



Food and Agriculture  
Organization of the  
United Nations



European Union



## FOOD SYSTEMS PROFILE - **LEBANON**

Catalysing the sustainable and inclusive  
transformation of food systems



Lebanon



# **FOOD SYSTEMS PROFILE - LEBANON**

Catalysing the sustainable and inclusive transformation of food systems

Published by  
the Food and Agriculture Organization of the United Nations  
and  
the French Agricultural Research Centre for International Development  
and  
the European Union  
Rome, Montpellier and Brussels, 2022

Required citation:

**FAO, European Union and CIRAD. 2022.** *Food Systems Profile – Lebanon. Catalysing the sustainable and inclusive transformation of food systems.* Rome, Brussels and Montpellier, France. <https://doi.org/10.4060/cb9543en>

The designations employed and the presentation of material in this information product do not imply the expression of any opinion whatsoever on the part of the Food and Agriculture Organization of the United Nations (FAO), the French Agricultural Research Centre for International Development (CIRAD) or the European Union (EU) concerning the legal or development status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. The mention of specific companies or products of manufacturers, whether or not these have been patented, does not imply that these have been endorsed or recommended by CIRAD, FAO or EU in preference to others of a similar nature that are not mentioned. The views expressed in this information product are those of the author(s) and do not necessarily reflect the views or policies of CIRAD, FAO or EU.

**ISBN: 978-92-5-136069-9**

© FAO, 2022



Some rights reserved. This work is made available under the Creative Commons Attribution-NonCommercial-ShareAlike 3.0 IGO licence (CC BY-NC-SA 3.0 IGO; <https://creativecommons.org/licenses/by-nc-sa/3.0/igo/legalcode>).

Under the terms of this licence, this work may be copied, redistributed and adapted for non-commercial purposes, provided that the work is appropriately cited. In any use of this work, there should be no suggestion that FAO endorses any specific organization, products or services. The use of the FAO logo is not permitted. If the work is adapted, then it must be licensed under the same or equivalent Creative Commons licence. If a translation of this work is created, it must include the following disclaimer along with the required citation: "This translation was not created by the Food and Agriculture Organization of the United Nations (FAO). FAO is not responsible for the content or accuracy of this translation. The original [English] edition shall be the authoritative edition."

Disputes arising under the licence that cannot be settled amicably will be resolved by mediation and arbitration as described in Article 8 of the licence except as otherwise provided herein. The applicable mediation rules will be the mediation rules of the World Intellectual Property Organization <http://www.wipo.int/amc/en/mediation/rules> and any arbitration will be conducted in accordance with the Arbitration Rules of the United Nations Commission on International Trade Law (UNCITRAL).

**Third-party materials.** Users wishing to reuse material from this work that is attributed to a third party, such as tables, figures or images, are responsible for determining whether permission is needed for that reuse and for obtaining permission from the copyright holder. The risk of claims resulting from infringement of any third-party-owned component in the work rests solely with the user.

**Sales, rights and licensing.** FAO information products are available on the FAO website ([www.fao.org/publications](http://www.fao.org/publications)) and can be purchased through [publications-sales@fao.org](mailto:publications-sales@fao.org). Requests for commercial use should be submitted via: [www.fao.org/contact-us/licence-request](http://www.fao.org/contact-us/licence-request). Queries regarding rights and licensing should be submitted to: [copyright@fao.org](mailto:copyright@fao.org).



---

# FOOD SYSTEMS PROFILE LEBANON

---

## Key messages

Lebanon is a small country (10 452 km<sup>2</sup>) with a resident population that is largely urban (89 percent) and growing significantly – especially, due to an influx of refugees. The Lebanese economy is characterized by its **rentier model** (i.e. it derives a substantial portion of its national revenue from rent paid by foreign individuals, concerns, or governments on non-productive assets), resulting in **significant inequalities and a concentration of wealth and revenue**. The **agriculture sector contributes approximately 3 percent of the country's gross domestic product (GDP)** (World Bank, 2020.) and the **agrifood industry makes up 2.9 percent of the economy**. However, despite its relatively small contribution to the overall economy, agriculture plays an important role, particularly in peripheral rural areas, such as the Beqaa Valley and Akkar – in terms of **income generation** and in helping local communities **cope with the impacts of crises and shocks**.

The food system in Lebanon has long faced a myriad of challenges derived from the country's historic, economic, political, and social context:

- cultivated lands in Lebanon cover less than **25 percent of the country's surface** and there are approximately 170 000 farm holdings, of which 25 percent of their production is primarily for subsistence;
- land ownership is characterized by **substantial inequality and fragmentation**; 1 percent of landowners control approximately a quarter of total agricultural land surface, while 10 percent control around two-thirds of the agricultural land;
- **informal labour accounts for a significant proportion** of workers within the food sector;
- **heavily on imported inputs, seeds, materials, and equipment**, resulting in high production costs for agriculture and the agrifood industry, which significantly affects the food system;
- additionally, such imports are **dominated by an oligopolistic structure**, which benefits only a few actors;
- also, highly dependent on imports for consumption: approximately 80 percent of calories consumed are imported; and
- local production (excluding exports) is **insufficient to meet the country's food needs**.

The situation is exacerbated by many ongoing dynamics, which pose further significant challenges:

- **food safety regulations are inadequate**;



- **high use of pesticides, absence of adequate testing labs or testing procedures, and limited distribution channels** restrict exports and undermine food safety;
- **inadequate, inefficient, and unsustainable land use and management practices**, and water resource management is adversely affecting the sustainability of the food system, which, in turn, is **increasing the country's vulnerability to climate change**; and.
- **lack of coordination among public (and non-public too) actors** enables some food producers, distributors, and importers to act with impunity, taking advantage of the situation to supply non-safe foods.

The **multi-faceted crisis that started in 2019** (economic, financial, political, and health) has aggravated the situation in two ways: on the demand side, the drastic decrease in consumer purchasing power has limited access to food (increased poverty due to currency devaluation and hyperinflation), while on the supply side, the rise in production costs and imported inputs has limited production capacity.

The changes required to work towards achieving a sustainable and inclusive transformation of the Lebanese food system require **strong collaboration among various actors within that system**, along with **effective leadership from related governmental institutions**. In addition, in-depth **political, economic, and institutional reforms are needed** for Lebanon to emerge from the current quasi-total collapse of the post-civil war economic system (1992—2019).

Highlighted in this report are several entry points required for a transformative food system through better monitoring of food security and nutrition outcomes, improving smallholder farmers' investment capacities, use of sustainable agriculture practices, and strengthening cooperatives. These entry points are in line with the current National Agriculture Strategy (2020) and National Nutrition Strategy (2021). Also highlighted in the report is the need for a territorial development strategy and a national action plan for environmental recovery to strengthen the resilience of the food system.





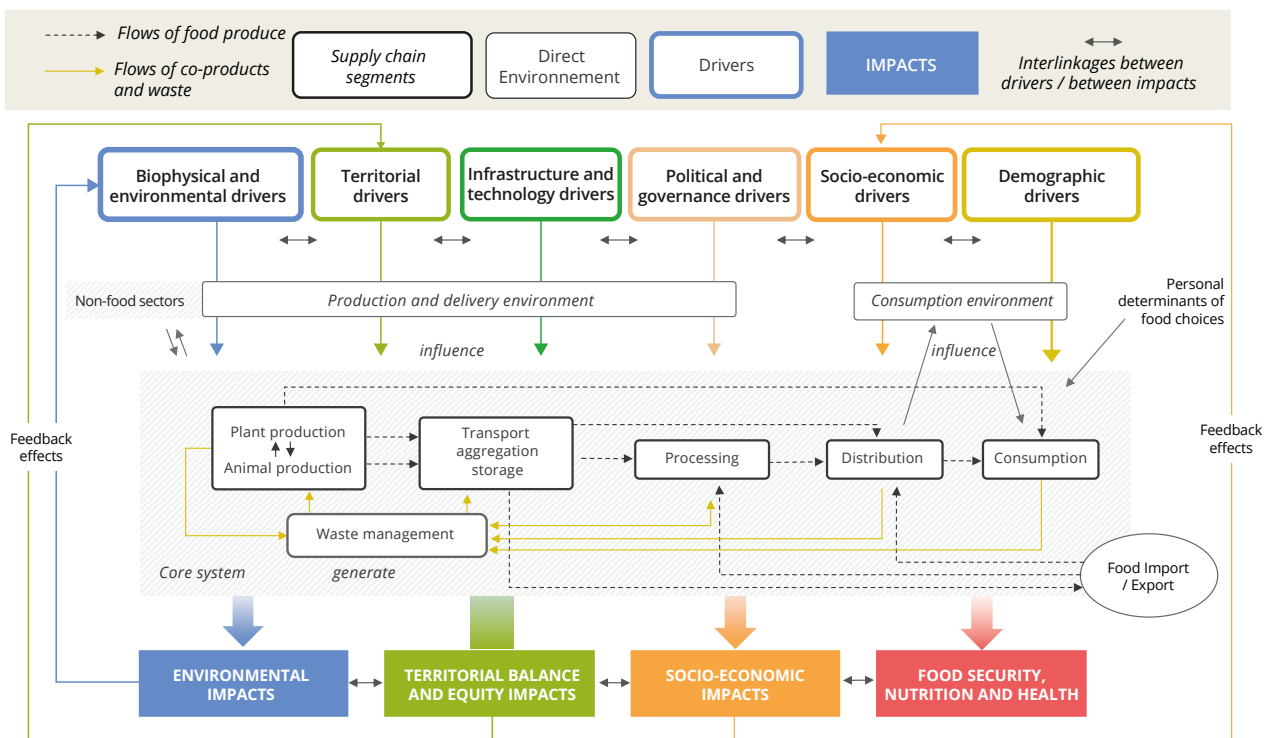
## Methodology and process

This brief is the result of a collaboration between the Food and Agriculture Organization of the United Nations (FAO) and the European Union, supported by the Consultation and Research Institute (CRI) in Lebanon, in close consultation with national and international experts. It was implemented in Lebanon from July to September 2021. The methodology used for the assessment was developed under a global initiative of the European Union, FAO, and CIRAD to **support the sustainable and inclusive transformation of food systems**. This assessment methodology is described in detail in the joint publication entitled *Catalysing the sustainable and inclusive transformation of food systems: conceptual framework and method for national and territorial assessment* (David-Benz et al., 2022).

The assessment integrates qualitative and

quantitative data analysis with participatory processes by mobilizing public, private and civil society stakeholders. The overall approach includes interviews with key stakeholders and a consultation workshop to refine the systemic understanding of the food system and discuss potential levers to improve its sustainability. The assessment process thus initiates participatory analysis and stakeholder discussion on the strategic opportunities and constraints to the sustainable transformation of food systems. The approach assesses the actors and their activities at the core of the system, together with their interactions along the food chain as well as the environments directly influencing their behaviour. Conditioned by long-term drivers, these actors generate impacts in different dimensions, which, in turn, influence drivers through several feedback loops (see Figure 1).

Figure 1. Analytical representation of the food system



Source: *Catalysing the sustainable and inclusive transformation of food systems: conceptual framework and method for national and territorial assessment*. (David-Benz et al., 2022).



The approach involves a detailed understanding of the key challenges along the four dimensions of sustainable and inclusive food systems: (i) food security, nutrition, and health; (ii) inclusive economic growth, jobs, and livelihoods; (iii) sustainable natural resource use and environment; and (iv) territorial balance and equity. Aimed at identifying critical issues affecting the sustainability and inclusivity of food systems, the assessment is qualitative and quantitative. Critical challenges and key food systems dynamics are specified in the form of **Key Sustainability Questions (KSQs)**, whose answers (see schematic representations for all KSQs) help identify **systemic levers** and areas of action that are essential to bringing about desired transformations in food systems.

This approach is designed as a preliminary rapid assessment for food systems and can be implemented over 8–12 weeks. The methodology has been applied in more than 50 countries as a first step to support the transition towards sustainable food systems.

This approach is designed as a preliminary rapid assessment for food systems and can be implemented over a period of 8–12 weeks. The methodology has been applied in more than 50 countries as a first step to support the transition towards sustainable food systems.

In the case of Lebanon, due to the exceptional context in the country (COVID-19 constraints,

fuel and electricity shortages, economic and political crises, etc.), the assessment approach drew above all on a series of individual in-depth interviews with key stakeholders from various fields and expertise backgrounds. These interviews, conducted over August and September 2021, were designed to shed light on the main challenges of the food system in the country, and more importantly to come up with levers and recommendations, identify sustainability challenges and point the way forward. The interviewees included officials from the public authorities (including the Ministry of Agriculture and the Ministry of Economy and Trade), field experts, private sector actors, and agriculture development practitioners from United Nations organizations and international non-governmental organizations (NGOs), as well as from farmers and representatives of farmers' organizations. A list of interviewees is annexed to the report.

Furthermore, while gathering relevant data and indicators for the different sections of this report, the research team faced a variety of challenges arising from the Lebanese context: scarce, outdated, contradictory and scattered data and inconsistent methodologies. Accordingly, the team only included robust and valid data indicators in the report. In light of this, it is highly recommended that joint efforts are made to improve data generation in Lebanon.







## National context: key figures

Table 1. Country-level data—Lebanon

Demography	Education and Health
<p>Population size: 4.8 million residents in Lebanon (CAS and ILO, 2020).</p> <p>Also, approximately 1.5 million registered and unregistered Syrian refugees (UNHCR, 2021a).</p> <p>Urban population constitutes 89 percent of the total population (World Bank, 2020a).</p> <p>Outmigration and “brain drain” threaten the provision of services and the functioning of the economy.</p>	<p>Dual system (public and private) in both sectors, increasing disparities among social classes in terms of access and quality.</p> <p>Distribution of students per type of school: private (49 percent); public (37 percent); free (11 percent), and UNRWA (3 percent).</p>
Socio-economy	Infrastructure
<p>Rentier economy with one of the highest concentrations of wealth in the world (Assouad, 2021).</p> <p>Drastic decrease in real GDP by 20.3 percent in 2020 and a further estimated decrease by 9.5 percent in 2021. (World Bank, 2021).</p> <p>Severe drop in consumer purchasing power due to the following:</p> <ul style="list-style-type: none"> <li>i) Hyperinflation (+314 percent), especially in the food category (+441 percent) between June 2019 and June 2021 (Consumer Price Index 2021);</li> <li>ii) Depreciation of the LBP/USD exchange rate of +901 percent between June 2019 and June 2021</li> </ul> <p>Increase in poverty rates from 28 percent in 2019 to more than 50 percent of the population in 2020 (World Bank, 2021a), and an increase in regional disparities (peripheral and rural areas).</p>	<p>Structural infrastructure problems were further weakened by the current crisis.</p> <p>Obsolete infrastructure in terms of electricity and energy, waste and drinking water, transportation, and solid waste management.</p> <p>Absence of investment in necessary infrastructure improvements, such as telecom and other tech services.</p>



## Key figures and trends in food production, consumption, and trade

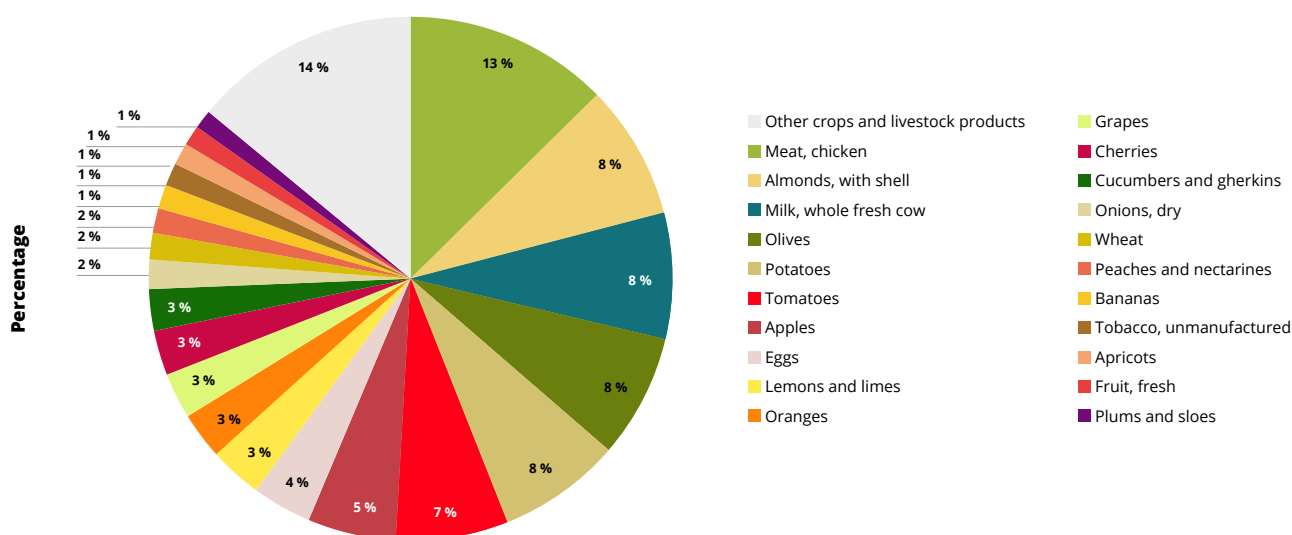
### The country's limited agriculture production capacity has not kept pace with population growth

As a key component of the food system, agriculture represents approximately 3 percent of the gross domestic product (GDP) of Lebanon (World Bank, 2020) and contributes to a significantly greater extent to the economy of peripheral areas, such as the Beqaa Valley and Akkar. It has remained a critical sector for income generation in rural areas and has enabled local communities to cope with the impact of crises and shocks. Agriculture accounts for 3.6 percent of the labour force (CAS and ILO, 2020), excluding unpaid family workers. The agrifood industry represents 2.9 percent of the economy, and 38 percent of the industrial sector (IDAL, 2020).

Although agricultural output has expanded to meet the needs of the growing population, Lebanon still suffers from limited agricultural production capacity, as explained in the Key Sustainable

Questions section below. Indeed, cultivated lands in Lebanon are limited and insufficient to meet local food needs. They cover less than 25 percent of the country's surface, with 231 000 ha in use in 2010 (Lebanon, Ministry of Agriculture, FAO and Cooperazione Italiana, 2012). More than half of this surface is used for permanent crops (55 percent, approximately half of which consists of olive trees and fruit trees – mostly cherries, apples, citrus, and grapes), while the other surfaces are shared among field crops (forages, cereals and potatoes (25 percent) and vegetables (20 percent)). Figure 2 shows the structure of agricultural production in Lebanon based on the 2019 value of commodities. Meat, chicken, milk, and cattle account for approximately 20 percent of all production, followed by almonds, olives, potatoes, tomatoes, apples, and other products.

Figure 2. Structure of production (percentage of value) in 2019



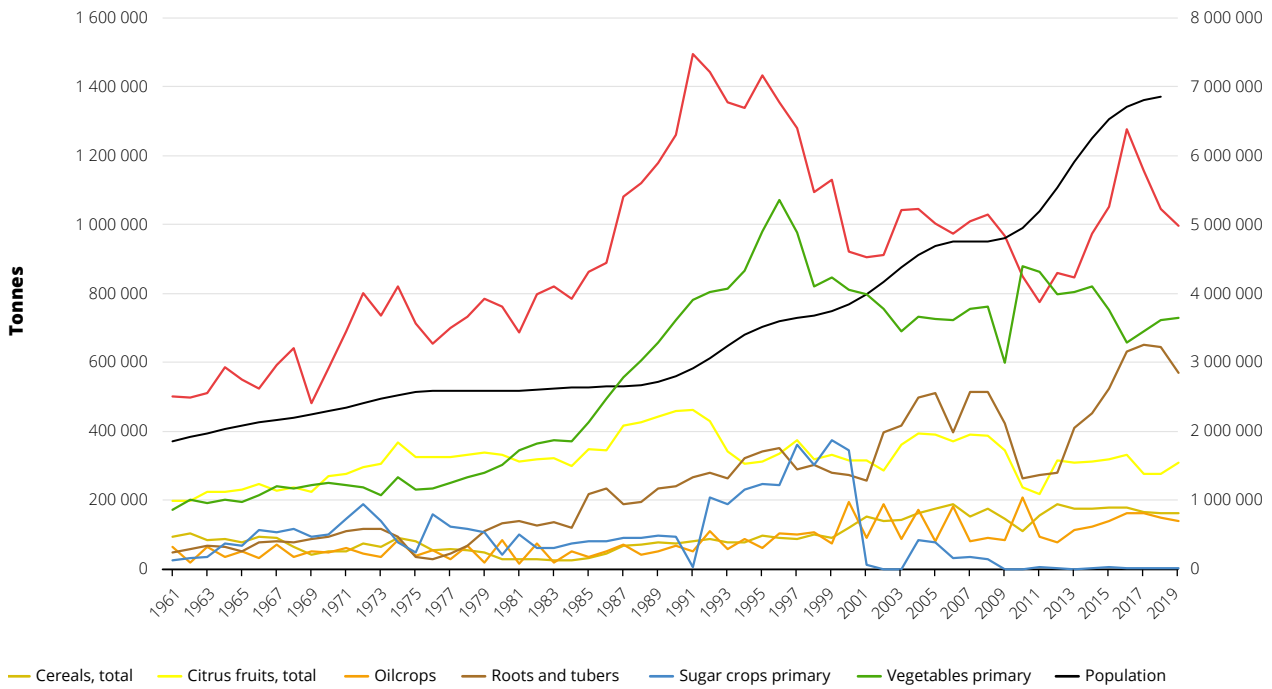
Source: FAO (2021b).

Agricultural production in Lebanon has not kept pace with population growth, especially cereals, pulses, and certain livestock products. Figures

3 and 4 show the production trends for key crops and livestock products over the period 1960–2019.

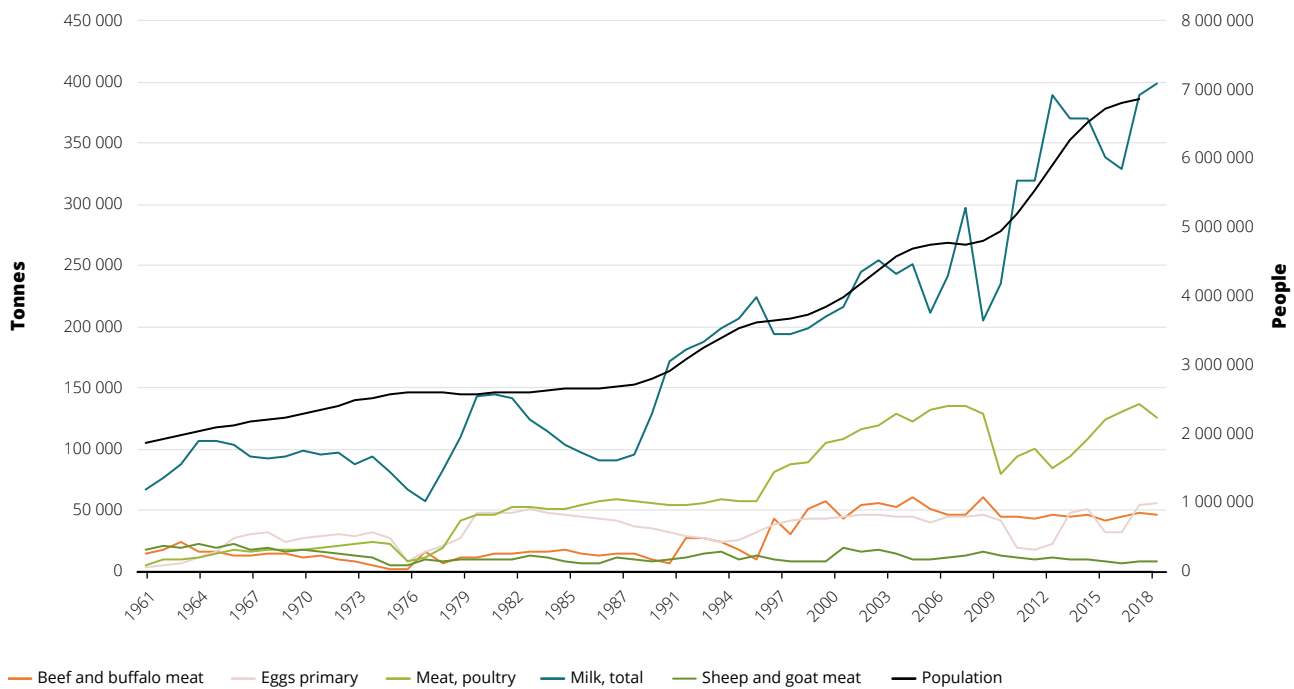


Figure 3. Key agricultural commodities production volume



Source: FAO (2021b).

Figure 4. Key livestock commodities production volume



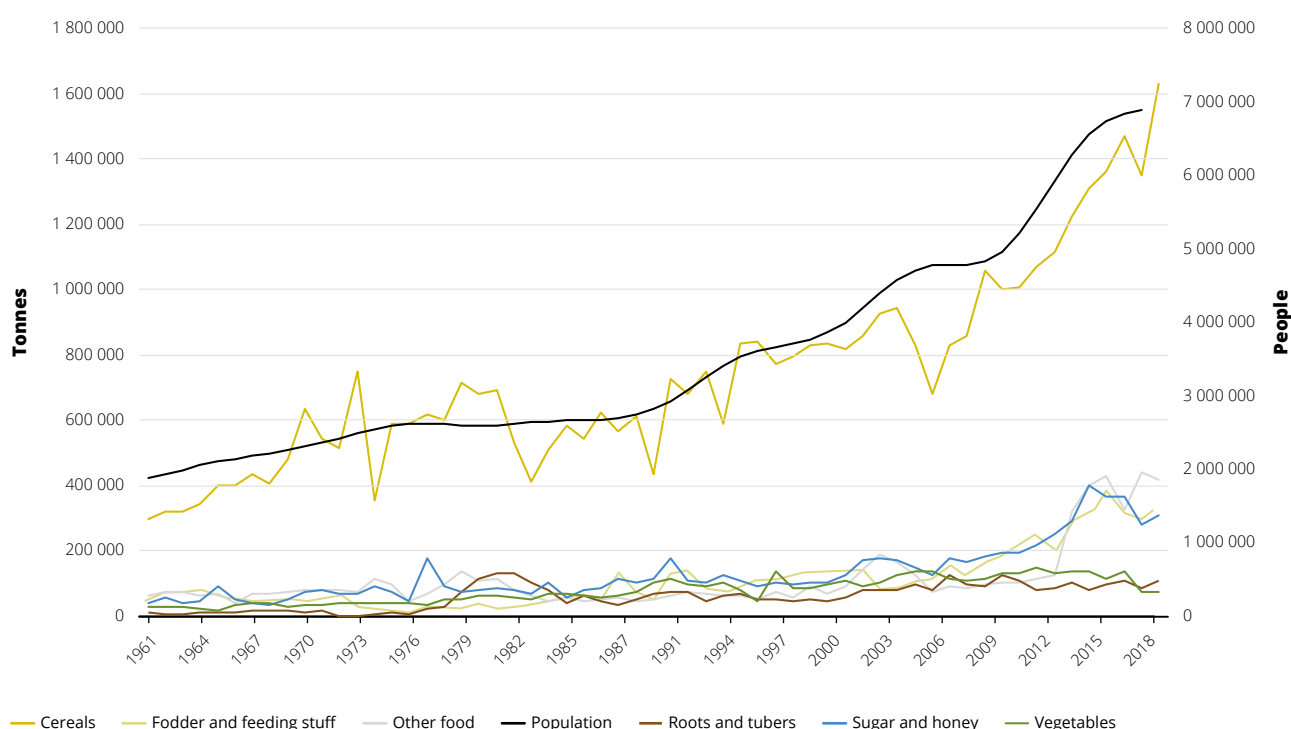
Source: FAO (2021b).



Domestic agrifood production satisfies only 20 percent of local demand (Lebanon, Ministry of Agriculture, 2020) National Agriculture Strategy (NAS) 2020–2025, Ministry of Agriculture). As shown in Figure 5, the country's import dependency has trended higher since 1961 for

most food products, reaching very high levels in some cases, such as for grains and sugar. In fact, approximately 80 percent of the consumer's food basket is imported. This also applies to cereals, which are one of the most consumed food categories by the population.

**Figure 5. Main products imported in volume since 1961**



Source: FAO (2021c).

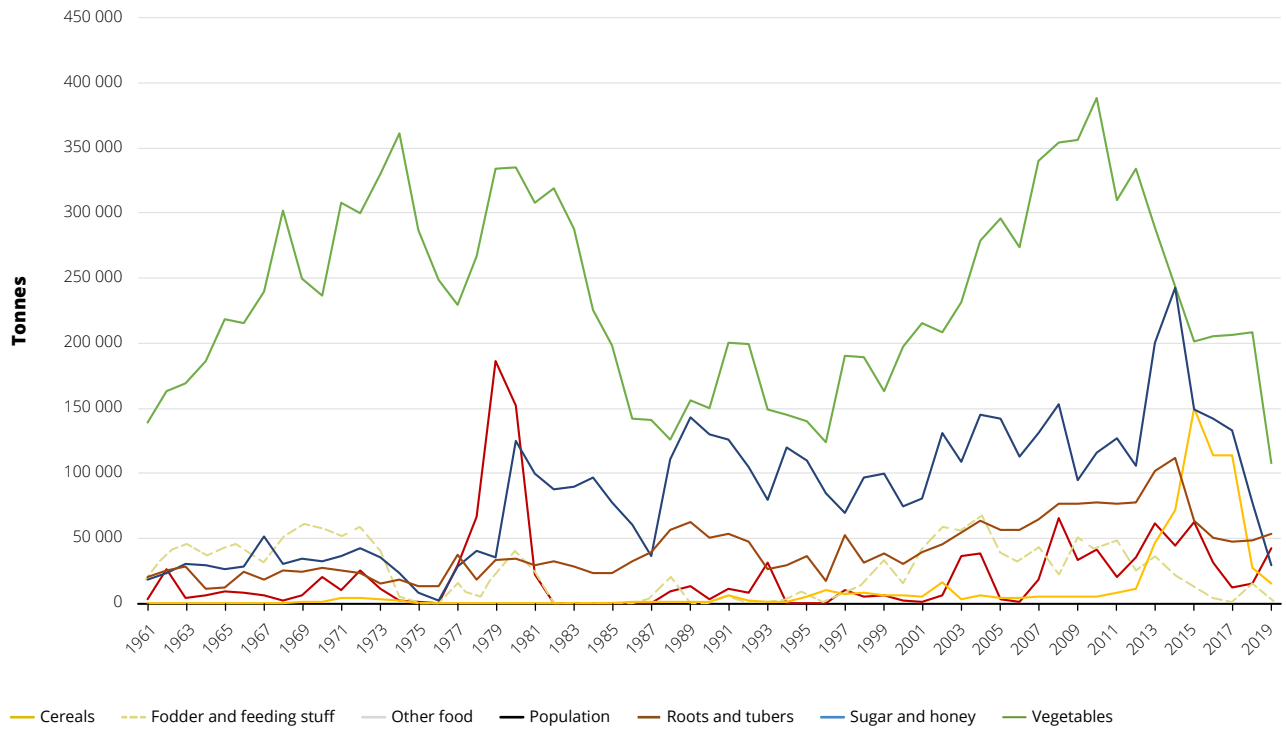
Moreover, only 8 percent of the food supply is exported (including re-exports). The main export commodities are fruit, vegetables, roots, and tubers, as shown in Figure 6, which also shows a decline in the export of these commodities, as against a slight increase in vegetables in recent years.

Agriculture inputs are also imported – Lebanese farmers used to rely heavily on Syrian subsidized agricultural inputs before the Syrian crisis. However, the disruption of trade routes to Gulf Cooperation Council (GCC) countries due to the conflict in Syria and the closure of borders

has resulted in a sharp increase in the cost of agricultural production overall and inputs specifically. Moreover, the main monetary stabilization policy adopted following the end of the civil war entailed pegging the Lebanese pound to USD at the rate of 1507.5 LBP (Banque du Liban, 2021), and other financial policies put in place have led to a devaluation of the currency and hyperinflation, which has made it difficult for households to access food (as highlighted in Figure 7 and further illustrated in the next section) while restricting farmers' ability to purchase imported inputs, which they can no longer afford.

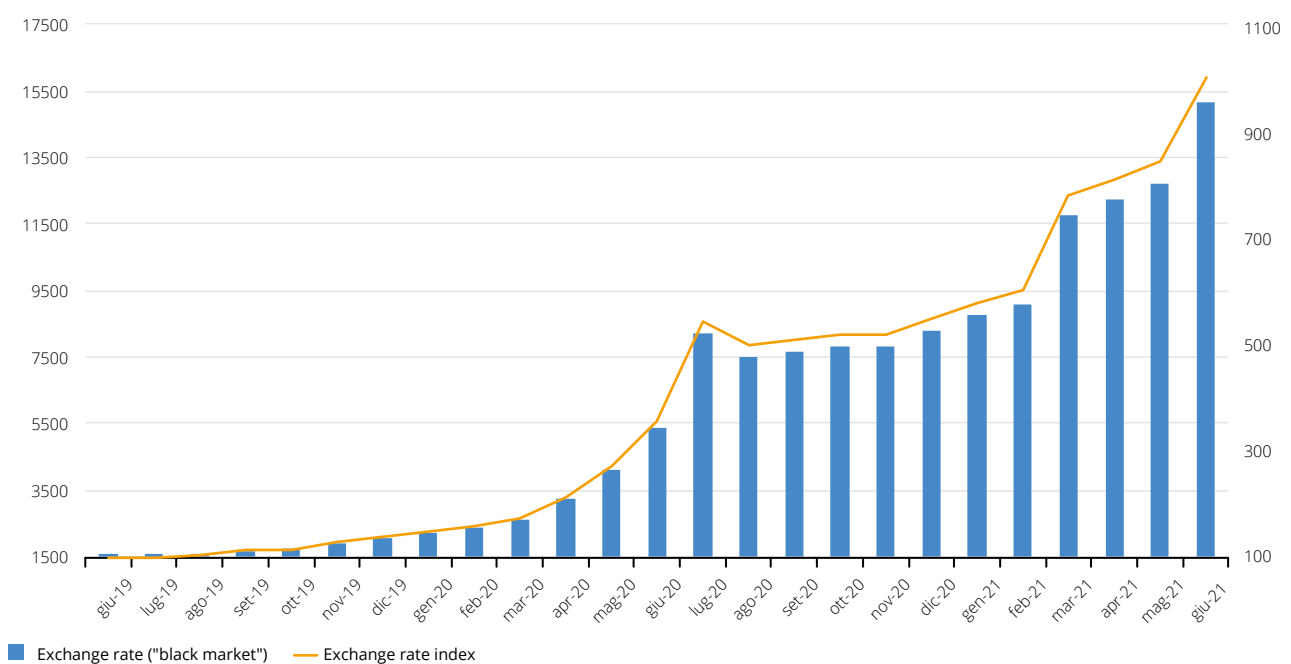


**Figure 6. Main products exported in volume since 1961**



Source: FAO (2021c).

**Figure 7. Evolution of the LBP/USD exchange rate**



Source: FAO (2021c).



## The impact of decreasing incomes and rising poverty levels on food insecurity and vulnerable populations

The population of Lebanon is approximately 6.8 million according to the latest World Bank data (World Bank, 2022). Among its residents, Lebanon has one of the highest shares of displaced people in the world, following several waves of migration into the country. Lebanon hosts close to 1.5 million Syrian refugees, in addition to some 190,000 long-term Palestinian refugees (UNHCR, 2021b). Vulnerable populations are highly widespread among refugees and host communities. Agricultural workers are among the poorest workers of any employment sector, due to the predominance of unskilled informal daily wage earners.

As a consequence of the economic, political health and, financial crisis of 2019, two out of every three Lebanese households had to deal with reduced income in 2020 compared to the previous year, with one out of every three Lebanese unemployed (especially among the young population). Approximately 10 percent reported that their households were resorting to alternative income sources to make ends meet. Similarly, one in five Syrian refugee households in Lebanon reported in August/September of 2020 that they had lost their income as a result of the country's worsening economic and financial crisis and the COVID-19-related restrictions (WFP, 2020). The World Bank estimates that the country's GDP declined by 20.3 percent in GDP for 2020. During the year, the country was hit by triple-digit inflation and a sharp increase in the national poverty rates from approximately 28 percent in 2019 to more than 50 percent (World Bank, 2021a).

**It is clear that food insecurity has become significantly more acute and widespread in recent years, as amply evidenced in the interviews and field observation, in addition to inflation and poverty rates as monitored by the World Bank.**

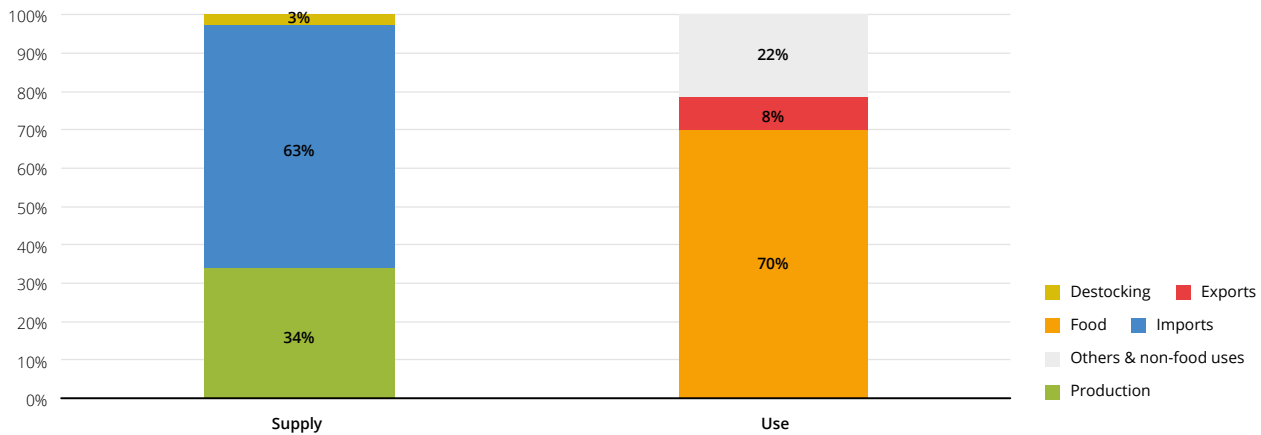
Hyperinflation and continuous currency devaluations have resulted in shortages of a variety of items, and a decrease in consumer purchasing power. All of these factors are taking a toll on consumers, for whom food occupies the highest share of expenditure. This has dramatic consequences for nutritional intakes, whereby consumption has been shifting to cheaper and less nutritious food items, leading to malnutrition, deterioration of diet diversity and higher exposure to food safety hazards. Moreover, almost all of the refugee population in Lebanon is currently unable to afford the Survival Minimum Expenditure Basket (SMEB), largely due to the rising cost of food and non-food items.

The most common staple foods are wheat (often consumed as flat pita bread) and rice. Common accompanying foods are meat (usually lamb and chicken) or fish and vegetables, often stuffed. Although most districts share the same staple foods and main dishes, there are some regional variations related to a high content of ghee in the North, whereas in the South most of the dishes consist of rice and meat. There are also differences between urban and rural diets. Even before the onset of the crisis, the Lebanese were moving away from micronutrient-rich diets towards Western diets, which are higher in energy, sugar, and fats. Urban diets are becoming westernized: homemade traditional dishes are progressively being replaced by fast food and snacks. Figure 8 presents the food balance for Lebanon.

However, it is very important to highlight that there is a general lack of updated nationally representative data pertaining to nutrition, intra-household food distribution and gender issues regarding food consumption patterns in Lebanon. The latest household budget/expenditure survey, which reflects the food consumption patterns at the household level, was conducted in 2004.



**Figure 8. Food balance in calories**

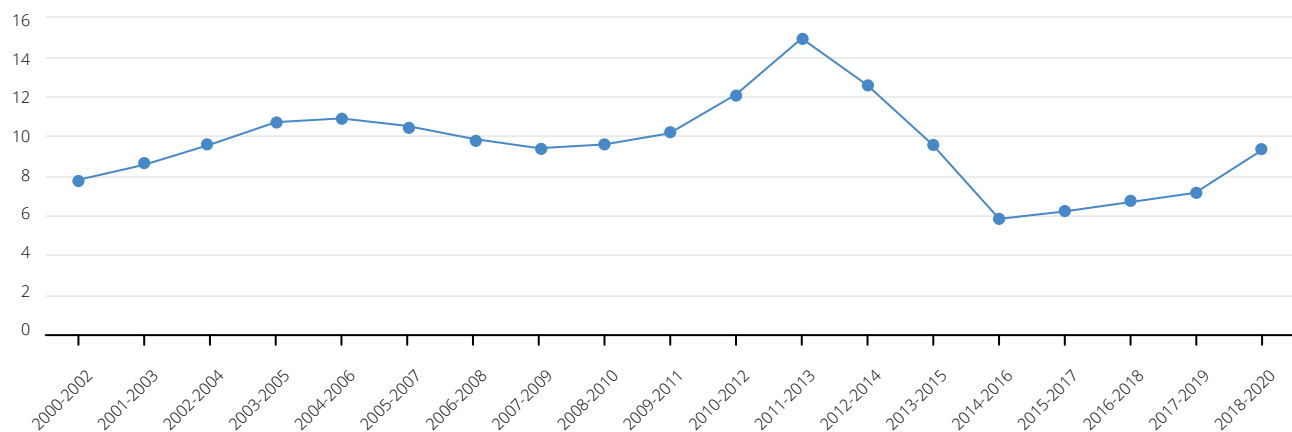


Source: FAO (2021a).

The change in diet has resulted in the high incidence of obesity in both rural and urban areas, now afflicting 32 percent of adults (FAO et al., 2020), while the figures for stunting among children under-five reached as high as 16.5 percent (Global

Nutrition Report, 2021). In addition, malnutrition rates have again risen since 2016, from 6 percent to approximately 10 percent over the period 2018–2020, following a decrease from 15 percent to 6 percent between 2013 and 2016 (see Figure 9).

**Figure 9. Prevalence of undernourishment (in percentage terms - three-year average)**



Source: FAO, IFAD, UNICEF, WFP, and WHO(2021b).

Moreover, according to the 2021 Vulnerability Assessment of Syrian Refugees nearly half of the Syrian refugee population in Lebanon was moderately or severely food insecure, up from 28 percent in 2019. The number of refugee

households with inadequate diets doubled from 25 percent to 46 percent in 2021, while the proportion of households living under the extreme poverty line reached nine out of ten households in 2021 (UNHCR, UNICEF and WFP, 2022).



## Characterization of the dominant actors in Lebanon's food system

- Lebanese agriculture is highly heterogeneous with a high proportion of land controlled by a limited number of landlords, and numerous small and fragmented production plots: 1 percent of landowners control approximately one-quarter of the total agricultural land surface, while 10 percent control approximately two-thirds of the agricultural land.
  - The latest agricultural census (Lebanon, Ministry of Agriculture, FAO, and Cooperazione Italiana, 2012) recorded approximately 170 000 farm holdings, of which the production of 25 percent (45 000) of them was primarily for subsistence and 75 percent (125 000) of the farms had a market-oriented activity.
  - An oligopolistic structure among wholesalers, retailers, distributors, and importers dominates the market and leaves farmers little to no room to maneuver. This also limits investment, as connections with this oligopolistic structure are an essential prerequisite for projects to be successful. Entrepreneurs need to invest their capital and benefit from an important social network and political connections to reduce costs and be protected from competitors. Lebanon ranks 143 out of 190 countries in the World Bank Ease of Doing Business Index. The index analyses regulations that encourage efficiency and promote the freedom to do business (Trading Economics 2022).
  - The value chains are dominated by a limited number of input suppliers, who provide imported inputs through exclusive licensing advice and credit lines to farmers.
  - Agrifood industrialists are also widely divided among a few large enterprises and many micro and small businesses (mostly family-owned) with limited added value in the food system. Less than 15 percent of the agrifood establishments are formal (UNIDO 2019).
  - Larger producers and holdings are more likely to produce for export and thus reduce the supply of food to local markets. Meanwhile, money from exports is more likely to be deposited in foreign banks (because of lack of trust in the Lebanese banking system) rather than being used to support financial system recovery (a consequence of the current financial crisis).
- There are no specific data on the post-crisis status of enterprises within the food system. However, based on a recent survey conducted by the World Bank, it was concluded that “one out of five firms originally surveyed are confirmed or assumed permanently closed” (World Bank, 2021), with small enterprises the most affected. This requires close monitoring of the way value addition distribution is restructured within value chains in order to avoid accentuating still further the oligopolistic structure of the food system.







## Key challenges to the achievement of core sustainable food systems goals

The food system in Lebanon is subject to myriad challenges, which impede its ability to be effective and grow sustainably. Moreover, the country is facing a multisectoral and multidimensional crisis, which threatens its food security and increases the vulnerability of its population.

Furthermore, the **rentier economy** is highly dependent on the real estate and tourism sectors – which are sensitive to external shocks. The country’s macroeconomic environment is subject to significant volatility and vulnerabilities. Already

non-productive and unstable, the economy has severely declined since 2019.

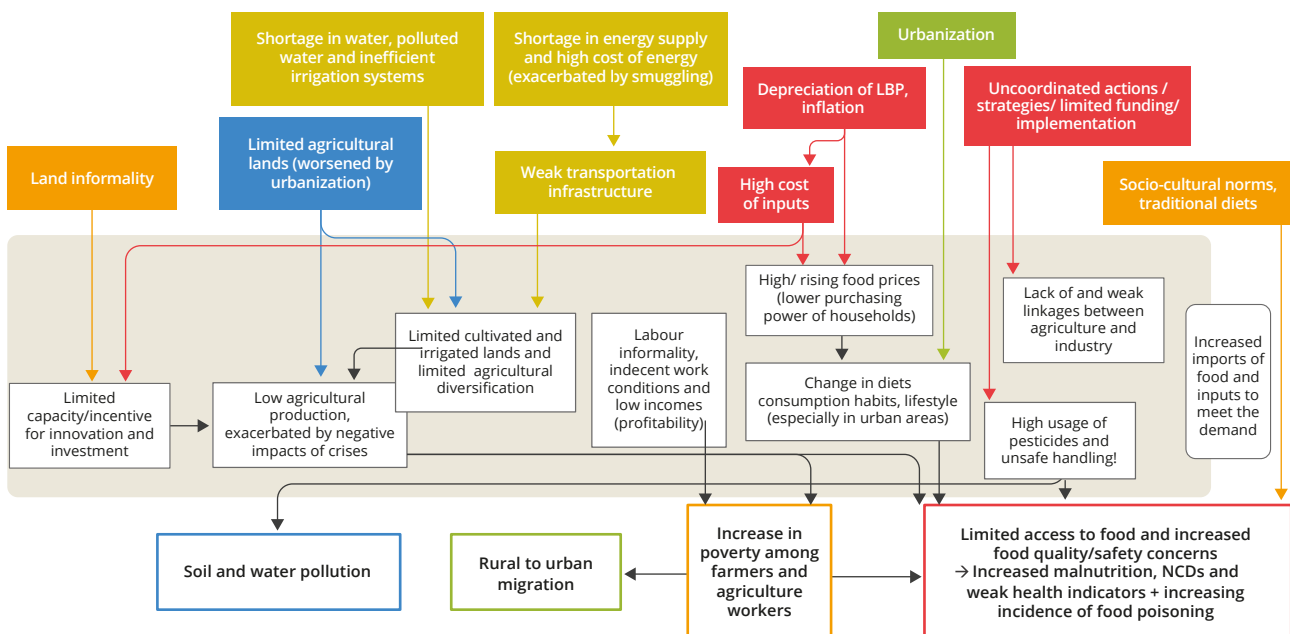
The **structural problems of the system** – already exacerbated by the Syrian refugee crisis, which has afflicted Lebanon since 2011 and put extensive pressure on the country’s resources – have intensified further since 2019. Lebanon has suffered several shocks – political, economic, financial, currency, and security – in the wake of the global COVID-19 pandemic and the huge Beirut port blast in August 2020.

### Key Sustainability Question 1: What are the reasons for food insecurity, malnutrition, and diet-related non-communicable diseases in Lebanon, and how are they being exacerbated by the financial, economic, and political crises?

The food system in Lebanon was subject to many challenges even before the latest crises. The potentially negative effects of these challenges and crises have reverberated

throughout the food systems, and are leading to malnutrition, deterioration of diet diversity, and higher exposure to food safety hazards (see Figure 10).

Figure 10. Challenges facing the Lebanese food system.



Source: Authors, 2021.



**In terms of food production and supply, cultivated lands in Lebanon are limited and insufficient to ensure local food needs.** Smallholders suffer from low yields and very limited profit margins. Increasing urbanization, and the consequent abandonment of deserted rural areas, further threaten the existence of farmland. In fact, the urban population now accounts for approximately 89 percent of the country's total population (World Bank, 2020). In addition, most agriculture holdings **invest very little in equipment and infrastructure;** and the mechanization of farms is frequently limited to small pieces of equipment, such as water and pulverization pumps. This is mainly because agriculture holdings are small in size (micro and small establishments), which prevents economies of scale, and, in turn, affects the availability and diversity of the food produced for the local markets.

Most existing water policies focus on physical infrastructure rather than on integrated water management. The country suffers from **high levels of water stress, water scarcity, and inequitable water usage, in addition to water pollution.** The lack of affordable water, the high energy costs of pumping it, and the lack of irrigation equipment are major constraints for farmers. Most irrigation networks are not functional nor pressurized, and farmers rely on artesian wells or rainfed low-productivity crops. **The costs of agriculture and agrifood are generally high,** whether in terms of inputs, energy, water, transportation, or equipment. The cost of energy has been exacerbated by the current economic

crisis and the de-subsidization of fuel. Smuggling activities with Syria, mainly when fuel was still subsidized, have also affected the availability of energy sources (Dadouch and Durgham, 2021). This discourages local production and decreases the competitiveness of local food produce, further threatening food security.

Moreover, **the employment and business sectors suffer from high levels of informality.** Agriculture and agrifood activities rely on informal low-wage labour (including foreign and child labour) to reduce production costs and increase competitiveness. This creates a **high level of vulnerability among agricultural workers who earn low and unsustainable incomes,** which, in turn, limits their access to safe, sufficient, and nutritious food and leads to the consumption of cheap, high-energy staples, primarily carbohydrates and fats, rather than nutritionally dense food. Producers are also severely affected by the lack of legal status of farmers, in addition to the informality of economic units, such as agrifood establishments and farms (including land ownership informality). These issues weaken the producers' status and limit the prospect of long-term investments, in terms of access to funds and the introduction of new technologies and innovative practices.

As a consequence of the various factors outlined above, **Lebanon relies heavily on the import of inputs and equipment** (production side) and of crops and consumables (consumption side). The country imports approximately 80 percent of its food needs. In 2018, Lebanon was importing 83 percent of its consumption of cereals – a high proportion considering that cereals represent the products most consumed by the population (42 percent of their daily diet) (FAOSTAT 2021).

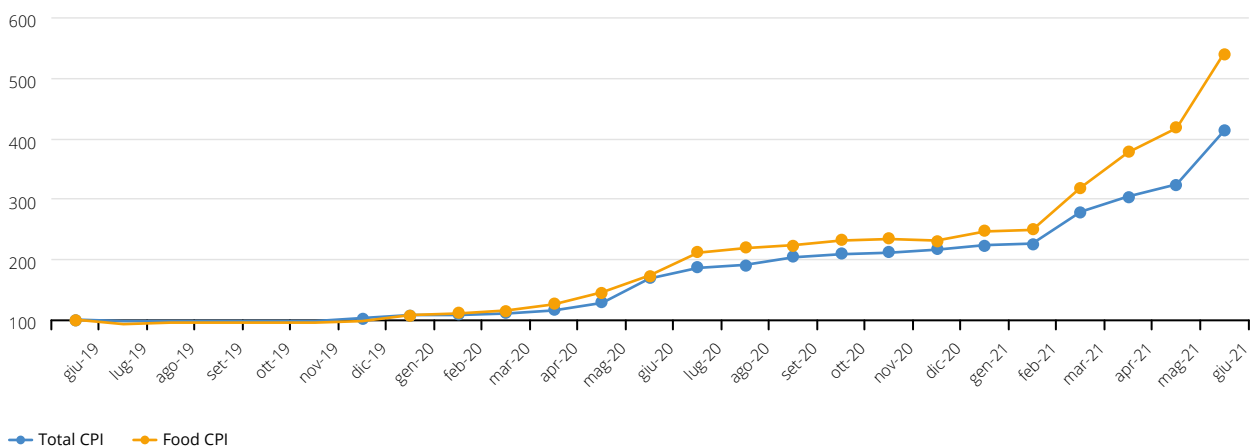
The domination of an oligopolistic structure, coupled with the exchange rate crisis, has made it difficult for **most farmers to afford imported inputs** (seeds, material and equipment). This has resulted in reduced planted areas and a potential decline in total production. Moreover, the high reliance on fuel for irrigation is likely



to lead to further increases in production costs, further limiting supply. Processing and distribution are also highly controlled by a few wholesalers who monopolize the market. This dependency affects food availability and accessibility, leading to higher prices, reduced quality, and limited varieties.

Alongside the crises, the monetary stabilization policy and financial policies in place have led to currency devaluation and hyperinflation, affecting **households' ability to access food**. The consumer price index (CPI) between June 2019 and June 2021 increased by 314 percent, while the food index increased by 441 percent (Figure 11).

**Figure 11. Total consumer price index and food consumer price index (June 2019=100)**



Source: Consultation and Research Institute, 2021.

Recent de-subsidization decisions have exacerbated the situation, **further decreasing the purchasing power of consumers and raising food security concerns among the Lebanese** in terms of availability, access, and utilization of food, especially for the most vulnerable. The lockdown measures imposed during the COVID-19 pandemic and a worsening economic crisis have led to two out of every three Lebanese households suffering reduced income compared to 2019, and to one out of every three Lebanese becoming unemployed (especially among the young population). Meanwhile, about 10 percent of households have resorted to alternative income sources to make ends meet (mainly aid or remittances) (WFP, 2020). **Poverty rates have increased from 28 percent to exceeding 50 percent** and are expected to keep rising if no substantial solutions are put in place (World Bank, 2020). In this regard, **food has become a major source of concern for a large proportion**

**of the population:** 50 percent of Lebanese, 63 percent of Palestinians and 75 percent of Syrians are concerned about the prospect of not having enough to eat (WFP, 2020). The assessment also observed that **22 percent of Lebanese are food insecure**, while the vulnerability assessment of Syrian refugees showed that, every week, the percentage of households consuming nine or more food groups dropped substantially from 74 percent in 2019 to 44 percent in 2020. To bridge income gaps, residents have resorted to several negative coping strategies; one such strategy in particular, is spending less on food. Among the other coping strategies, spending savings, asking friends and family for help, and borrowing money to meet essential needs.

**General health indicators in Lebanon have been showing negative trends.** There is a high prevalence of anaemia among women of reproductive age (15-49 years). Hypertension is



at 23 percent for men and 12 percent for women; while diabetes is approximately 19.6 percent of the population as of 2011 (World Bank, 2021c). According to the World Bank, 89 percent of all deaths are caused by non-communicable diseases in 2019 (World Bank, 2021b). The situation for vulnerable people in Lebanon is dire in many respects.

**Malnutrition among vulnerable households is on the rise**, with the percentage of children under five who are stunted reaching 16.5 percent. Nevertheless, it is lower than the average for the Asia region (21.8 percent). Limited progress has been made towards achieving the low-birth-weight target, with 9.2 percent of infants still having low weight at birth. The country has made only limited progress towards achieving diet-related non-communicable disease targets and is struggling to reach the target for reducing obesity, with an estimated 37 percent of adult women (aged 18 years and over) and 27.4 percent of adult men living with obesity (Global Nutrition Report, 2021). For **vulnerable groups with limited sources of income**, food intake, diet composition, and consumption patterns are continuously changing as the situation deteriorates. The lack of energy supply has also affected the capacity to store food, especially meat and dairy products. These changes in Lebanese food consumption habits may have contributed to the triple burden of malnutrition – the combined presence of undernutrition, micronutrient deficiencies, and people being overweight and obese.

**For Syrian refugees, the percentage of children between 6 and 23 months who met the minimum diet diversity decreased by five percentage points between 2019 and 2020, falling to 12 percent.** The minimum acceptable meal frequency for children between 6 and 23 months of age decreased sharply from 80 percent in 2019 to 51 percent in 2020, and the percentage of Syrian refugees engaged in poor or borderline food consumption increased from 25 percent in 2019 to 49 percent in 2020. The average number of meals consumed daily by refugees fell from 2.2 in 2019 to 1.9 in 2020 (and from 2.8 to 2.5 for children).

Finally, the issue of food safety requires urgent attention, as high levels of **pesticide residues and bacterial contamination are found in food**, compounding problems caused by food-borne diseases. The lack of a food safety regulation network and the absence of coordination among public actors, as well as non-compliance with regulations and lack of knowledge to implement food safety practices, have led to free-riding behaviour among some food producers, distributors and importers, who take advantage of the situation to supply non-safe foods.

### Proposed systemic levers stop

interventions are required urgently to accomplish the following:

1. **in the short term, stabilize and improve food production-oriented to local markets through emergency interventions targeting the ability of small farmers to sustain production; and.**
2. **closely monitor the evolution of the food security and food access situation and implement emergency programmes to support vulnerable groups.**

Regarding supply, to assist small farmers facing difficulties in accessing inputs, donors and development partners are offering input voucher schemes in cooperation with local input suppliers. **These schemes need to be scaled up and focus on farmers producing for local markets rather than for exports**, i.e. vegetables, cereals and pulses. These input support schemes should be paired with capacity development in the sustainable use of inputs and implemented alongside support for farmers' investment capacities. Programmes that support farm-level investment and hybrid lending schemes, such as grants and subsidized loan schemes in collaboration with microfinance providers, should be expanded. These actions are in line with the flagship programmes of the 2020-2025 National Agricultural Strategy, which promotes inclusive access to inputs and financial services for agriculture recovery, and the National Nutrition Strategy 2021.



**Direct support for vulnerable groups** is urgently needed to ensure access to food through planned cash transfers and school meal programmes, which should be upscaled to target vulnerable and lower-middle-class communities. However, such schemes, specifically cash transfers, raise several concerns, especially concerning the following issues: governance; sustainability; and exit strategy. Targeting programmes should be accompanied by long-term structural reforms to provide a durable response to the roots of the crisis.

Finally, regarding access to and utilization of food, **the current lack of data is a major constraint** for the design and implementation of relevant interventions. Large-scale data collection is required through the following actions:

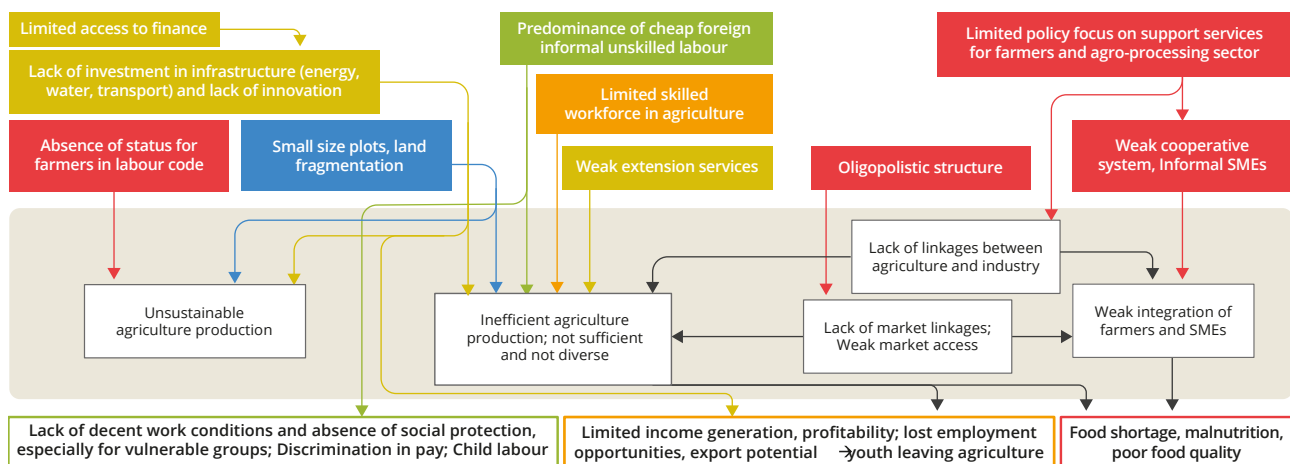
- research on micronutrient deficiencies should be undertaken by collecting data on micronutrient deficiency in children and adults to assess the need for a universal fortification strategy, e.g. bread, and/or other food products; and
- the Ministry of Health programme for screening and management of severe and acute malnutrition in children should be supported and upscaled, to provide financial support and resources for the programme emergency response tools (i.e. complementary nutrition packs and hospital referrals). The programme also constitutes a key tool for early alarm systems to monitor food insecurity and the increasing trend of malnutrition in children resulting from the financial and economic crisis.

### Key Sustainability Question 2: What are the main bottlenecks hindering the development of efficient and sustainable agriculture production and food value chains?

**Farmers are not well integrated into the food and agricultural value chains.** This is due to multiple factors: the oligopolistic nature of the market; the informality of agriculture production; lack of organized structures for farmers; and the absence of linkages with agro-industry. This

leads to inefficient and unsustainable production (in both agriculture and agrifood). The situation reflects a lack of adequate and appropriate policy design and implementation to ensure inclusive and efficient agrifood value chains (see Figure 12).

**Figure 12. Challenges in developing efficient and sustainable agriculture production and value chains**



Source: Authors.



The vast majority of the agricultural land is **divided into small plot properties** (average size = 1.3 ha, 75 percent <1ha) and is **widely fragmented**. Furthermore, Lebanese agriculture is highly heterogeneous, with most land controlled by a limited number of landlords. Land fragmentation is further aggravated by inheritance laws that allow for division of agriculture holdings and accordingly, hinder economies of scale.

In general, farming activity is family-run. The sector is dominated by micro and small establishments; it has only a few large farmers. This **limits farmers' capacity to progress and develop in terms of investing in technology and innovation**. Investment levels are minimal and access to finance remains limited, while income generation is also restrained.

While agriculture contributes about 3.6 percent of the labour force (CAS and ILO, 2020), 88 percent of Lebanese working in the agriculture sector – excluding unpaid family workers – are **employed informally and/or have no legal registration for their farms**; almost all of the Syrian refugees working in agriculture are informal workers. Unfortunately, this usually translates into indecent working conditions and discrimination in treatment, pay and compensation. Manpower in the agriculture sector is mainly seasonal, unskilled, and composed of foreign labour.

As a result, farmers and agricultural workers (Lebanese or foreign workers) **have no social protection rights**, such as health coverage, end-of-work indemnities, and pensions. These factors, coupled with the limited incomes generated by agriculture activities, encourage young people to shy away from working in this sector and enrol in relevant education.

The **informality of agriculture and agrifood establishments also hinders access to finance, thus rendering the elaboration of a strategic plan and vision to enable growth more difficult**. In fact, the high direct and indirect costs associated with the registration of agriculture establishments, and the absence of any

governmental control and supervision discourage the formalization of them.

Moreover, **access to related knowledge, information, and extension services are limited**. Farmers rely on input suppliers as the main source of advice. The government lacks the financial and human capacity to provide proper agricultural extension and technical and vocational education and training (TVET) programmes: higher education focuses on the training of highly qualified agronomists while existing TVET agriculture is limited. According to the McKinsey National Strategy (McKinsey, 2018), limited extension services are one of the most critical hindrances to efficient and sustainable agricultural development, as it results in the widespread implementation of inadequate agricultural practices, including the irrational use of fertilizers, pesticides, and water resources, coupled with outdated and detrimental harvest and post-harvest techniques.

**Furthermore, the weak cooperative system** – only 5 percent of farmers belong to cooperatives – does not help in connecting farmers to extension services or other market actors, including agrifood industries. Although there were 1 238 registered cooperatives in 2017, only one-third of them were active. The cooperatives are well distributed across the , with a high concentration in the South and Nabatieh and a relatively low concentration in Beqaa, i.e. 7 percent in Zahleh and West Beqaa, which are areas with intensive agricultural production where medium and large agricultural estates prevail. Half of the registered cooperatives (51 percent) are agricultural cooperatives and approximately a quarter (27 percent) of them work in the agrifood sector (ILO, 2018) (Figure 13). Cooperatives in Lebanon are male-dominated; women's cooperatives make up 10 percent of the total, namely 125 registered cooperatives of which 19 percent of them are agricultural cooperatives (ILO, 2018). According to the General Directorate of Cooperatives, most women's cooperatives are agrifood cooperatives for such products as livestock, produce, beekeeping, fisheries, crafts

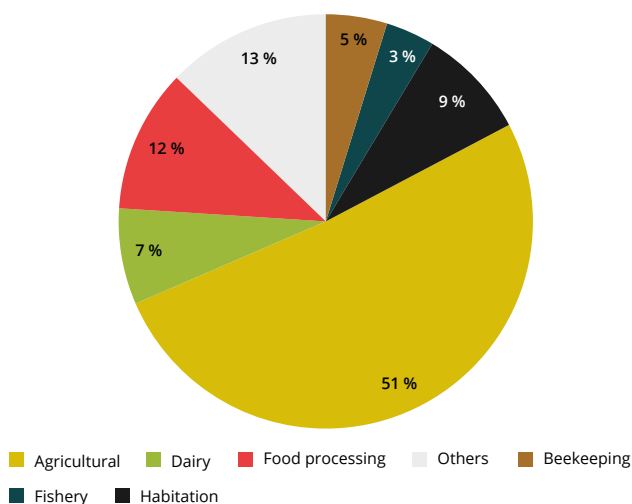


and other artisanal goods. Most of them focus on facilitating direct sales to local markets, but they have limited linkages with the food processing industry, which accounts for less than 5 percent of cooperative sales (FAO et al., 2020).

**Moreover, most Lebanese cooperatives are inexperienced or badly managed;** Because of their low levels of funding, they have only a limited impact on local development (according to most interviewees). Cooperative structures that could help farmers break oligopolistic market dynamics are not well-established. A significant number of Lebanese farmers and food system actors tend to perceive cooperatives negatively –as channels for government and/or international donor grants rather than as businesses owned and managed by members. Furthermore, limited financial and human capital significantly reduces the capacity of cooperatives to develop services and engage in activities further down the value chain (distribution, marketing, and sales), making them further dependent on technical and financial support from public institutions and international donors.

Finally, the **weakness and absence of linkages between agriculture and the agroindustry**

**Figure 13. Distribution of registered cooperatives per sector of activities (2017)**



Source: ILO, (2018).

limit the diversification of production in terms of agrifood and thus result exclusively in low-complexity products. These weak linkages are also the result of low product quality. The extensive use of pesticides, absence of adequate testing labs or testing procedures, and limited distribution channels not only affect the integration of farmers' produce into the local industry, but they also affect exports – especially for small-medium enterprise products, as Lebanese food production falls short of international standards.

### Proposed systemic levers

Significant effort is required to **address the limited productivity and financial return of farming activities** caused by the low human capital of farmers, fragmented agricultural plots, and unfair value chain dynamics. Project-driven piloting and rapid upscaling of successes are required to achieve this objective and avoid further negative repercussions of the crises on the livelihoods of vulnerable communities. The harmonization of donor-funded projects is critical in this period, including initiatives to support cooperatives, as well as programmes coordinated by United Nations agencies, especially UNIDO-FAO coordination, which should ultimately be reflected in cooperation between the ministries of industry and agriculture.

Priority actions should focus on integrating farmers into the value chain:

1. **improve the production environment, access to inputs, financing of agriculture activities, extension services, and governance of the agrifood system; and**
2. **extend support for value chain development and strengthen farmer organizations and cooperatives to develop strong linkages with the agro-processing sector.**

Support for the creation of agriculture cooperatives – and any other form of common action for farmers that includes ownership over the value chain infrastructure – would contribute



towards ensuring economies of scale and farmers' integration into local and international food value chains. However, a paradigm shift is needed for this to occur. Rural activists and farmers, as well as governing authorities and donors, should advocate and encourage cooperatives, and **promote a mindset shift toward a sustainable income-generating model**, rather than support a system that encourages dependency on aid and further strengthens political clientelism and the control of rural elites over farmers and small producers. The entire legal and regulatory framework governing the cooperative sector and other forms of social enterprises and mutual organizations in Lebanon must be reviewed.

**The formalization of farmers' legal status** (including duties, rights, and benefits) is an essential prerequisite for the effective implementation of the above-mentioned levers, especially if this incentivizes young people, skilled workers and investors to join this sector and help increase the efficiency of the food system.

**The creation of linkages between agriculture and the agrifood industry could facilitate the sustainable and fair integration of small and medium scale farmers into food value chains.** Emphasis should be placed on best agricultural practices, and farmers should be provided with technical knowledge and skills needed for the implementation of well-defined production standards. In fact, the improvement of agricultural practices is key to ensuring improved linkages with the agrifood industry.

**Relevant public institutions, such as the ministries of agriculture and industry, should work with the private sector**, including formal and informal farmers' institutions, to set up working frameworks that could help in creating such linkages. For example, the Productive Sector Development Programme – implemented by a consortium of United Nations agencies, including the United Nations Industrial Development Organization (UNIDO) and FAO in close collaboration with the ministries of agriculture, industry, and economy and







trade – could be used as a pilot project to set up innovative ways to facilitate linkages.

The proposed levers, aligned with the National Agriculture Strategy flagship programme, could facilitate: **(a) inclusive access to inputs and financial services for agricultural recovery; (b) strategic interventions designed to eliminate value chain bottlenecks and ensure long-term sustainable access to inputs; and (c) the financing of agrifood investment and working capital.** Such interventions may include

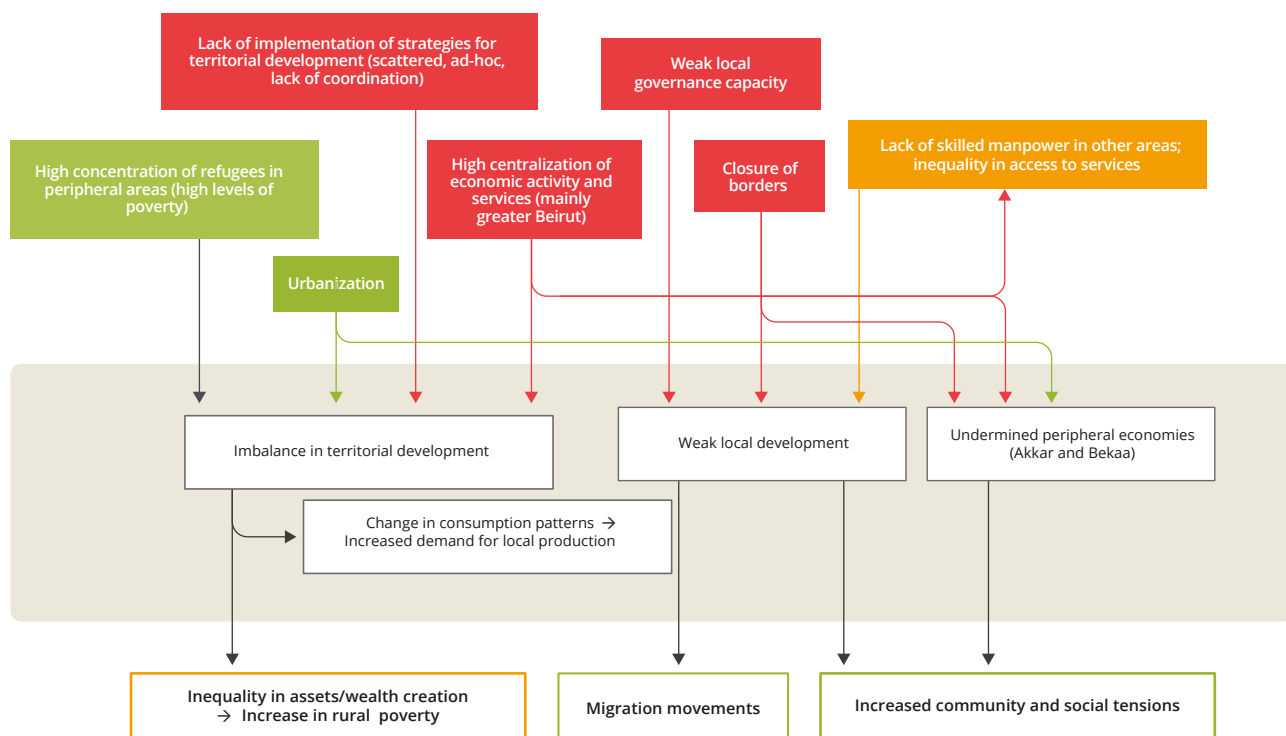
developing smart support schemes (including smart extension services, digital platforms, and B2B platforms linking producers to traders and agro-industrialists). Further measures could include modernizing post-harvest and trade infrastructures, improving public food safety monitoring capacities, reviewing subsidy mechanisms for exports, and implementing interventions favouring import substitution and local market governance. Combined measures, such as these, could spur a powerful transformation of the food system

### Key Sustainability Question 3: How have the various governance systems and corresponding policies and programmes of major stakeholders influenced differential territorial development?

Differential territorial development (in terms of demographic characteristics, economic activities, access to social services and infrastructure, etc.)

is a strong feature of agriculture in Lebanon and exercises a significant impact on food system actors (see Figure 14).

Figure 14. The consequences of differential territorial development



Source: Authors, 2022.



**The trend towards ever greater urbanization** is widely noticeable in the country, with a high concentration of the population in coastal areas and big cities, mainly in Beirut and Greater Beirut. Indeed, according to the Central Administration of Statistics (CAS and ILO, 2020), approximately 60 percent of the country's residents live in Beirut and Mount Lebanon. The rural population accounts for only 11.2 percent of the total (some

771 000 people in 2019), and is far poorer than the rest of the population (World Bank, 2022). Moreover, economic activity, job creation, the workforce, and major public services (mainly education and health) are also highly centralized in the key urban areas. The peripheral areas are consequently marginalized and have the highest poverty rates and highest levels of vulnerability in the country (see Table 2).

**Table 2. Extreme poverty rates (based on the multidimensional poverty approach) per governorate**

Governorate	Extreme poverty rate
Beirut	28.9 percent
Mount Lebanon	26.5 percent
North Lebanon	32.6 percent
Akkar	51.5 percent
Beqaa	43.0 percent
Baalbeck-Hermel	49.3 percent
South Lebanon	35.3 percent
Nabatieh	46.7 percent

Source: ESCWA (2021).

**Urbanization has undermined agricultural activities, while low local economic development has resulted in deserted areas and increased vulnerability in peripheral regions** that have also been strongly affected by the influx of Syrian refugees, thus aggravating overall conditions. The closure of borders due to the crisis has further affected the economic activity in these regions. Such high centralization of economic activity in urban areas (mainly Greater Beirut) has led to a lack of skilled manpower in certain areas and inequality in

access to assets/wealth and services. This, in turn, has increased social tensions among communities, exacerbating a situation that already prevailed in several peripheral areas (most notably between Syrian refugees and Lebanese host communities).

As a consequence, **the peripheral regions appear to be most in need of local development plans** – they are afflicted by very low levels of economic development and job opportunities, social tensions and weak infrastructure and



services. However, of the several plans that have been drawn up for these regions in recent years, including, among them, regional development strategies and local economic development plans for unions of municipalities, only a few have actually been implemented. Moreover, because these local development plans had tended to target specific regions or certain unions of municipalities, their impact was weak, as most were ad hoc interventions, each following different methodologies and frameworks that were frequently incompatible and sometimes overlapped.

A **national physical master plan of Lebanese territories** was put forward as a global strategy for local development and land use. It set out to structure the territory in terms of main urban centres while distinguishing between urban, rural, agricultural, and natural areas. The plan was also designed to preserve natural resources and outline an economic programme for the different regions by focusing on agriculture infrastructure (FAO 2022). However, although it should have been the main driver for policies and interventions, in most cases this master plan was not taken into consideration by local authorities.

The stakeholders involved in local development plans (at national and international levels), namely farmers and local communities, cooperatives, agro-industrialists, private actors, municipalities, unions of municipalities, policymakers, ministries, and other institutions, are responsible for the successful design and implementation of such plans. However, **their efforts have been characterized to date by a lack of proper vision and coordination mechanisms designed to harmonize their actions.** They have also faced many challenges, including a lack of buy-in from local actors, the contradictory agendas of implementing parties, lack of accountability, and limited funding. The absence of local and territorial development has resulted in an uneven pace in the growth and expansion of central (urban) versus peripheral (rural) areas in the country, which has further impoverished populations in the rural areas.

However, despite the aforementioned structural problems, the crisis **may have had one upside amid all the negative effects:** awareness of the importance and the need for local food production has increased. Moreover, consumption patterns and behaviours have changed, with residents opting to consume non-imported, lower-priced food products. This could create an opportunity for producers as local demand for their produce is on the rise, especially in the dairy sector, based on interviews and feedback from producers. In addition, the tide of urban migration may be turning slightly: movement is being observed from urban to rural areas, accompanied by an increase in subsistence agricultural activity.

### Proposed systemic levers

Regional inequalities can be tackled at national and local levels by doing the following:

1. **designing and implementing contextualized regional development plans for sustainable food systems and ensuring synergy with existing local and national agriculture strategies; and**
2. **supporting the development of partnerships between local authorities and the private sector to promote local economic development in collaboration with farmers, local market actors and public institutions.**

While the National Agricultural Strategy (NAS) 2020—2025) and its suggested interventions have focused on value chain competitiveness, and the provision of technical assistance to farmers, they fall short of identifying local and regional specific developmental needs. Designing contextualized territorial and local development plans may allow for the creation of synergies and improve local welfare through sustainable food system activities. Such an approach requires the establishment of an efficient institutional coordination structure (at national, regional, and local levels) and the involvement of local authorities with economic actors and farmers organizations and/or informal clusters.



In collaboration with relevant ministries and stakeholders, such action can serve as an entry point to reviewing the national vision of Lebanon for territorial development towards a territorial strategy based on productive sectors and local resources. Such action is in line with the NAS flagship programme “Enhanced governance of the agrifood sector”. In fact, NAS could go beyond the direct mandate of the Ministry of Agriculture and serve as a lever towards a coordinated inter-ministerial strategy. The Ministry of Agriculture can play a key role in advocating and leading the review of local territorial development policies and action plans.

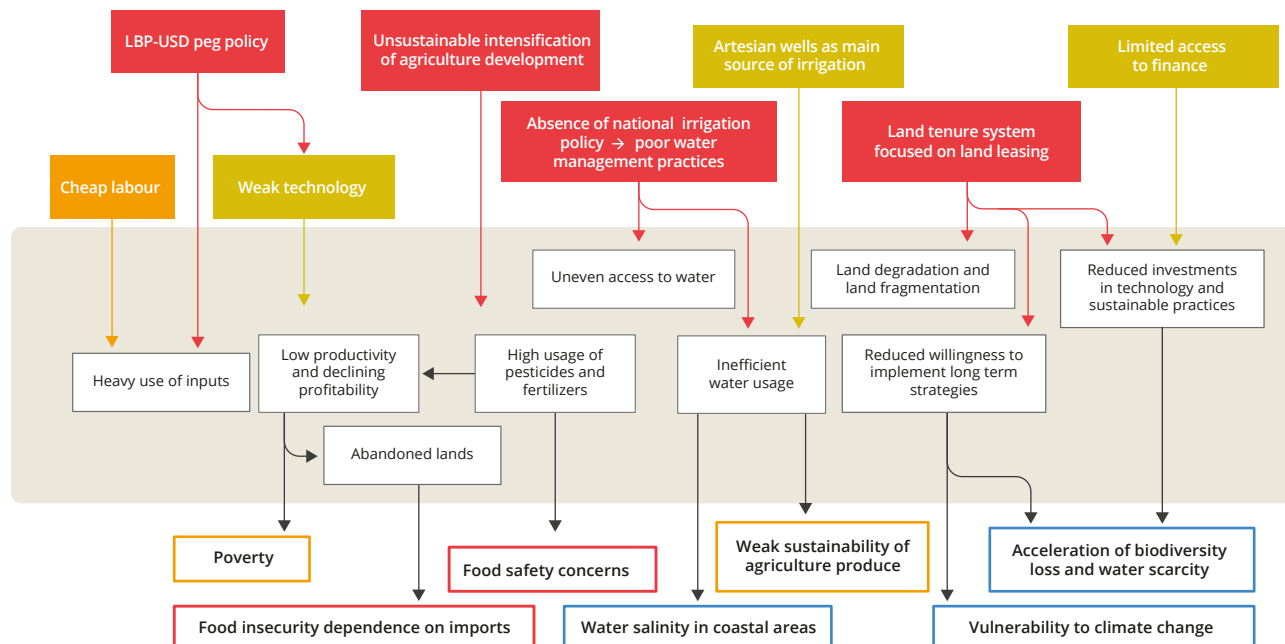
In addition, the facilitation of the implementation of local public-private partnerships (PPPs), potentially through cooperative set-ups, could help local producers improve product quality standards and marketing strategies for local food production. Examples of such local PPPs could include access to technology and digital applications for agriculture, the common management of local resources, including fisheries, and the establishment of a wholesale market and/or post-harvest infrastructures. On a wider scale, the development of free industrial zones and the creation of local economic clusters could also result from successful PPPs.

#### Key Sustainability Question 4: What are the reasons for the continued use of unsustainable water and land management practices? How are these practices affecting the sustainability of the food system, and increasing the country’s vulnerability to climate change?

Poor water management practices and inefficient irrigation systems lead to large water losses. Coupled with unsustainable agricultural practices and soil mismanagement, they result in reduced

quality of agriculture products. This further exacerbates the vulnerability of Lebanon to climate change and the degradation of natural resources (see Figure 15).

Figure 15. The consequences of poor water and land management practices



Source: Authors, 2022.



**The inadequacy, inefficiency, and unsustainability of land use and management practices implemented on agricultural land play a significant role in weakening the development of the food system.** Both have rendered the agricultural land vulnerable to economic shocks and reduced its capacity to cope with climate change. Together with the availability of cheap labour, this has discouraged farmers from adopting technology-based strategies to improve productivity, while the absence of effective support policies for rural development, land reclamation, and valorization of local resources has limited the scope and feasibility of agriculture intensification strategies. According to the 2010 Agricultural Census, approximately 47 000 ha of arable land are abandoned, equivalent to 20 percent of total arable land; this figure reaches 36 percent in Mount Lebanon (Lebanon, Ministry of Agriculture, FAO & Cooperazione Italiana. 2012). In other areas, many farmers who grew rainfed cereals have abandoned their land due to low productivity and declining profitability, particularly in the drier areas, such as in Baalbeck/Hermel where a high percentage of arable land is abandoned (Lebanon, Ministry of Agriculture, 2003).

Between the early 1990s and 2020, input suppliers played a crucial role in intensifying agricultural productivity, generating a substantial increase in investment in drip-irrigated agriculture and traditional greenhouse production. However, **the unsustainable intensification of agricultural development has contributed to high levels of penetration of nitrates and pesticides into the soil and surface water and high concentrations of pesticides in Lebanese agricultural goods,** a significant problem that even today restricts agricultural exports and represents a key food safety concern. The heavy usage of fertilizer has not only decreased the quality of farm produce due to contaminants from chemicals but has also reduced profit margins for growers. In fact, numerous agricultural public/governmental and NGO extension programmes have emphasized the need to raise awareness

about crucial agricultural methods, including integrated pest management and sustainable soil fertility management, and stressed the importance of reducing the use of synthetic and chemical fertilizers and plant protection products. Unfortunately, these programmes and interventions have proved to be insufficient (Lebanon, Ministry of Agriculture, FAO & Cooperazione Italiana. 2012).

**Agricultural intensification was also accompanied by an increase in irrigated areas,** and today the agriculture sector is the largest water consumer in Lebanon, with estimations reaching up to 60 percent of total water withdrawal (Lebanon, Ministry of Agriculture, FAO & Cooperazione Italiana. 2012). However, approximately two-thirds of Lebanese agricultural land remains rainfed or relies solely on complementary irrigation (once or twice a year). Because of the absence of a national irrigation policy, access to water remains a major challenge for most farmers. Such access can improve the productivity of rainfed crops (olives, apricot, cereals, pulses, figs, almonds, etc.) through complementary irrigation and, where appropriate, a shift to irrigated agriculture. An improved water management system could reduce costs and increase the sustainability of irrigated production, such as citrus, bananas, avocados and other subtropical orchards, apples, table grapes, open field and greenhouse vegetables, potatoes, and onions. Based on discussions with local stakeholders, the inefficient use of water results from the weak infrastructure in addition to a lack of policy, knowledge, and equipment. While some farmers face water shortages, others' lands are over irrigated. Inefficient water usage is the rule, as most of the distribution channels are not pressurized and are subject to leakage and evaporation, while irrigation frequency is neither linked to crop requirements nor calculated based on precipitation levels (FAO, 2020).

Moreover, **the land tenure system also poses a significant challenge in terms of sustainable land and water management and is often associated**



**with low productivity and land degradation.**

This is due to various reasons, including, among them, inadequate land management practices implemented on leased land and inheritance laws that have led to further fragmentation and thus hampered the creation of economies of scale. This is particularly true on leased land (approximately one-third of total agricultural land), where there is no monitoring or regulation on prices and land lease agreements. Lease durations have been reduced to a minimum and farmers have been left in a state of total uncertainty. This, in turn, has reduced farmers' willingness to implement long-term strategies related to investments in new and more intensive technologies or the adoption of more

sustainable agricultural practices, such as stone removal and medium-term soil fertility management practices (e.g. crop rotation, organic fertilization).

**Artesian wells remain the major sources of irrigation** for approximately 60 percent of irrigated lands. Wells are privately owned, and water is often sold to neighbouring farmers. Springs and traditional irrigation canals (40 percent of irrigated lands) are usually collectively managed through a traditional water rights system dating from the Ottoman period. Given the availability of rehabilitation funds through development projects, municipalities have recently taken over





the management of local irrigation networks. Water salinity is an issue in coastal areas, as overpumping of underground water for both agriculture and household use has caused sea water intrusion and water pollution. The use of agricultural chemicals, as well as household and industrial waste, is very high in the Litani River and its basin and in several other surface water sources in Lebanon (FAO, 2020). These factors adversely affect food safety in general, in terms of production and quality, and undermine linkages with the agroindustry through their non-compliance with the required standards.

This situation has often led to **over synthetic fertilization of lease land, as soil management is not coordinated and planned** (AFD, 2020). Improper soil fertility management is not limited to leased land; it occurs across all agricultural holdings and is due to chronic malpractices, such as monocropping, irrational use of fertilizers, inappropriate irrigation practices, and excessive ploughing in dry areas, which have led also to soil compaction and soil erosion (FAO, 2020).

Unsustainable soil and water management practices are likely to increase the country's vulnerability to climate change, in particular affecting the agriculture sector. Deterioration of soil conditions, biodiversity, and water scarcity are thus expected to accelerate over time. The sector's dependence on rainfall might be subject to decreased yields and thus increase demand for irrigation, which would accelerate desertification. This, in turn, could reduce the carrying capacity of grazing lands severely. Lack of access to financial resources allocated to climate change mitigation and the limited capacities of the private and public actors would limit response capacity in addressing the increasing challenges posed by drier soils and water demand (DAL, *et al.* 2020).

#### Proposed systemic levers:

1. **identify strategies for farmer adoption of sustainable agricultural practices, including**

**policy incentives and instruments; and**

2. **implement a national action plan for environmental recovery and the mitigation of the impacts of climate change.**

Despite the current economic and financial crisis and the increased cost of inputs, **there is an opportunity to transform the agricultural production system towards a more rationalized use of inputs.** Significant efforts should thus be made to (a) ensure lower use of inputs and the sustainable and efficient use of water through the implementation of adequate rules and regulations, including supervision of input imports and distribution; (b) support sustainable land reclamation and low-input modes of production, such as organic and conservation agriculture, especially in remote and hilly areas. Low-input agriculture may include organic systems and locally valorized production systems.

The transition out of the economic crisis should include **an environmental recovery process that focuses on limiting land degradation through actions designed to reduce input use.** It should also lead to the implementation of a clear action plan to enforce existing environmental regulations, improve natural resources management, and clean and rehabilitate polluted and/or damaged sites, such as the Litani River basin and quarries – and abandoned sites that previously played a positive environmental role, such as terraces, and environmental corridors. Moreover, under the environmental recovery plan, a moratorium should be imposed on the development of dam infrastructure until an integrated water management policy is adopted through a participatory process. Finally, climate change mitigation interventions should form part of the recovery process and any national action plans in the future. The actions proposed here are in line with the NAS flagship programme “Increased agri-food production and export”, particularly programmes related to horizontal and vertical value chain networking, value chain modernization, and enhanced access to finance.



## Transition to sustainable food systems

The 2019–2021 financial, economic, and political crises have hampered the transition of the national economy of Lebanon and caused the food system to veer off track from sustainability goals. This report has highlighted the need to focus on the immediate effects of and responses to crises within the food system, particularly concerning some of the most vulnerable segments. It has attempted to unpack some major questions around particular issues/actors and outline what needs to be done to put the country back on track towards a vision of sustainable, resilient, and inclusive food system transformation.

Government officials have often cited agriculture and agroindustry as key productive sectors

central to the country's economic recovery. To allow these sectors to sustainably reach their full potential, the Government should work in consultation with all relevant national actors to implement some of the above-mentioned levers and consider reforming the institutional setting and policy instruments governing the overall food system. This reform can be based on existing national strategies, such as the National Agriculture Strategy (2020–2025) and the National Nutrition Strategy (2021), as well as the forthcoming Social Protection Strategy, but also on strategies yet to be developed, such as a most needed territorial development strategy, an environment, and climate change resilience strategy, and a more action-oriented water and irrigation management strategy.







Based on various consultations with the different stakeholders, it is recommended that the Government of Lebanon and its development partners implement strategic short-term emergency interventions and medium- and long-term interventions that focus on structural change and improving governance.

**a. Emergency measures: overcome the vulnerability context**

Efforts should be made to stabilize and improve food production and monitoring of the evolution of access to food for vulnerable groups. Proposed actions are as follows:

- implement a food security and nutrition early warning system through upscaling the Ministry of Health programme for the screening and management of severe and acute malnutrition in children;
- implement a large emergency school feeding programme targeting – as a matter of priority –vulnerable and lower-middle-class children;
- implement cash transfer programmes, as part of a social safety initiative to mitigate the effects of the crisis and the upcoming transition period, especially in terms of food security; and
- ensure the short-term provision of agriculture inputs, within a strategy to rationalize input use through training on good agricultural practices.

**b. Medium-term: improve farmers' human and financial capital**

In the medium term, the Government should improve the production environment, increase

access to inputs, financing, and extension services, and support the creation and empowerment of farmers' cooperatives and clusters. Particular attention should be paid to farmers' human and financial capital by doing the following:

- supporting farmers' human capital through the development of efficient extension services that promote sustainable input use, the introduction of and access to new technology, such as improved seeds varieties, improved irrigation methods, and climate-smart and renewable energy solutions; and
- supporting farmers' capacity for investment through adapted grant and loans schemes.

**c. Long-term: reform the governance of the food system**

In the long term, the government should improve the legal framework, and set out to increase the productivity and financial return on farming activities caused by structural problems in the agriculture sector and unfair value chain dynamics. This includes steps to do the following:

- review and implement territorial strategy and action plans;
- develop and implement an environmental and climate change strategy;
- reform the institutional setting of the food system;
- create a legal framework to formalize agricultural work; and
- enact anti-trust laws specific to the agriculture sector.

## References

- AFD (Agence Française de Développement).** 2020. *Lebanese Agriculture in Crisis – Diagnostic Note*. Beirut.
- Assouad, L.** 2021. *Rethinking the Lebanese economic miracle*. World Inequality Lab – Working Paper N° 2017/13. <https://wid.world/document/rethinking-lebanese-economic-miracle-extreme-concentration-income-wealth-lebanon-2005-2014-wid-world-working-paper-201713/>
- Banque du Liban.** 2021. Banque du Liban. Web page <https://www.bdl.gov.lb/home/search?query=exchange+rate&search=1>
- CAS (Central Administration of Statistics of Lebanon) & ILO (International Labour ) (ILO).** 2018. *Child Labour Survey in Lebanon 2015*. Beirut, ILO. [https://www.ilo.org/wcmsp5/groups/public/---ed\\_norm/---ipec/documents/publication/wcms\\_651782.pdf](https://www.ilo.org/wcmsp5/groups/public/---ed_norm/---ipec/documents/publication/wcms_651782.pdf)
- CAS & ILO.** 2020. *Labour Force and Household Living Conditions Survey 2018—2019*. [https://www.ilo.org/wcmsp5/groups/public/---arabstates/---ro-beirut/documents/publication/wcms\\_732567.pdf](https://www.ilo.org/wcmsp5/groups/public/---arabstates/---ro-beirut/documents/publication/wcms_732567.pdf)
- Consultation and Research Institute.** 2021. *CPI Consumer Price Index Monthly Report*. (Data available only upon subscription).
- Dadouch, S, & Durgham, M.** 2021. *Smugglers are partly behind Lebanon's energy crisis*. Washington Post, 5 July. Cited 10 October 2021. [https://www.washingtonpost.com/world/middle\\_east/lebanon-economic-energy-crisis/2021/07/04/b8367752-d8fe-11eb-8c87-ad6f27918c78\\_story.html](https://www.washingtonpost.com/world/middle_east/lebanon-economic-energy-crisis/2021/07/04/b8367752-d8fe-11eb-8c87-ad6f27918c78_story.html)
- Dal, E., Díaz-González, A.M., Morales-Opazo, C. & Vigani, M.** 2021. *Agricultural sector review in Lebanon*. FAO Agricultural Development Economics Technical Study No. 12. Rome, FAO. <https://doi.org/10.4060/cb5157en>
- David-Benz, H., Sirdey, N., Deshons, A., Orbell C. and Herlant, P.** 2022. *Catalysing the sustainable and inclusive transformation of food systems: conceptual framework and method for national and territorial assessment*. Rome, Brussels and Montpellier, France. FAO, European Union and CIRAD.
- ESCWA (United Nations Economic and Social Commission for Western Africa).** 2021. *Multidimensional poverty in Lebanon (2019—2021)*. E/ESCWA/CL3.SEP/2021/POLICY BRIEF.2 Beirut. [https://www.unescwa.org/sites/default/files/news/docs/21-00634-multidimensional\\_poverty\\_in\\_lebanon\\_policy\\_brief\\_en.pdf](https://www.unescwa.org/sites/default/files/news/docs/21-00634-multidimensional_poverty_in_lebanon_policy_brief_en.pdf)
- FAO.** 2020. *Lebanon Country Gender Assessment of the Agriculture and Rural Sector — Lebanon*. Beirut. FAO.
- FAO.** 2021a. *FAOSTAT Food Balances Database* <http://www.fao.org/faostat/en/#data>
- FAO.** 2021b. *FAOSTAT Production Database*. Cited 12 Novembre 2021. <http://www.fao.org/faostat/en/#data><http://www.fao.org/faostat/en/#data>
- FAO.** 2021c. *FAOSTAT Trade Database*. <http://www.fao.org/faostat/en/#data>
- FAO.** 2022. *Inclusive and Sustainable Territories Platform*. Cited 30 November 2021. <https://www.fao.org/in-action/territorios-inteligentes/countries/lbn/en/>
- FAO, IFAD (International Fund for Agriculture Development, UNICEF (United Nations Children's Fund), WFP (World Food Programme), WHO (World Health Organization) & ESCWA (United Nations Social and Economic Commission for Western Africa).** 2020a. *Near East and North Africa. Regional Overview of Food Security and Nutrition: Enhancing resilience of food systems in Arab States*. Cairo. FAO. <https://www.fao.org/3/cb4902en/cb4902en.pdf>
- FAO, IFAD (International Fund for Agriculture Development, UNICEF (United Nations Children's Fund), WFP (World Food Programme) & WHO (World Health Organization).** 2021b. *The State of Food Security and Nutrition in the World (SOFI)*. <https://www.fao.org/3/cb4474en/cb4474en.pdf>
- Global Nutrition Report.** 2021. *The burden of malnutrition at a glance. Country Nutrition Profiles: Lebanon*. Washington DC. Cited 15 November 2021. <https://globalnutritionreport.org/resources/nutrition-profiles/asia/western-asia/lebanon/>

- IDAL.** 2020. *Agri-food Sector in Lebanon: 2020 Factbook*. Beirut. <https://investinlebanon.gov.lb/Content/uploads/Publication/200402102635557-IDAL%20Agri-food%20Industry%20in%20Lebanon%20Factbook%202020.pdf>
- ILO (International Labour Organization).** 2018. *The Cooperative Sector in Lebanon. What role? What future?*. Beirut. ILO [https://www.ilo.org/wcmsp5/groups/public/---arabstates/---ro-beirut/documents/publication/wcms\\_644724.pdf](https://www.ilo.org/wcmsp5/groups/public/---arabstates/---ro-beirut/documents/publication/wcms_644724.pdf)
- Lebanon, Ministry of Agriculture.** 2003. *National Action Programme to Combat Desertification*. <https://knowledge.unccd.int/sites/default/files/naps/lebanon-eng2003.pdf>
- Lebanon, Ministry of Agriculture.** 2020. *Lebanon National Agriculture Strategy (NAS) 2020—2025*. <https://www.fao.org/faolex/results/details/en/c/LEX-FAOC202167/>
- Lebanon, Ministry of Agriculture, FAO & Cooperazione Italiana.** 2012. *Resultats globaux du module de base du recensement de l'agriculture 2010*. Beirut [chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/viewer.html?pdfurl=https%3A%2F%2Fwww.fao.org%2Ffileadmin%2Ftemplates%2Ffess%2Ffess\\_test\\_folder%2FWorld\\_Census\\_Agriculture%2FCountry\\_info\\_2010%2FReports%2FResults\\_1%2FLBN\\_FIN\\_REP\\_FR\\_2010.pdf&clen=6066661&chunk=true](chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/viewer.html?pdfurl=https%3A%2F%2Fwww.fao.org%2Ffileadmin%2Ftemplates%2Ffess%2Ffess_test_folder%2FWorld_Census_Agriculture%2FCountry_info_2010%2FReports%2FResults_1%2FLBN_FIN_REP_FR_2010.pdf&clen=6066661&chunk=true)
- McKinsey.** 2018. *Lebanon economic vision*. Beirut. <https://www.economy.gov.lb/media/11893/20181022-1228full-report-en.pdf>
- Trading Economics.** 2022. *Ease of doing business in Lebanon*. <https://tradingeconomics.com/lebanon/ease-of-doing-business>
- UNHCR (United Nations High Commissioner for Refugees).** 2021a. *Lebanon fact sheet*. <https://reporting.unhcr.org/sites/default/files/Lebanon%20factsheet%20September%202021.pdf>
- UNHCR.** 2021b. *UN: Syrian refugees in Lebanon struggle to survive amid worst socioeconomic crisis in decades*. 29 September. Cited 31 December 2021. <https://www.unhcr.org/uk/news/press/2021/9/615430234/un-syrian-refugees-lebanon-struggle-survive-amid-worst-socioeconomic-crisis.html>
- UNHCR (United Nations High Commissioner for Refugees), UNICEF (United Nations Children's Fund), & WFP (World Food Programme).** 2022. *Vulnerability Assessment of Syrian Refugees in Lebanon (VASyR) 2021*. Beirut. <https://data2.unhcr.org/en/documents/details/90589>
- UNIDO (United Nations Industrial Development Organization).** 2019. *Road map for agro-food sector in Lebanon. Final roadmap report*. October. <https://open.unido.org/api/documents/22583891/download/Road%20Map%20Agro-food%20sector%20Lebanon.pdf>
- WFP (World Food Programme).** 2020. *Assessing the impact of the economic and COVID-19 crises in Lebanon*. Beirut. <https://docs.wfp.org/api/documents/WFP-0000116784/download/>
- World Bank.** 2020. Data: agriculture, forestry and fishing, value added (% of GDP). <https://data.worldbank.org/indicator/NV.AGR.TOTL.ZS>
- World Bank.** 2021a. *Lebanon Economic Monitor – Lebanon Sinking (To the Top Three)*. Washington DC. <https://documents1.worldbank.org/curated/en/394741622469174252/pdf/Lebanon-Economic-Monitor-Lebanon-Sinking-to-the-Top-3.pdf>
- World Bank.** 2021b. World Bank Open Data: Development Indicators, Cause of death, by non-communicable diseases-(% of total). <https://data.worldbank.org/indicator/SH.DTH.NCOM.ZS?locations=LB>
- World Bank.** 2021c. World Bank Open Data: Development Indicators,-Diabetes prevalence (% of population ages 20—79, Lebanon). Washington DC. Cited 9 November 2021. <https://data.worldbank.org/indicator/SH.STA.DIAB.ZS?locations=LB>
- World Bank.** 2022. World Bank Open Data: Development Indicators. Washington DC. Cited 3 November 2021. <https://databank.worldbank.org/source/world-development-indicators>

## Annex: Interviewees in alphabetical order:

**Amal Saliba, Lebanon**, Ministry of Agriculture  
**Atef Idriss**, Mefosa (Food sciences expert)  
**Benoit Berger**, Alternative Food Movement, Fair Trade  
**Brian Wie**, World Food Programme  
**Elie Awad**, National Food Safety Agency  
**Eulogio Montijano**, European Union delegation to Lebanon  
**Hala Ghattas**, Food security expert, American University of Beirut  
**Hussein Abou Yahia**, Extension services – farmers  
**Lamia Toum**, Lebanon, Ministry of Agriculture  
**Maurice Saade**, Food and Agriculture Organization of the United Nations  
**Mohamad Haidar**, Lebanon, Ministry of Economy and Trade  
**Myriam Eid**, Lebanon, Ministry of Agriculture  
**Nada Barakat**, United Nations Industrial Development Organization  
**Nadine Khoury**, Robinson Agri  
**Roland Riachi**, Expert  
**Said Gedeon**, Chambers of Commerce  
**Sandra Fahed**, Lebanese University  
**Tina Madsen**, World Food Programme

## Acknowledgements

**This brief is the result of the collaboration between the Ministry of Agriculture, the European Union, the FAO and CIRAD. It is part of the Catalysing the Sustainable and Inclusive Transformations of Food Systems Initiative.**

**Have contributed to this assessment and the writing of this note:** *Jinan Chamseddin; Kanj Hamade Redha Hamdan; Areej Jafari; Pooja Khosla; Tommaso Alacevich; Meeta PunjabiMehta; and James Tefft (FAO/CFI).*

**Editing and formatting:** *Saon Bhattacharya, Alan Cooper and Chiara Viridis.*



