Economic Opportunities and Job Creation
AGRICULTURE Sector

DRAFT FOR DISCUSSION

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Contents

1. Sector overview

Lebanon's small agricultural sector, endowed with a variety of agro-climatic zones, remains important in the national economy. Agriculture makes a steady contribution to national output and employs significant numbers, particularly in rural areas. The sector's indirect contribution to the economy is important due to strong inter-sector linkages. Agriculture also plays a vital role in the natural resources management, and contributes significantly to sustainable development.

The agricultural sector contribution to GDP was on average 6.8% annually in the 1994-2007 period, and dropped to an average of 3.9% per annum in the 2008-2013 period[1]. . In recent years, the sector has been severely impacted by the Syrian conflict. Since 2010, the agricultural sector has received increased government attention, evidenced by increased outlays. The Ministry of Agriculture (MOA) has taken various initiatives in support of sector development and important steps to implement institutional and organizational reforms. However, structural problems and lack of competitiveness still widely impact the development of the sector.

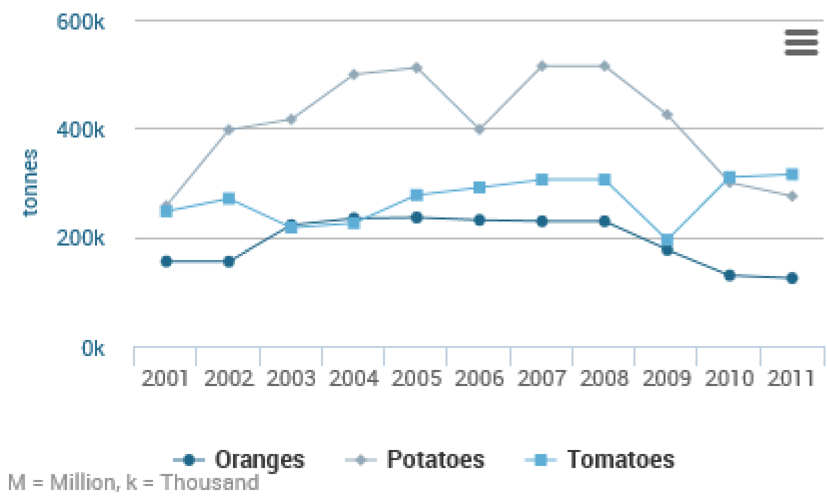
Table 1: Agricultural Sector Contribution to GDP, current prices, 2008-13 (Billions of LBP, percent, CAS)

	2008	2009	2010	2011	2012	2013
Agriculture and forestry	1,177	1,198	1,345	1,481	1,580	1,752
Livestock and livestock products; fishing	800	903	883	809	889	1,041
Total	1,977	2,101	2,228	2,290	2,469	2,793
Agriculture as percent of GDP	4.49%	3.93%	3.85%	3.79%	3.71%	3.92%

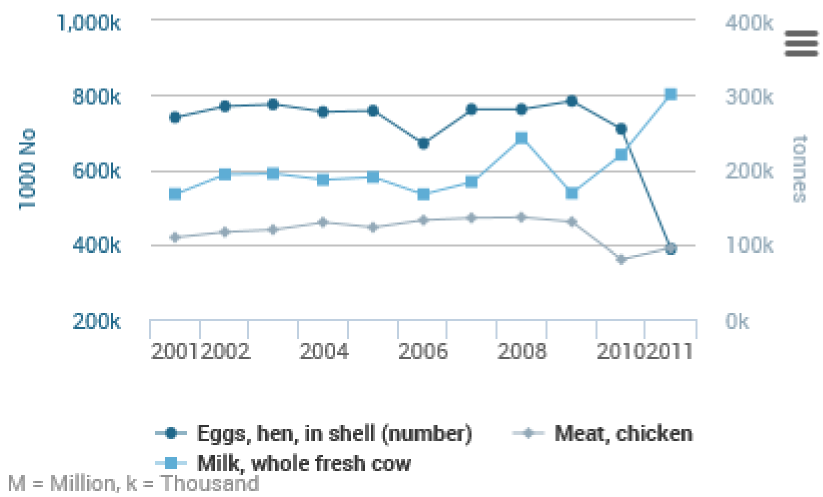
Crop production represents roughly 60% of output and livestock production 40%. The main agricultural products are fruits, with citrus, grapes, apples and bananas as main crops; vegetables, with notably potatoes and tomatoes as main crops; olives; tobacco; and livestock and livestock products (fresh cow milk, poultry – eggs and meat, sheep and goats); [2]. The output of selected main enterprises over a period of a decade is reproduced in the two graphs below, indicating considerable fluctuations over time.

[1] CAS official numbers until 2013, at 2013 prices
[2] Agriculture Fact Book, IDAL, 2015

Graph 1. Output of selected main crops, 2000-11 (Thousands of tons, FAO STAT)



Graph 2. Output of selected livestock products, 2000-11 (Thousands of tons, numbers, FAO STAT)



Whereas vegetables, fruits and poultry are attractive products for exports and thus have the potential to increase agricultural exports, Lebanon is a major food importer. Lebanon's agricultural imports increased by 13.6% between 2012 and 2015, and agricultural exports increased by only 6.6%. Lebanon's import-to-export ratio reached 9.1 in 2015, showing the disproportion and the weight of imported goods and implying the potential to develop import substitution productions.

Since 2012, the agricultural trade flows observed a number of developments with a decline in total agricultural trade in 2013-2014, a drop in bilateral agricultural trade with and through Syria, a significant change in trading routes in the region, and finally increase of informal trade through Syria since the crisis[3].

[3] Food security and livelihoods assessment of Lebanese host communities, FAO, Reach, MoA, 2015

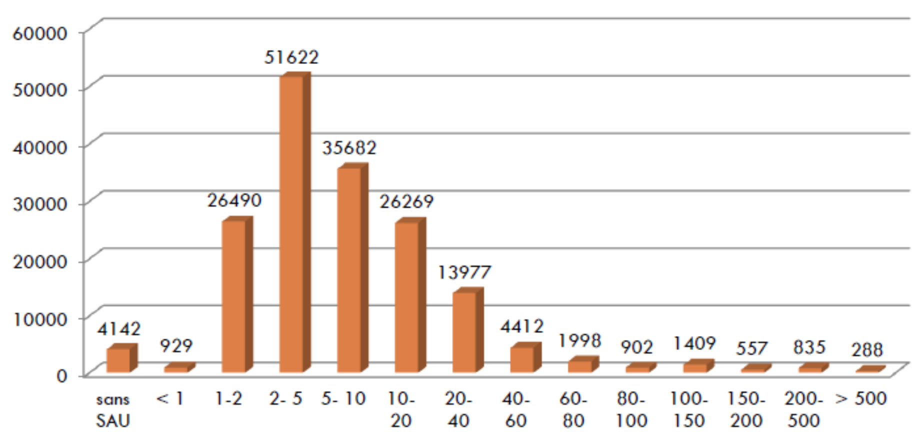
Table 2. Agricultural Trade (Lebanese Customs, Mil LL)

	2012	2013	2014	2015	2016*
Agricultural imports	1,801,702	1,953,921	2,267,626	2,047,647	1,698,795
Agricultural exports	211,903	266,352	254,235	225,943	180,531

** January-August 2016*

According to the 2010 agricultural census (Ministry of Agriculture), the number of agricultural holdings (over 1 dunum of cultivated land) is 169,512. Of the total, only thirty percent of holdings (about 50,000) are more than one hectare or ten dunums, and 49% are less than 5 dunums[4]. Land fragmentation restricts the development of economies of scale and the reduction of the cost structure of farmers. The legal status of the holdings shows that 92% are single holdings (Agricultural holders operating their lands individually), and 7% of agricultural holders operate their lands in a partnership with others, reflecting the large predominance of small holdings. Similarly, the dairy sector shows that 66% of farmers have between 1 and 5 dairy cattle. Large commercial farms are reported to be situated in the North and the Bekaa, whereas the South is characterized by small farms.

Graph 3: Number of agricultural holdings by size in 2010 (Dunums, MoA census 2010)



The sector employs around 6%[5] of the labour force with regional variations[6]. Lebanese represent 7.5% of the labour force in plant production (compared to 85% Syrians), and 47% of labour force in animal production[7]. ILO estimated that in 2013, 24% of the Syrian active labour was employed in agriculture[8].

Seasonal labour accounts for 47.1% of agricultural labour[9]. Seasonality, lower wages and lack of social security coverage cause labour to shift towards safer and more sustainable sectors. This is reflected in part through the decline of youth interest in the agricultural sector.

[4] Livestock herders, whose lands are mostly less than 1 Du are represented in the number
[5] CAS 2009: 6%, ILO 2016: 6.3%
[6] CAS 2009 data show that the agricultural sector employs 18 percent of the total active labor force in Akkar and Minnieh-Dennieh districts, 18 percent in Baalbeck and Hermel districts and 9 percent (rest of the Bekaa)
[7] Agriculture Labour Study preliminary results FAO, 2016
[8] Assessment of the impact of Syrian refugees in Lebanon and their employment profile, ILO, 2013
[9] UNDP, 2014

The wage for a Lebanese male daily worker in plant production is 26 USD compared to 12 USD for a Syrian male worker. Large discrepancies exist though between men and women working in the sector; the daily wage of a Lebanese woman worker is 10 USD compared to a Syrian female worker 7 USD (FAO 2016). It is estimated that over 40% of households working in agriculture are poor[10], and workers in agriculture are the poorest of all workers.

2. Government priorities

With support from the EU, the Ministry of Agriculture formulated the Ministry of Agriculture Strategy 2015-2019, which aims at fostering the development of the agriculture sector, develop capabilities in order to strengthen management of agriculture and improve public agriculture services to farmers and Lebanese citizens. The strategy presents the MoA mission, vision, main orientations, achievable objectives, expected results and activities and develops eight main courses of action:

1- Improve food safety and quality of locally produced and imported products
2- Increase productivity and competitiveness of the Lebanese agricultural products
3- Improve the good governance and sustainable use of natural resources
4- Strengthening agricultural extension and education
5- Strengthening agricultural research and laboratories
6- Development of the cooperative sector and mutual funds
7- Development of the Ministry of Agriculture capacities
8- Responding to climate change impacts

The aforementioned courses of action include 30 components and 104 areas of intervention with a total budget of 330 million USD over 5 years. Increased support for programme priorities is warranted, particularly to strengthen the sector resilience and achieve development opportunities.

The Green Plan (1963) is mandated to study and execute land reclamation and development projects. Its activities include improving and building agricultural roads, building concrete water tanks and hill lakes / earth reservoirs for irrigation, constructing stone retaining walls and terraces, installing on-farm irrigation systems and providing fruit trees and plants. The Green Plan aims to contribute to the mitigation of land degradation through a focused five-year (2016-20) strategy aimed at developing and diversifying the services offered to farmers, adapting and mitigating the effects of climate change on agriculture, and supporting agricultural infrastructure and investment[11]. The Green Plan also pursues implements of a strategic national action plan on water for the biennium 2016-17[12].

FAO's role is to support the Ministry of Agriculture in achieving its priorities following the Country Programming Framework (CPF) 2016-2019, which addresses two main government priority areas: Government priority one "to expand economic and livelihood opportunities benefiting local economies

[10] Snapshot of poverty and labor market outcomes in Lebanon based on Household Budget Survey 2011/2012
[11] Green Plan, Green Plan and the Land Reclamation Neutrality Approach in compliance with the Revised National Action Programme to Combat Desertification for Lebanon, June 2016, 28 p.
[12] Green Plan, Operational and Strategic National Action Plan on Water for the Biennium 2016-17, FAO Inter-Ministerial National Ream, March 2016, 18 p.

and the most vulnerable communities" through strengthening resilience of smallholder producers and upgrading capacities for sanitary and phytosanitary control and management of food safety and quality systems; and Government Priority two "to improve performance of the agricultural sector contributing to the economic, social, environmental and sustainable rural development" through supporting improved and innovative sustainable agricultural production, sustainable land, forest and water management, and agricultural value chains development. This CPF will also work to strengthen institutional capacities in data production and policy support in relation to agriculture, food security and nutrition with special focus on gender.

3. Main challenges facing the sector

Agriculture represents an important source of income for a large share of households in rural areas, particularly in the poorest districts of Akkar and Baalback-Hermel where agriculture is the primary source of income and employment for the poor[13]. Agriculture has a high potential for employment opportunities. However, challenges that preceded the Syria crisis and made worse by its repercussions on the Lebanese economy and the scarcity of resources and economic opportunities in Lebanon, hinder the development of the sector. These challenges affect cost of production, which was already high compared to other countries in the region, and access to regional and international markets, together leading to a reported decrease in agricultural employment and income, especially among the youth. The sector's challenges are caused by: (1) structural problems (longer term), which requiring government action, and (2) cyclical and operational problems (short to medium term), which need to be addressed through initiatives of the government, private sector and international community.

This section provides a brief overview of key challenges facing the agricultural sector, and related on-going assistance; it is based on desk research that covered various reports/studies/assessments and consultations with key stakeholders.

Food safety and quality for domestic production and exports

Food safety and quality issues emerged as a major concern during the food safety campaign launched by the Minister of Health in 2015 (e.g. sanitary and phytosanitary concerns, lack of hygienic conditions in dairy). Enhanced government monitoring and control resulted in sanctioning and closure of numerous food production and supply enterprises. The important support for quality assurance from the international community (e.g. QUALEB) coupled with the assessment work of national laboratories (LARI, IRI, and Lebanese University) increased public awareness and interest on this issue. However, still lacking is a full scope of international accreditation needed to meet export requirements to contribute to better quality of agricultural production and improved food safety..

Since 2010, MoA has also taken important steps to improve Lebanon's food safety and quality infrastructure and management systems and to develop national capacities. Thus, several ministerial decisions were issued and/or updated, based on OIE, CODEX and EU recommendations for the organization of the food chain at all levels (primary production, processing, transportation, storage), thereby ensuring the safety of food sold on both national and international markets. Main

[13] Agriculture is reported to report up to 80% of the local GDP according to the MoA

requirements covered the sanitary and health conditions, organization, registration and approval, record keeping, traceability and labelling. There remain, nonetheless, concerns about quality and safety hazards for consumers that negatively affect access to local and international markets. **Health safety hazards** include use of polluted water in crop production, high levels of residues and pesticides in crops, and of hormones in livestock products, which constrain access to markets that set high quality standards. Integrated Pest Management (IMP) and Good Agricultural Practices (GAP) direct the use of pesticides and fertilizers in a way to lower residues and still protect the crop. **Quality concerns**, including processing and post farm-gate practices, such as storage and conditioning, **and non-compliance with international standards** are issues affecting the competitiveness of many Lebanese agricultural products on international markets.

Infrastructure, irrigation and sustainable land use

a. Land scarcity, land use and zoning and lack of arable land (144,200 hectares[14]) vary across the regions and have contributed to increase the **price of land** globally in the country, thus also affecting cost of production. The high cost structure that ensues decreases the profit margin of farmers, making the sector less attractive to investments and limits its competitiveness.

b. **Fragmentation of land** restrains the possibility of achieving economies of scale. **Small production volumes** are an obstacle to accessing external markets, as demand on international markets is for large quantities that the Lebanese market is not able to supply.

c. According to the last census findings, half of total agricultural land is irrigated[15]. However, **irrigation** systems and practices are highly **inefficient**, though noting that about 50 percent of the total irrigated area is irrigated by sprinkler and drip irrigation systems

Low public investment in the sector[16] is focused on land reclamation and development (through the Green Plan), and irrigation rehabilitation and development. Only one sizeable irrigation project is under implementation (Litani Canal 800). Agricultural infrastructure development, largely foreign financed, is managed by CDR. Spending on agriculture is highly fragmented, and mostly not under the control of the MoA. Big agricultural expenditures programmes do not fall under the MoA; namely, subsidies for tobacco, carried out by the Ministry of Finance (MoF) and wheat subsidies by the Ministry of Economy and Trade (MoET). Other important support programs include a subsidy scheme to increase forage crop production and develop the dairy sector (administered by MoA), which was introduced in 2012 with a total estimated cost of USD 18.66 million yearly (the programme stopped in 2015 due to lack of funds) and an export subsidy programme by IDAL, in addition to the Lebanese Maritime Exports Bridge launched in 2015 (also administered by IDAL). Even though the MoA budget allocations have increased in recent years, the total budget remains well below the importance and role of the sector. This situation is not conducive to the development of the sector in general and of strong value chains in particular.

Production and productivity

a. In addition to the **high cost of land** (as mentioned above), **access to water and inefficient irrigation practices** impact the cost of production and productivity, thereby affecting the competitiveness of the sector. The quality of irrigation water also affects product quality and safety.

[14] MoA, census 2010
[15] Census, MoA 2010
[16] World Bank, 2010

b. The high cost of electricity and of energy is a main challenge facing the productive sectors in the country and contributes to the **high operating costs** in the agricultural sector. Also, labour costs are high (see next section).
c. Because of the small size and fragmentation of agricultural lands, farm **investments in technology** come with high cost for a farmer to bear. At the same time, farmers still resist to organize in cooperatives whereby equipment could be shared.
d. **Weak marketing infrastructure** (for instance, absence of modern wholesale markets and conditioning centres; cold storage facilities) and **bad conditions of rural roads** directly impact the cost of production and competitiveness of the sector. Access to land, cost of transportation and time spent on sub-standard roads are some of the consequences of the poor condition of the roads network.

Labour

a. Lebanon has a **high cost of labour**, particularly compared with countries competing on the regional markets. Wages for Lebanese are reported to be higher than for Syrians. Lebanese unskilled permanent labour working in the agriculture sector is paid 531 USD per month for a male Lebanese compared to 462 USD to a male Syrian. Seasonal Lebanese labour's monthly wage in agriculture is 761 USD compared to 353 USD for Syrian workers[17].
b. **Data on the labour market remains largely lacking - demand and supply of labour in agriculture**, skill levels, and productivity levels are missing. Agricultural labour and employment data date back to the census of 2010; since, the Syrian crisis has impacted the sector and notably the labour market.
c. **Labour in agriculture is reported as mostly low skilled.** High skill levels increase productivity and help drive down the cost of production. Agricultural engineers are generally not trained in line with market requirements, and many lack field experience. A mismatch between the education in TVET and market requirements has been reported. Further assessment is needed to better understand and correct the disparities.
d. More than 75% of **farmers and farm workers do not benefit from social security**[18] coverage, making agricultural sector employment highly risky and unattractive, except for people living under the poverty line. Moreover, the lack of decent work conditions in much of the sector further degrades social protection.

Access to information

a. Lack of official **sector data** that is regularly made available and up-to-date, such as through the annual agriculture survey and the national accounts, hinders sector planning and development. As indicated above, also lacking is data on agricultural labour demand and supply. It is noted that the private Centre de Recherche Agricole Libanais (CREAL) has developed over the past decades a considerable agricultural database.
b. Lack of information to farmers on **prices and market opportunities,** both internally and externally; the latter also including, legal and quality requirements, entry points in certain markets, subsidies for exports. The lack of information may compromise the decision making

[17] FAO preliminary results, 2016
[18] Ministry of Agriculture census, 2010

process of farmers with respect to what crops to grow and what interventions to carry out on their farms.

c. Lack of information to farmers on access to **new technology and good practice**, including related **technical training** (lack of farmer's willingness is also widely reported). This calls for increased role of the agricultural research and extension services.
d. Despite MoA efforts including a number of road shows all over Lebanon in 2014-2015 in order to increase awareness of farmers on how to access this credit scheme, there remains lack of awareness by farmers on **channels to access finance** opportunities, notably subsidized loans.

Access to markets

a. Experts have identified market access, both domestic and external, as the main challenge to the development of the sector. **Lebanon's agricultural imports have increased** in past years, reflecting an increase in local demand. This trend along with the very low agricultural export-agricultural import ratio presents a challenge (and opportunity) to Lebanese farmers, namely to expand in the local market and to develop import substitution. Thus for instance, on a per capita basis, Lebanon consumes more fruits and vegetables[19] than any Arab or western European country, making domestic market share retention very important. Price levels of local produce remain nonetheless high for consumers, which require efforts to decrease the cost of agricultural products and more efficient marketing systems to improve competitiveness on the local market. Modernization of production techniques and improvements of productivity is largely missing in agricultural practices in Lebanon.
b. **At the level of external markets, access is still limited** for Lebanese products, due to (1) lack of trade agreements with specific countries, and (2) technical barriers to trade. Negotiation of new trade agreements and renegotiation of certain trade agreements already signed would facilitate increased and expanded market access. This is important with respect to countries with considerable Lebanese expatriate population, where supply and marketing of Lebanese products could create an increase in demand.
c. Value chain operators are unable to ensure **steady supply** of products in the required quantities, due to structural constraints and the seasonal nature of production. The lack of consistent supply compromises interest from external buyers.
d. Tastes of consumers continuously change, directly affecting agricultural production. Research on new techniques and varieties, orientation of production and marketing of products is still lacking. Assessing **evolution of preferences in internal and external markets** and supporting adaptation of production to meet those specific needs is a problem which needs to be addressed.
e. **Lack or weakness of modern post-harvest and marketing infrastructure** is badly affecting product quality and thus access to markets and remunerative prices for products to farmers. Considering the high cost structure of Lebanese agricultural production compared to other countries in the region, the supply of high quality goods is essential to remain competitive on the market and ensure adequate profits. Thus, the development of modern storage and refrigeration facilities, conditioning plants, processing plants, etc., using state-of-the-art technologies as well as modern wholesale and export markets are required in the right locations.
f. Lack of an **efficient marketing chain on the domestic market**, which is dominated by middlemen and characterized by farmers' sales on consignment basis, has a very negative impact

[19] FAO reported that in 2008, 1.5m metric tons of vegetables were consumed

on the economic surplus of both the farmer and the consumer, whereby the first has to sell his product at low prices to the middle man, who resells the product to the latter at high market prices. Modern wholesale markets and facilities, farmer's market and even farm gate sale are all lacking and would help farmers maximize their profit, expand their businesses, and at the same time offer the consumer an attractive price.

Access to financing

a. **Lack of access to finance by non-bankable entities** undermines agricultural operations and development, even small scale. The first direct impact of the extremely high informality in agriculture (92.4%)[20] concerns the access to finance. Without a formal legal status, banks and lending institutions will not provide financing opportunities to farmers, unless they present collateral. Acquiring a loan requires a farmer (1) to take out a personal loan (with the contingencies governing these types of loans) or (2) to provide collateral to get loan approval. With many farmers not having the required collateral, this limits the possibilities of small farmers of accessing finance.

b. **Loan guarantees for agriculture extended by Kafalat** increased between 2008 and 2010. Since then, the number of projects guaranteed decreased from 435 in 2011 to 313 in 2015, while the amount of loans remained in the range of 35-39 Million dollars annually[21]. Over the Kafalat loan guarantees extended in the 2008-2016 period amounted on average of 96,000 USD per project. The figures show a trend of stagnation of sector investment and a need to increase support for access to finance for agriculture. It also shows that the main beneficiaries of the Kafalat program are relatively larger farmers who can afford to take relatively large loans. Furthermore, additional credit schemes where established in support of small scale farmers and agricultural cooperatives to help address the funding gap in the agricultural credit market in Lebanon[22]

c. Agriculture as a sector is **not highly appealing to youth -** the 2010 agricultural census reported less than 11% of total agricultural holdings being held by individuals less than 35 years old. Few youth own properties and thus do not have the collateral needed for agricultural loans and investment projects.

4. Donor response to sector challenges

In the past years, there has been an increased response from donors to meet the challenges in the agricultural sector with the aim of creating more livelihood and employment opportunities and growing production. Importantly, the pipeline projects and planned support indicate increased assistance to the sector in the near term.

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[20] Towards decent work in Lebanon: issues and challenges in light of the Syrian refugee crisis, ILO 2015

[21] Kafalat official data

[22] Under the EU-funded ARDP Programme MoA established in 2012 in partnership with Kafalat, the CARD scheme (Credit for Agricultural and Rural Development) in order to increase access to credit for small-scale farmers and agricultural cooperatives. "CARD" was meant to complement the existing 'Kafalat agriculture guarantee scheme' and help fill major gaps in the agricultural credit market by supporting small short-term and large long-term loans. This credit scheme is made up of two financial products: (i) one for small loans (up to €35 000), "Kafalat small agriculture", and (ii) another to meet the long term credit needs of the agricultural sector that require an extended grace period (e.g. tree farming.), "Kafalat trees agriculture".

Below are summarily reviewed, responses to specific challenges and clusters of challenges. The projects listed include only donor support and only on-going projects (pipeline and planned projects are not included here). On-going donor support amounts to about 65 million USD.

Table 3. Ongoing financial support for agriculture provided by donors (US dollars)

Area of focus	Activity types	Grant budget (USD)	Loan budget (USD)
Production and productivity *MoA Course of action 2: Increase productivity and competitiveness of the Lebanese agricultural products*	• Technical assistance • Agricultural inputs • Participatory trainings • Provision of equipment	7,791,138.68	
Access to markets *MoA Course of action 2: Increase productivity and competitiveness of the Lebanese agricultural products*	• Capacity building to Fair Trade Lebanon • SMEs development • Capacity building for farmers • Technical assistance to IDAL and CCIA	4,095,508.86	
Food safety and quality *MoA Course of action 1: Improve food safety and quality of locally produced and imported products* *MoA Course of action 7: Development of the Ministry of Agriculture capacities*	• Capacity building to farmers • Capacity building to MoA	7,005,512.37	
Infrastructure, energy and land usage *MoA Course of action 2: Increase productivity and competitiveness of the Lebanese agricultural products* *MoA Course of action 3: Improve the good governance and sustainable use of natural resources*	• Reservoirs, hill lakes, land reclamation and development • Irrigation management, efficiency, rehabilitation and development • Agricultural roads • Technical assistance • Reforestation	29,796,501.00	12,400,000.00
Availability of and access to information *MoA Course of action 7: Development of the Ministry of Agriculture capacities MoA Course of action 4: Strengthening agricultural extension and education* *MoA Course of action 5: Strengthening agricultural research and laboratories*	• Support to MoA in Modernizing the Agricultural Statistics System	870,328.00	
Labour market *MoA Course of action 4: Strengthening agricultural extension and education*	• Skills development • TVET, vocational training, education	3,504,928.79	
Total		**53,063,917.70**	**12,400,000.00**

Food safety and quality for domestic production and exports

Ongoing assistance (USD 7,005,512.37) on food safety and quality including some focused on capacity development support for the Ministry of Agriculture and for farmers (277,500 USD and 728,012 USD, respectively). Activities aim at developing good agricultural practices, including prevention through integrated pest management, more accurate and efficient control of pest disease, pruning techniques and marketing and post-harvest techniques. Considering the importance of the issues and the response so far, there is need for scaling up the size and scope of support for quality improvement.

Infrastructure, irrigation and sustainable land use

On-going assistance of 42,196,501.00 USD is directed to infrastructure development, including land reclamation and development, irrigation systems rehabilitation and development, and agriculture roads (30.1 million USD), reforestation activities (1. 2 million USD) and technical assistance on sustainable land and water management (10.9 million USD). This support is particularly important as it generates creation of substantial numbers of jobs, and by increasing development opportunities for the sector also contributes to job creation in the medium term. Of particular importance is the role of the Green Plan, which could be considerably strengthened in the short-to-medium term through capacity development support and increased financial assistance. On-going externally–funded Green Plan projects include: The Hilly Areas Sustainable Agricultural Development Project (HASAD), (IFAD); and, the Climate Smart Agriculture: Enhancing Adaptive Capacity of the Rural Communities in Lebanon (AgriCAL), (UNFCCC/IFAD). Geographic focus of these projects is mainly on Akkar- Dennieh; Northern Bekaa – Hermel, and South Litani below Lake Karaoun.

Production and productivity

An intervention of 98,074 USD is directed towards the provision of technical assistance for small farmers with the aim of improving the quality and hygiene of agricultural produce (farming, packaging, handling and processing and managerial skills), and provision of equipment for the same intervention for a total amount of 228,840 USD. Technical assistance to employment service providers with the aim of developing the value chains of potatoes and leafy greens amounting to 1,059,717 USD is also coupled with a 204,507 USD grant for the supply of equipment both aiming at improving the quality of the produce. Support also include interventions aiming to enhance access to rural credit.

Labour

Labour market projects (3.5 million USD) aim to upgrade and develop farmers' skills through TVET training and the capacity of employment services organizations. On a more global level, the implementation of the labour market survey will help to better understand the demand for and supply of labour and better orient agricultural policy making and programming.

Access to information

Current support consists of strengthening and modernizing the agricultural statistics system (Ministry of Agriculture) through provision of technical assistance and equipment (870,328 USD). Supporting access to information mechanisms is essential to promote sector investments and growth.

Access to markets

Ongoing support for trade and market access (4.1 million USD) targets (1) fair trade as a development tool for local and rural communities and (2) the promotion of exports to the EU and matchmaking of private sector with European importers and traders.

5. Opportunities for job creation and growth

This section presents opportunities for agricultural job creation and growth in the short and medium terms (not in order of priority), aligned with the strategy of the Ministry of Agriculture and as well with the FAO Country Programming Framework.

Investment in, and support for, agricultural development will reinforce its strategic role in socio-economic development and preservation of the environment of the country. The variety of agro-climatic zones enables crop and livestock farmers and investors to exploit sector opportunities and to continue to make an important contribution to employment and poverty reduction, particularly in rural areas.

The achievement of a competitive and sustainable agricultural sector implies bringing together innovative international best practices and global standards with national and local expertise and national comparative advantages. It also requires sustained infrastructure and on-farm investments and increased attention to inter-sector linkages, including agroindustry, environment and tourism. Thus, selected opportunities for job creation and sector growth in the short and medium terms are:

- To scale up and develop sector infrastructure, including reforestation, and on-farm investment, including integration of renewable energy
- To strengthen and scale up linkages with the agro-food/industry sector
- To promote good agricultural practices to improve the safety and quality of produce and to increase production and productivity
- To strengthen and develop market information systems and marketing support for local produce and export
- To promote creation of decent work opportunities for youth and women, and provide the necessary education and training.

Indirect job creation through increased competitiveness and growth

- **Strengthen and develop the capacity of agricultural laboratories**
  MoA Course of Action 5: Strengthening agricultural research and laboratories
  Support for the establishment, accreditation and further development of laboratories within a broad food security approach (health, quality….) and to ensure products meet export requirements is key. Funding the equipment and upgrading of agricultural laboratories to enable them to test and provide technical guidance on agricultural produce will enable farmers to produce better quality and to pursue expansion in the market, thus creating jobs for skilled and unskilled labour. Laboratory development will employ qualified labour in the labs.

- **Promotion of good agriculture practices and integration of new technology**
  MoA Course of Action 4: Strengthening agricultural extension and education

Training and skills development of farmers and cooperatives on good agricultural practices (GAP), such as integrated pest management (IPM), crop rotation, modern water efficient irrigation techniques, proper soil management based on and conform to quality standards and international regulations is needed. Advice and support on adoption of high value-added lines of production and on innovation and new technology is needed as well. The upgrading of agricultural practices and adoption of technological advances will result in job creation for skilled labour and increased production and productivity in the short to medium term.

- **Development of market information systems**
  MoA Course of Action 4: Strengthening agricultural extension and education
  There is a clear need to create an easily accessible web-based **system to disseminate sector information** to the largest number of farmers, cooperatives and investors. Sector-relevant information includes weather, crop and livestock conditions, prices and markets, technology. Information on access to agricultural finance and markets, and related opportunities for support, including temporary export subsidies, could also be covered. The latter would support sector investment.
  Farmers also require information and advice on suitable types and varieties of crops to grow per region, and on new developments in livestock production, requiring strengthening of the extension and education services.

- **Value chain development**
  MoA Course of Action 2: Increase productivity and competitiveness of the Lebanese agricultural products
  Lebanon's micro-climates allow for the production of a variety of high quality products commanding a higher price, especially in developed markets, and as well for supplying the food processing and agroindustry. The development of value chains for certain niche markets holds certain potential to increase production and to create jobs. Value chains with high potential for expansion, identified through extensive research and ongoing projects, include: High-value fruits and vegetables (grapes, pome fruits, stone fruits…), floriculture, potatoes, and organic production; dairy products including cheeses; dairy, chicken and eggs; and niche production. Key opportunities include:
  1. Linkages with other sectors (e.g. fruits such as grapes, whereby producers could capitalize on small but stable exports to high-value markets, and expand into supply of inputs for wine production, which would subsequently lead to the development of wine trails for tourism).
  2. Expansion through improving post-harvest processing and marketing (e.g. stone fruits like cherries and avocado where demand is exceeding supply from the Lebanese producers; olive oil).
  3. Prolonging shelf life of produce and minimizing loss of products (e.g. investment in dried fruits, refrigeration…).
  4. Capitalize on market developments and opportunities (e.g. potatoes, one of the main exports of Lebanon; also noting that the ban to access European markets was lifted in 2016).
  5. Leverage niche production through expansion (e.g. avocado, honey…) and adaptation to regional and international tastes and capitalizing on the growing renown of traditional

Lebanese cuisine. Organic produce as it caters to niche markets both locally and internationally).

It is essential to **prioritize agricultural value chains and ensure medium-long term support for their development.** The Fruit Office, which existed in the sixties/seventies, is an example of support for the fruit value chain; it could be replicated to support targeted growth in specific value chains. **Public investment at the level of the value chains** also will ensure high-impact programming.

- **Scale up microcredit**
  MoA Course of Action: Increase productivity and competitiveness of the Lebanese agricultural products

  Support small-scale farmers and cooperatives, who are unable to access funds through traditional banking. Small amounts of credit could enhance farming sustainability and enable to increase productivity. This kind of intervention would retain labour in the sector and if accompanied with extension and management support and as well new sector opportunities, result in growth and jobs.

- **Extend/Establish financing infrastructure to agricultural start-ups and innovation**
  MoA Course of Action: Increase productivity and competitiveness of the Lebanese agricultural products

  Support for agricultural business incubators will create opportunities for youth to engage in the sector and contribute to the infrastructure necessary to innovate and facilitate the take-off of agricultural start-ups.

Direct job creation through public investments

- **Lobby for the implementation of sector infrastructure, including marketing infrastructure**
  MoA Course of Action 3: Improve the good governance and sustainable use of natural resources
  MoA Course of Action 2: Increase productivity and competitiveness of the Lebanese agricultural products

  The WB estimates that the impact of construction on job creation will be immediate with an estimated decrease in unemployment of 4.5% relative to baseline, and an increase in productivity in agriculture of 2%[23]. **Infrastructure development**, including irrigation such as the Litani River Canal 800 development, marketing infrastructure, agricultural and regional roads construction – and as well basic infrastructure in rural areas, **is essential to support growth in agriculture** (and as well in other productive sectors). The implementation of agricultural and rural infrastructure projects will considerably impact jobs and growth.

  There is an urgent need and there are salient opportunities to **strengthen and develop the agricultural marketing infrastructur**e, including post-harvest handling and conditioning facilities (storage, cold storage, refrigeration, packaging…), wholesale markets, local and farmers market, cold storage facility at Beirut International Airport… The **establishment of an agricultural marketing board**, in addition to preparation and **implementation of a national**

[23] World Bank, MILES report, 2012

plan for wholesale markets (e.g. Zahle, Beirut, etc.) will support growth in the sector and lead to job creation at the different skill levels (explore CFF financing). For the domestic market, it is essential to create new or alternative marketing channels under management of municipalities, local organizations.

Project implementation will lead to job creation through the physical development of the market structure in the first phase, and the subsequent development of the sector in the second phase.

- **Reforestation activities**

  MoA Course of Action 3: Improve the good governance and sustainable use of natural resources

  The **implementation of the national reforestation programme** – The 40 Million Forest Tress Planting Programme[24] **-** needs to be vigorously supported because of its environmental and socio-economic impact in the medium to long term. **-** Based on the EU/MoA forest mapping, it is key to scale up ongoing reforestation initiatives and promote the implementation of pilot reforestation in a number of regions, grounded in community action engaging municipalities and local associations; such action would have immediate and medium-term effects on local job creation. Support for such initiatives should be coordinated through the National Forestation Fund currently being established with the support of FAO and the Lebanese Central Bank.

- **Develop infrastructure for renewable energy in agriculture**

  MoA Course of Action 3: Improve the good governance and sustainable use of natural resources

  Small-scale interventions which aim at harnessing solar power could help power irrigation systems in agricultural towns and villages, thus decreasing the cost of production and employing skilled and unskilled labour for development, implementation and maintenance of the systems. Interventions hold job creating potential in the short and medium term for skilled and unskilled labour. Also, other forms of renewable energy, perhaps of limited local potential, need to be further explored and exploited, including biomass, wind, hydropower…

Direct job creation through support to on-farm investments

- **Agricultural land reclamation of abandoned and unused lands**

  MoA Course of Action 3: Improve the good governance and sustainable use of natural resources

  Land scarcity for use in agriculture has been noted as a major issue facing farmers. The scarcity of land in general in Lebanon has driven prices and thus cost of production higher. There is significant demand for land reclamation and development, which requires increased financial support and technical assistance. Investments in land reclamation and development will put people to work and make good use of lands for increased production (e.g. in recent years, land reclamation and development for grapes for wine, etc.). It is observed that many abandoned and unused lands are the property of municipalities and religious congregations. Increased financial and technical support for the Green Plan will be helpful in accelerating achievements in this area.

[24] Ministry of Agriculture, FAO, National Afforestation/Forestation Programme, 2013

- **Investments in small-scale local infrastructure projects**
  MoA Course of Action 3: Improve the good governance and sustainable use of natural resources
  The implementing of small-scale infrastructure projects aimed at developing and rehabilitating rural roads (notably in Akkar) and irrigation canals (North, Bekaa, Akkar and Hermel) would employ unskilled labour in construction in a first phase, and unskilled and medium skilled labour in agriculture. With increasing demand, support to expand irrigated agriculture through the construction of hill lakes and ponds would employ engineers and unskilled labour and allow for an increase in production and productivity of the agriculture sector. Hill lakes are very important to support growth in the sector and will contribute to better value crops. Areas of interest include: Rachaya, Michmich, Brisa, Karm Chbat, Bkessin, amongst many others identified by the Green Plan. Interventions have high potential for job creation in the short term, both in construction and agricultural production.

The below illustration provides a simplified image of the above identified opportunities presented by implementation time in relation with job creation potential. This figure illustrates the variation between the different types of interventions including those with a high potential to create jobs in the short term but limited structural impact on the growth of the sector as well as opportunities that remove barriers for growth in the longer term but have smaller immediate job creation potential.

Figure 1. List of opportunities in the agricultural sector by implementation time and potential for job creation