traditional plastic single tunnels, although there was a trend in the South to shift towards multi-tunnels. According to greenhouse suppliers, the areas have been increased particularly in the North at a rate of 5 per cent per annum.<sup>65</sup> In the Bekaa, suppliers also confirmed that sales increased over time. However, with the accelerating economic crisis and less donor support for greenhouse investments, the demand has sharply declined over the last two years.

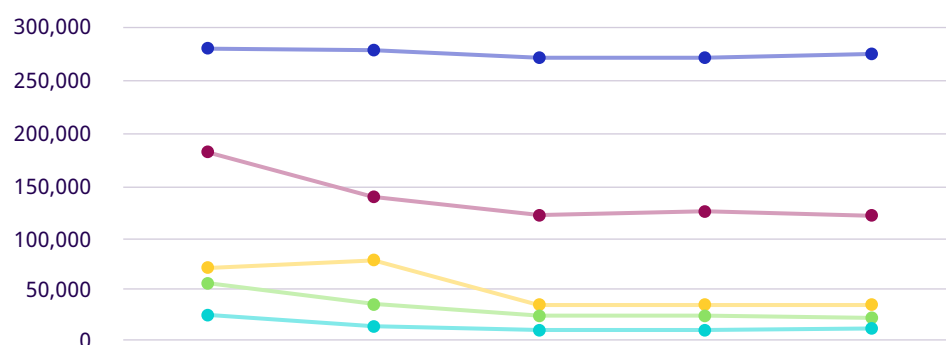
**Productivity.** Despite older and conflicting data, it is safe to say that production volumes have followed land allocation patterns. Potato production increased significantly while tomato production remained relatively constant, indicating efficiency increases. All other vegetables experienced significant decreases in volume.

The vegetable production sector remains highly competitive, with many farmers producing the same vegetables and varieties at the same time. There is little quality differentiation among producers, and the remuneration for better grades is marginal.

<sup>64</sup> MOA, 2010. Agriculture in Lebanon Facts and Figures. Core Module of Census of Agriculture 2010 – Main results.

<sup>65</sup> Ruijs, Marc, 2017. Value chain analysis of (greenhouse) vegetables in Lebanon; Strengthening Lebanese Water and Agriculture Sector; Component 5: Adaptive greenhouse; Work package. Wageningen, Wageningen Economic Research, Memorandum 201728 .102- pp.; 8 fig.; 4 tab.; 8 ref.

### Vegetable production volumes 2010-2014



	2010	2011	2012	2013	2014
Chillies and peppers, green	26,389	23,440	14,728	15,781	16,185
Cucumbers and gherkins	183,224	146,764	128,272	130,837	16,185
Eggplants (aubergines)	54,975	41,218	27,164	26,317	129,861
Lettuce and chicory	70,629	73,635	36,527	36,784	37,709
Tomatoes	281,117	279,942	274,028	273,766	274,372

Source: Ruijis, M. 2017

**Investments.** The Investment Development Authority of Lebanon has been promoting investment opportunities since 1994. Their support is broad-ranging, from providing relevant investment, sector and legal information, granting fiscal exemptions and other financial incentives, to facilitating permits and licences. They are targeting rather larger investments with specific sector and zone or employment creation targets to be eligible to receive support.

Up to date, the agro-industry sector has attracted 24 per cent of all investments supported by IDAL<sup>66</sup> because of its relatively high return on investment and an increasing demand for Lebanese food products and cuisine. Lebanon and the agro-industry have also benefited from Syria's reduced industrial capacity and have been able to grab much of their market. IDAL's facilitated greenfield investments have mainly focused on wine and alcoholic beverages, olive oil, canned foods (vegetables, beans) and nuts.<sup>67</sup> On the other hand, agriculture investments have been sluggish owing to the slow return on investments and the sector's traditional mindset; farm businesses suffer from inefficient production practices and remain reluctant to diversify and modernize.<sup>68</sup> Nonetheless, market pressures have led a few, more commercially orientated farmers to innovate and invest, for example in greenhouses.

Meanwhile, Lebanon received \$2,880 million in foreign direct investments, amounting to more than 5 per cent of the country's GDP, in 2018. The investments increased by 14.2 per cent in a year and originated mainly from the United States, the UK, France, the UAE and India. More than 70 per cent of these investments have flowed into real estate acquisitions, whereas productive sectors such as agriculture and industry continue to attract minimal FDIs, only 7 per cent and 5 per cent respectively.<sup>69</sup> Greenfield projects accounted for only 5.6 per cent and re-invested earnings for 1.7 per cent.<sup>70</sup>

66 Through their Agri Plus and other programmes.

67 Mount Lebanon and Bekaa remain the preferred regions for investments owing to their proximity to agriculture production. Agro-food investments are also the second-largest direct job creator (with more than 1,850 jobs created over the last 15 years) and create about five indirect jobs for each direct job.

68 One of the only agriculture investments supported by IDAL was from a retailer looking for vertical integration into agriculture production to secure inputs. Interview with IDAL.

69 <https://investinlebanon.gov.lb/Content/uploads/Publication/190404104112385-IDAL20%-20%Investment20%Opportunities20%in20%Lebanon202019%-20%.pdf>.

70 IDAL. 2018. Exploring Untapped Potential. Annual Report 2018. <https://investinlebanon.gov.lb/Content/uploads/Publication/191014042313250-Annual20%Report202018%.pdf>.